AUTHORITY TO DRILL A WELL

CANADA

Exploratory ☐
Development ☐

Delineation Service ☑

AUTHORITY TO DRILL A WELL

APPLICATION

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

Well Name in Full: CHEVRON ET AL LIARD K-29

Operator: CHEVRON CANADA RESOURCES LTD. — Drilling Program No.: N/A

Contractor: ARCTA DRILLING LTD. — Permit or Lease No.: SDL99

Drilling Rig or Unit: 48 — Estimated Well Cost: $11,022,415 (DRILL ONLY)

Location-Unit: K — Section: 29 — Grid Area: 60°30', 123°30'

Coordinates: Lat.: 60° 28' 42.1" NORTH — Long.: 123° 35' 01.8" WEST

Area: LIARD AREA — Field/Pool: EXPLORATORY

Elevation-RT/KB: 430 m (ESTIMATED) (ASL) — Seafloor: 426.4 m (BRT)

Approx. Spud Date: JANUARY 1, 1999 — Estimated Days on Location: 116 (SPUD TO RR)

Anticipated Total Depth: 3065 m MD / 3000 m TVD — Target Horizon(s): NAHANNI

EVALUATION PROGRAM

Ten-metre sample intervals: FROM SURFACE CASING SHOE (1700m) TO TOTAL DEPTH

Five-metre sample intervals: FROM SURFACE CASING SHOE (1700m) TO TOTAL DEPTH

Canned sample intervals: REQUEST FOR WAIVER ATTACHED

Conventional cores at: NONE PLANNED

Logs and Tests: SEE ATTACHED FORMATION EVALUATION PROGRAM

CASING AND CEMENTING PROGRAM

O.D.	Weight:	Grade:	Setting Depth Below Seafloor:	Cementing Program (Volumes):
508mm	CONDUCTOR (0.312" WT.)		20m	CLASS 'G' (4.6m³)
340mm	90.77 kg/m	K-55	700m	LEAD 1:1:2 (58 m³); TAIL RFC (10m³)
245mm	59.53 kg/m	MN-80	2615m	LEAD 1:1:2 (83.6m³); TAIL CLASS 'G' (9m³)
178mm	38.69 kg/m	MN-80	3065m	CLASS 'G' (12m³)

B.O.P. Equipment: SEE ATTACHED DETAILED DRILLING PLAN

Other Information: SEE ATTACHED DETAILED DRILLING PLAN

Signed: [signature] — Title: DRILLING, COMPLETION & WORKOVER ENGINEER

Date: NOVEMBER 22, 1998 — Company: CHEVRON CANADA RESOURCES LTD.

APPROVAL

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

Signed: [signature]
Chief Conservation Officer

Date: Jan 5/99

File: 9211-C4-1-1, WID 1861

UWI 300K296030123300

Canada

FINAL WELL REPORT

N.E.B. COPY

FINAL WELL REPORT

CHEVRON CANADA RESOURCES

CHEVRON ET AL FT. LIARD K-29

Grid: 60° 30', 123°30'

DATE: June 14, 1999

COMPANY REPRESENTATIVE: Miles Sweep

RELEASE DATE:
DATE DE DIFFUSION:
June 28/99

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Removed. Release date Mar. 30/99

A. INTRODUCTION

Chevron Canada Resources drilled a 3000m (measured depth), 2916m (total vertical depth) delineation well which spudded on February 3, 1999 and finishing on March 27, 1999 to evaluate gas potential in the Nahanni formation.

The drilling contractor was Akita Drilling Rig #48E, based out of Calgary, Alberta. The drilling rig used was a Diesel Electric land rig rated for 5000 m. The rig had a 174 m^3 mud system and was equipped with two boilers.

The well was drilled on Significant Discovery License # 99, in which Chevron has a 61.56 % working interest. Authority to Drill #WID 1816 was issued to Chevron on January 5, 1999.

The well which was located approximately 29 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 co-ordinates of the well are as follows:

Latitude: 60°28'42.1" N
Longitude: 123°35'01.8" W

Cancor Rathole Inc. moved a rig onto the location on January 18, and in 8 hours completed drilling the 762mm conductor hole, which had a total depth of 20m. The conductor hole was drilled without fluid; however at 10.6m water flowed into the hole. Dry Bentonite was poured into the hole to hold the flowing water back. This was unsuccessful, so at 20m, when the conductor hole was set in place, pressure cementing was used to ensure the groundwater would not continue to flow. The pipe was 508mm, one stand was regular wall (78.55kg/m) and the second stand was heavy wall (117.51kg/m), and was cemented with 10 tonnes of Class G cement + 3% CaCl. Except for the .3m sand stringer at 10.6m which flowed groundwater, the rest of the conductor hole was drilled through clay.

The Akita 48E drilling rig was moved onto the location January 25, 1999 and the well spudded on February 3, 1999 at 0800 hours to drill the 508 mm surface hole to a depth of 529 m. At 529m the bit was pulled out of the hole, and replaced with a 311mm bit. The 311mm surface hole continued to 711m, then was enlarged to 444.5mm using a hole opener. The surface hole ended in the Besa Shale formation.

When running the 339.7 mm K55 101.2kg/m buttress casing the final 2.3m had to be circulated down using a fillup tool. The casing was cemented with 90 tonnes of 1:1:2 blend + 0.5% D65 + 0.2% D46 (lead) and 9.1 tonnes RFC + 1% S1 + 0.2% D46. There was good mud returns reported throughout the cement job, with 17 m^3 cement returns.

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 1,400kPa low and 17,500kPa high.

The float collar and shoe were drilled out on February 18, 1999. A formation integrity test was done at 715m, and the gradient was taken to 12.92 kPa/m ; leakoff occurred at EMD 1317 kg/m^3. The 311.2 mm main hole was drilled ahead to 1183m. At this point the driller hit the crown. The bumper blocks were destroyed but there was no resulting structural damage to the crown/drilling line. New blocks were installed and the crown was inspected by an Akita engineer. The main hole continued drilling to a depth of 2500m measured depth, 2491.4m total vertical depth, ending 15m into the Nahanni formation.

At 2500m, intermediate casing setting depth, the open hole was logged by Schlumberger. Log run # 1 was a AIT-DSI-EMS-AMS-GPIT-SGT from total depth to surface casing. Log run # 2 was a UBI-GPIT-EMS, but was a misrun. Log run #3 was a UBI-GPIT-EMS, and was run from 2475-1970m.

When running the 244.5mm MN-80 casing the entire string was run using a fillup tool. Two weights of casing were run; 64.94kg/m casing covered surface to 1600m, and 69.9kg/m casing covered 1600-2500m. The casing was cemented with 78tonnes of 1:1:2 blend + 0.5% D65 + 0.1% D160 + 0.1% D136 + 0.2% D28 + 0.35% D66 + 0.2% D46 (lead) and 23tonnes Class G + 0.5% D65 + 0.7% D160 + 0.1% D136 + 0.2% D28 + 0.35% D66 + 0.2% D46. There were good mud returns reported throughout the cement job, with 6.5 m^3 cement returns.

The BOP's were installed and pressure tested. The casing, wellhead, valves and flanges were pressure tested to 1500 kPa low and 26,000 kPa high. The kelly cocks, stabbing valves, inside BOP, kill line valves, choke line valves, HCR, check valves, blowdown manifold, all pipe rams, and annular were tested to 1,500 kPa low and 17,500 kPa high. The annular was tested to 9,400kPa low and 14,000kPa high.

The float collar and shoe were drilled out on March 19, 1999. A formation integrity test was done at 2503m, and the gradient was taken to 14 kPa/m without leakoff. The 215.9 mm hole was drilled ahead to 3000m measured depth, 2916.2m total vertical depth, in the Nahanni formation.

At this point the open hole, 2500 – 3000m, was logged by Schlumberger. Log run # 1 was a SGT-AIT-EMS-DSI-AMS, but was a mis-run. Logging run #2 was a SGT-DSI-EMS-NPLC-HNGS, from 2500-3000m and was successful. Logging run #3 was an AIT-ARI-EMS-SGT-AMS, but was a mis-run. Logging run #4, from 2500-3000m, was an FMI-CNL-LDT-SGT-CCL, and was successful. Logging run #5 was a AIT-ARI-LDT-EMS-GR-AMS-CCL, but was a mis-run. Logging run #6, from 2500-3000m, was a SGT-CCL and was successful.

The well showed potential, therefore stimulation and production testing commenced on April 11, 1999.

The Nahanni formation was acid washed from 2650m – 2900m using Dowell coiled tubing equipment. A static gradient was run, followed by flow testing. A 88.9mm production string was run with a retrievable packer at 2467m. The 88.9 tailpipe was landed at 2650m. An acid squeeze covering 2900m – 2650m was followed by another static gradient test and flow testing. Production logging, consisting of a full bore flowmeter, temperature, pressure, gamma ray, and CCL followed. The well was shut-in on May 7, 1999. Completion operations will restart in August 1999, when a 177.8mm production string will be installed. The rig is still on location, and will be used for the completion operations.

B. GENERAL DATA

1.	Well Name:		Chevron et al Ft Liard K-29
	Authority to Drill a Well No:.		WID # 1816
	Exploration Agreement Number:		SDL#99
	Location Unit:		K
	Section:		29
	Grid Area:		60°30', 123°30'
	Classification:		Delineation
2.	Well Location:		K-29
	Coordinates:	Latitude:	60°28'42.1"N
		Longitude:	123°35'01.8"W
3.	Unique Well Identifier:		300K296030123300
4.	Operator:		Chevron Canada Resources
5.	Contractor:		Akita Drilling
6.	Drilling Unit:		Rig #48E Diesel Electric, Land Rig
7.	Position Keeping:		Not Applicable, Land Rig

8. Support Craft (Helicopter): supplied by Deh Cho Helicopters and Cooper Barging

9. Drilling Unit Performance: satisfactory

10. Difficulties and Delays: remote access, ice bridge life

11. Total Well Cost: $7.4MM for 30km access road and lease preparation
$8MM to drill
$2.5MM to stimulate and test

12. Bottom Hole Well Co-ordinates from Surface Location:
S 27.56m
E 347.79m

C. SUMMARY OF DRILLING OPERATIONS

1. Elevations:
Ground: ..... 409.60 m above sea level
KB: ..... 418.8 m above sea level
KB To Casing Flange: ..... 9.2m (KB to CF)

2. Total Depth:
MD: .....3000.0 mKB
TVD: .....2916.19 mKB

3. Date and Hour Spudded: February 3, 1999 @ 0800hrs

4. Date Drilling Completed: March 27, 1999

5. Date of Rig Release: March 30, 1999 (released to completion operations)

6. Well status: shut-in pending final completion

7. Hole Sizes and Depths:
Conductor Hole: 762 mm to 20 mKB
Surface Hole: 444.5 mm to 711 mKB
Intermediate Hole: 311mm to 2491mKB
Main Hole: 215.9 mm to 2916.2 mKB

8. Casing and Cementing Record:

Conductor Hole:

Casing Size:	508 mm
Casing Weight:	78.55 kg/m (top 7.6m) 117.15 kg/m (btm 12.5m)
Number of Joints:	2
Thread:	Buttress
Depth Set:	20 m (KB)
Cut Height:	Surface
Cut off Depth:	Surface
Date Set:	January 18, 1999
Cement Volume:	10 Tonnes
Cement Type:	Class G
Additives:	3% CaCl

Surface Hole:

Casing Size:	339.7 mm	
Casing Weight:	101.2 kg/m	
Casing Grade:	K-55	
Casing Make:	Sumitomo	
Number of Joints:	55	
Thread:	Buttress	
Depth Set:	701.3 m (KB)	
Cut Height:	surface	
Date Set:	February 15, 1999	
Float Shoe Depth:	701.3 m	
Float Collar Depth:	688.31 m	
Cut Off Depth:	surface	
	Lead	*Tail*
Cement Volume:	84.9 m3	8.4m3
Cement Type:	1:1:2 blend	RFC
Additives:	0.5% D65	1% S1
	0.2% D46	0.2% D46
Cement Top:	Surface	
Casing Bowl Size:	339.7 x 346 mm, buttress thread	
Casing Bowl Make:	Barber	

Intermediate Hole:	Lower	*Upper*
Casing Size:	244.5 mm	244.5mm
Casing Weight:	64.94kg/m	69.9kg/m
Casing Grade:	MN-80	MN-80
Casing Make:	Algoma	Algoma
Number of Joints:	120	71
Thread:	Buttress	Buttress
Depth Set (MD):	2500 m	1600m
Cut Height:	surface	
Date Set:	March 17, 1999	
Cement Volume:	101 Tonnes	
Float Shoe Depth:	2500m MD	
Float Collar Depth:	2471.71m	
Cut Off Depth:	surface	
	Lead	*Tail*
Cement Volume:	79 m3	17.5 m3
Cement Type:	1:1:2 blend	Class G
Additives:	0.5% D65	0.5% D65
	0.1% B71	0.7% D160
	0.8% D160	0.1% D136
	0.2% D46	0.2% D28
		0.35% D66
		0.2% D46
Cement Top:	surface	
Casing Bowl Size:	346 x 279 mm	
Casing Bowl Make:	Barber	

9. Drilling Fluid:

Conductor Hole:	Drilled without fluids. At approximately 10.6m water began flowing into the hole. Dry Bentonite was poured into the hole, but was unsuccessful in killing the flow. The hole continued to drill without added fluids to setting depth, which was 20m.	
Surface Hole:	Gel-Chem Spud Mud	
Properties:	Viscosity:	38 sec/L
	Weight:	1140 - 1155 kg/m^3
	pH:	9.0
	Water loss:	7.0 cc
	Solids:	7.20
	Gels:	2 / 5
	Filter Cake:	unavailable
	PV / YP:	11 / 6

Intermediate:		Diesel-based Oil	
	Properties:	Viscosity:	68 sec/L
		Weight:	1060 - 1290 kg/m^3
		pH:	n/a
		Water loss:	n/a
		Solids:	8.0
		Gels:	8 / 9
		Filter Cake:	unavailable
		PV / YP:	25 / 7.5
Main:		Water Based Gel-Chem	
	Properties:	Viscosity:	56 sec/L
		Weight:	1100 – 1160 kg/m^3
		pH:	10.4
		Water loss:	6.1 cc
		Solids:	6.4
		Gels:	4 / 8
		Filter Cake:	unavailable
		PV / YP:	19 / 8.5

10. Fishing Operations: n/a

11. Well Kicks and Well Control Operations:

While drilling at 2265mMD, flow was noted and a gas kick was circulated out of the well. The gas was determined to be non-combustible, as it could not be ignited at the flare pit. The influx was noted on March 5 and resulted in 16 hours of rig time to raise mud density from 1020 kg/m^3 to 1235 kg/m^3 to control the well. Drilling continued with no further problems.

12. Formation Integrity Tests:

	Surface	Main
Depth:	715 m	2503 m
Fluid Density:	1000 kg/m^3	1000 kg/m^3
Gradient:	12.92 kPa/m	14.0 kPa/m
Equivalent Mud Weight	1317 kg/m^3	1427 kg/m^3
Casing Setting Depth:	701.3 mKB	2500 m TVD

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

Time Break Down

Activity	Days
Drilling:	22.62
Surveying:	2.66

Circulating:	2.79
Cementing:	0.34
WOC:	0.30
Rig Service:	1.80
Rig Repair:	1.84
Tripping, Reaming:	14.90
Running casing:	4.14
Logging:	3.49
Rig Up / Rig Down:	6.38
Other:	1.28

14. Deviation Survey: **submitted April 1, 1999**

15. Abandonment Plugs: **n/a**

16. Composite Well Record: **submitted April 1, 1999 with striplog**

17. Completion Record: **to be updated following final completion**
    Start Date: .....
    Finish Date: .....
    Contractor: .....

Completion Summary:
Date:
Perf / OH Interval:
Swab / Flow Results:
Stimulation / Comments:

Final Well Configuration: See Appendices 2 & 3

D: GEOLOGY

GEOLOGICAL SUMMARY

The geological information in its entirety was submitted to the NEB on April 1, 1999

Log Tops

Formation	Subsea Depth(m)	mKB Depth	TVD (m)	Lithology
Upper Besa River	418.8	0	0	shale
1st Black Shale	-928.95	1358	1347.75	shale
Lower Besa River	-1140.15	1568	1559.75	shale
2nd Black Shale	-1805.2	2234	2224	shale
Nahanni	-2057.45	2487.5	2476.25	dolomite

Total Depth	-2497.39	3000	2916.19	dolomite

DRILL STEM TESTS: n/a

WELL EVALUATION

The following logs were run:

Intermediate Logging Run

Run #	Log Name	Depth (m)
1	AIT-DSI-EMS-AMS-GPUT-SGT	2500-701.3
2	UBI-GPIT-EMS	Tool failure
3	UBI-GPIT-EMS	2475-1970

Total Depth Logging Run

Run #	Log Name	Depth (m)
1	SGT-AIT-EMS-DSI-AMS	Tool failure
2	SGT-DSI-EMS-NPLC-HNGS	3000-2500
3	AIT-ARI-EMS-SGT-AMS	Tool failure
4	FMI-LDT-CNL-SGT-CCL	3000-2500
5	AIT-ARI-LDT-EMS-GR-AMS-CCL	Tool failure
6	SGT-CCL	3000-2500

MUD SALINITY: submitted with geological information April 1, 1999

GAS, OIL, & WATER ANALYSES:

Gas analysis indicates that the gas composition is as expected for the Fort Liard area; dry gas that is essentially 80% methane and 20% carbon dioxide. Produced water during the production test was found to be workover fluids and water of condensation. No free aquifer water was produced during the well test. See Appendix 4 for further details.

FORMATION STIMULATION AND TEST RESULTS

The Nahanni formation was acid washed from 2650m – 2900m using Dowell coiled tubing equipment. A static gradient was run, followed by flow testing. A packer was set at 2467m and 88.9mm tubing was hung on the packer. An acid squeeze covering 2900m – 2650m was followed by another static gradient test and flow testing. Production logging, consisting of a full bore flowmeter, temperature, pressure, gamma ray, and CCL followed. The well was shut-in on May 7, 1999. Completion operations will restart in August 1999, when a 177.8mm production string will be installed. The rig is still on location, and will be used for the completion operations.

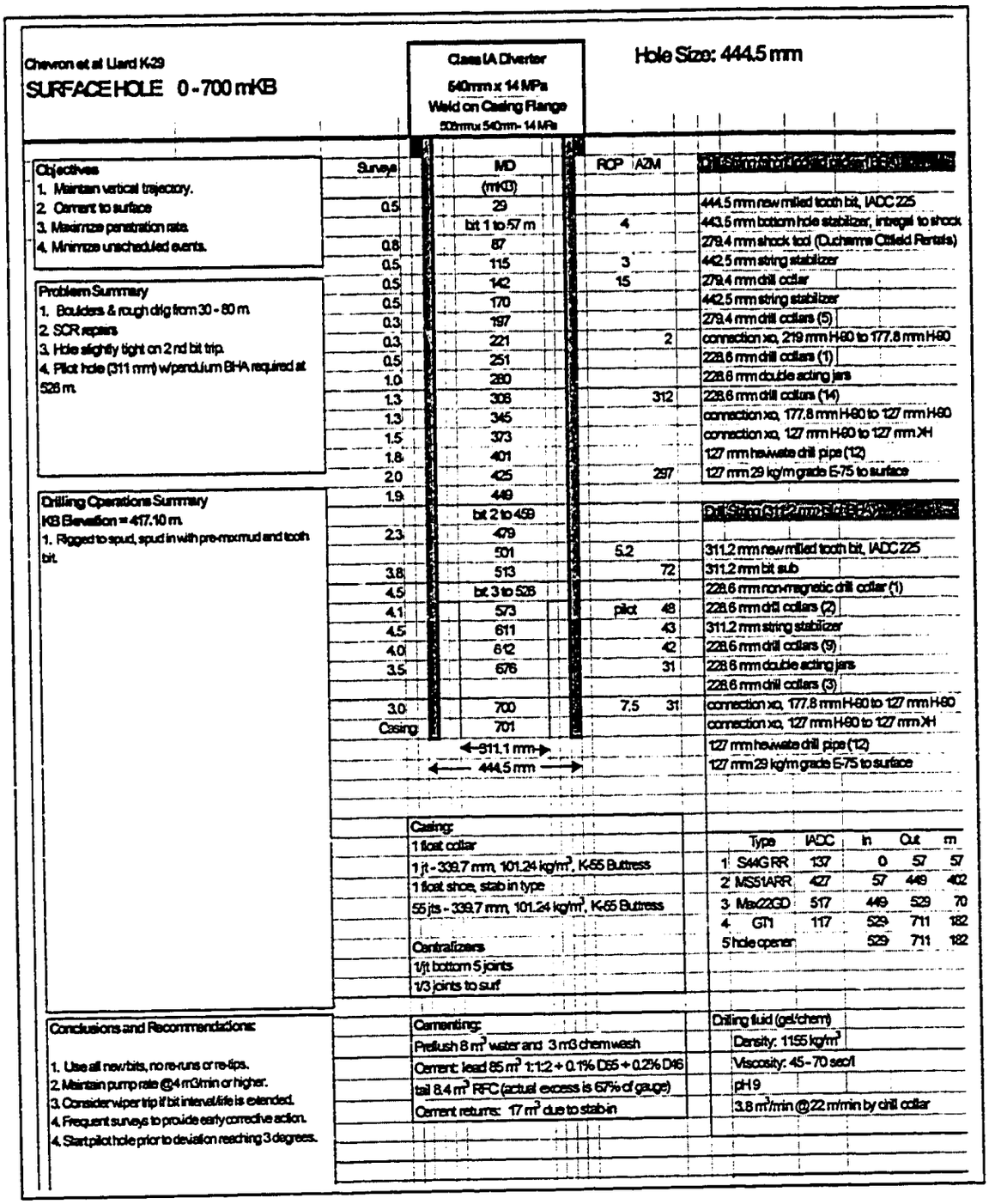
DETAILED TEST PRESSURE DATA READINGS:

submitted May, 1999

E. ENVIRONMENTAL WELL ANALYSIS

- no environmental incidents occurred during these operations

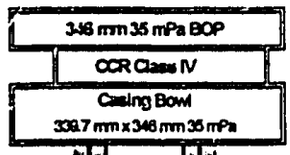
Appendix 2: Wellbore Diagrams



Chevron et al Liard K-29

Intermediate Hole: 701 - 2500 m

Hole Size: 311.2 mm



Objectives

1. Optimize penetration rates in Besa River shale sections w/ PDC bits & mud motors.
2. Minimize unscheduled events time associated with unstable wellbore and sloughing hole.
3. Maintain directional trajectory.
4. Obtain all OH logs.

Problem Summary:

1. Repairs due to travelling blocks contacting rig crown .
2. Required to pick-up directional tools at 1350 m due to deviation control. Attempted control with pendulum assembly, not sufficient.
3. MWD failure on inclination indicator.

Drilling Operation Highlights

1. Formation leak-off test lower than expected at 12.9 kPa/m (1317 kg/m3 equivalent).
2. Gas influx, undetermined composition, @ 2276 m; increased mud wt from 1020 to 1240 kg/m^3.
3. Drill bit bearing life abnormally low due to high wellbore temperature.
4.

Learnings & Recommendations:

1. Plan for drilling with directional assembly as BHA not sufficient to counter act formation forces.
2. Do not expect normal bit bearing life, wear tended to be excessive and bits should be tripped on early indicators.
3. Use refined base oil versus diesel for make-up in the invert emulsion. Directional drilling motors experienced no adverse effects or stator swelling due to high temperatures.

Formation	Dev.	MD	ROP	Azm
Besa River				
		611	RFC cement top	
Casing Shoe		701		
	4	909	15	49
	3.9	960		41
	4	1027		38
	4	1103		32
	4.9	1159		35
	7.5	1349		57
1st Black Shale				
	9	1518	10	55
	5.2	1627		60
Lower Besa River				
	4.2	1733		74
	4.8	1820	7.2	60
	3.8	2015	7	
		2190	7	
		2206	tail cement top	
	2.8	2288		25
		2325	1.5	
		2356	1.5	
2nd Black Shale				
Nahanni		2484	4.4	3
Casing shoe	4.4	2500	4.0	

BHA Summary:

Drilling Fluid:

Envirovert: 80/20 O/W ratio
Density: 1020 kg/m3 to 2200 m, then 1275
PV/YP: 25/8..5

Hydraulics:

Circulating Rate: 2 - 2.5 m^3/min @ 14 - 16 mPa

Casing:

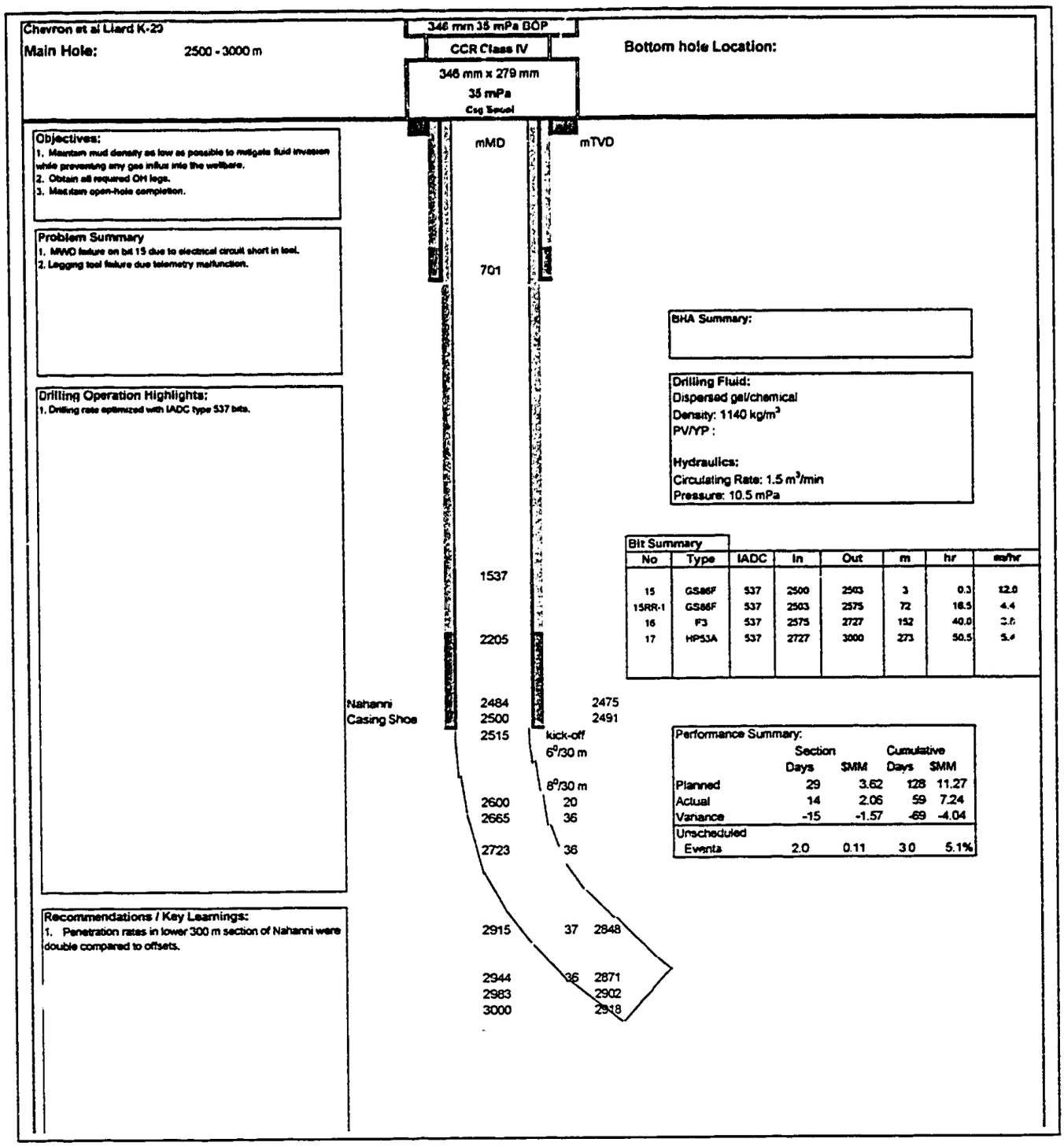
244.5 mm, landed in full tension @ 2500 mMD
71 jts, 69.9 kg/m, MN-80m, Vam-Pro
120 jts, 64.94 kg/m, MN-80, Vam-Pro
installed 55 semi-rigid centralizers

Cement:

Lead: 78 T, 1:1:2 + 0.5% D65 + 0.1% B71 from 2205 - 0 m
Tail: 23 T, class G + additives from 2500 - 2205 m

Performance Summary:

	Section Days	Section SMM	Cumulative Days	Cumulative SMM
Planned	72	4.80	99	7.39
Actual	28	3.16	45	5.18
Variance	-44	-1.65	-54	-2.21
Unscheduled Events	1	0.06	2.2%	0.06


Chevron et al Liard K-29
Main Hole: 2500 - 3000 m
346 mm 35 mPa BOP
CCR Class IV
346 mm x 279 mm
35 mPa
Csg Spool
Bottom hole Location:
Objectives:
1. Maintain mud density as low as possible to mitigate fluid invasion while preventing any gas influx into the wellbore.
2. Obtain all required OH logs.
3. Maintain open-hole completion.
Problem Summary
1. MWD failure on bit 15 due to electrical circuit short in tool.
2. Logging tool failure due telemetry malfunction.
Drilling Operation Highlights:
1. Drilling rate optimized with IADC type 537 bits.
Recommendations / Key Learnings:
1. Penetration rates in lower 300 m section of Nahanni were double compared to offsets.
mMD
mTVD
701
1537
2205
Nahanni
2484
2475
Casing Shoe
2500
2491
2515
kick-off
6°/30 m
8°/30 m
2600
20
2665
36
2723
36
2915
37
2848
2944
36
2871
2983
2902
3000
2918
BHA Summary:
Drilling Fluid:
Dispersed gel/chemical
Density: 1140 kg/m3
PV/YP :
Hydraulics:
Circulating Rate: 1.5 m3/min
Pressure: 10.5 mPa
Bit Summary
No
Type
IADC
In
Out
m
hr
15
GS86F
537
2500
2503
3
0.3
12.0
15RR-1
GS86F
537
2503
2575
72
16.5
4.4
16
F3
537
2575
2727
152
40.0
3.8
17
HP53A
537
2727
3000
273
50.5
5.4
Performance Summary:
Section
Cumulative
Days
$MM
Days
$MM
Planned
29
3.62
128
11.27
Actual
14
2.06
59
7.24
Variance
-15
-1.57
-69
-4.04
Unscheduled Events
2.0
0.11
3.0
5.1%

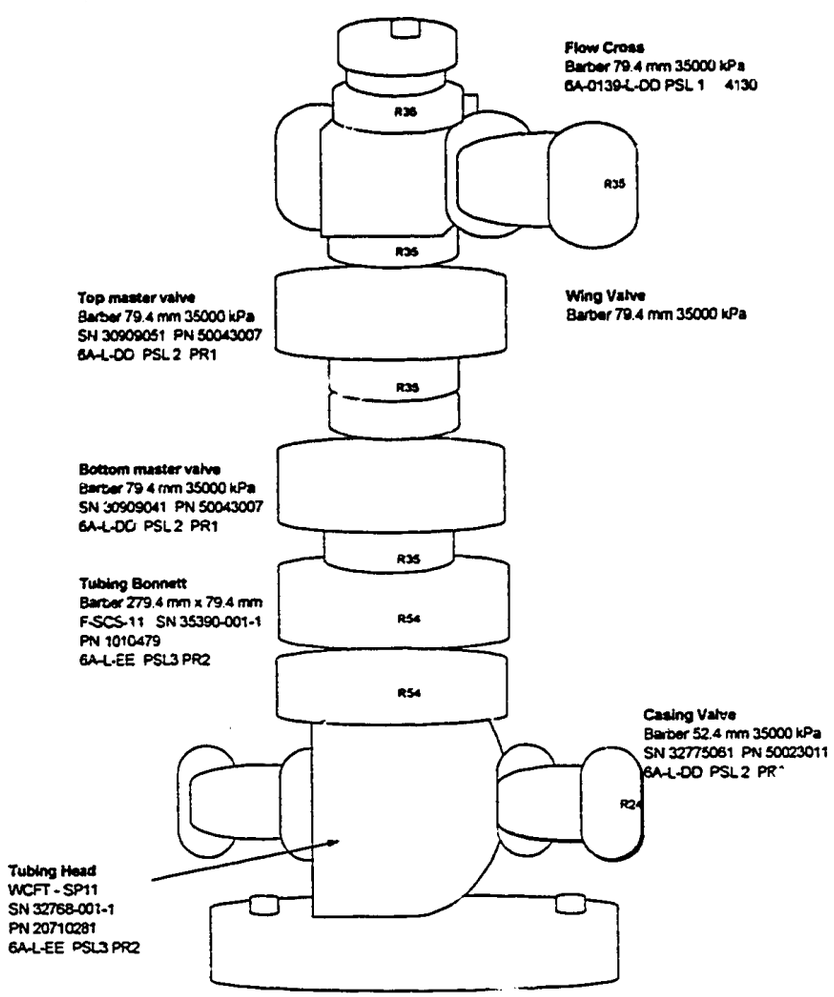
Appendix 3: Wellhead Diagram

Chevron Canada Resources

Chevron et al Liard K-29
(grid section 60°30', 123°30')

Wellhead Diagram
April 14 1999

Chevron



Valve Trim Materials	Top Master	Bottom Master	Casing Valve
Body	A487	A487	A487
Bonnett	4130	4130	4130
Stem	17-4 PH	17-4 PH	17-4 PH
Gate	4130 HF	4130 HF	4130 HF
Seat	4130 HF	4130 HF	4130 HF

Appendix 4: Details of Formation and Production Testing

Summary

The subject well was drilled and completed by Chevron in January - March 1999. The well was tested using a three point flow after flow test followed by an extended flow and buildup. The main objectives of the flow and buildup test were to access wellbore deliverability and confirm a minimum original gas in place (OGIP) to proceed with pool development. The following is a summary of information obtained from the flow and buildup test:

- Reservoir Permeability-Height is 6750 md*m. Skin is estimated at –3.1.
- The system was best modeled as a partial penetration system with approximately 53m contributing to wellbore flow.
- Reservoir shape is estimated to be generally rectangular with a width of 525m and a length of several thousand meters.
- Initial reservoir pressure is estimated at 28003.4 kPaa at a depth of 2650.3 mKB MD (2633.7 mKB TVD).
- OGIP is estimated to be:
  - 10 - 5161 $10^6 m^3$ (182 BCF)
  - 50 - 7393 $10^6 m^3$ (260 BCF)
  - 90 - 16906 $10^6 m^3$ (579 BCF)
- Sandface AOF is estimated to be 9650 $10^3 m^3$ (340 MMCFD)

Overview

The K-29 wellbore is completed as an open hole completion. The 244.5 mm intermediate casing is landed at a measured depth of 2500 mKB and an open hole interval was drilled at a 30 degree angle through the Nahanni reservoir to a total measured depth of 3000 mKB. The well was completed by landing 88.9 mm tubing at a measured depth of 2650 mKB. A packer was set at 2464 mKB (in the 244.5 mm casing) to isolate the tubing/casing annulus. After completion, the well was acid washed and squeezed from 2650 mKB to 2900 mKB. The bottom 100m of the open hole interval was not acid stimulated in an effort to avoid stimulating reservoir that is perceived to be close to the gas/water contact. After the acid stimulation the well was flowed back on cleanup for several hours.

A static gradient was performed on the well on April 11, 1999 to determine the fluid gradient in the wellbore prior to landing pressure buildup recorders. The gradient indicated that the fluid in the wellbore was gas to a final stop depth of 2880 mKB MD. Dual tandem Lee Tool LMR 3000 pressure recorders were landed in the wellbore at a measured depth of 2650.3 mKB to record the flow and buildup results. The well was then flowed at rates of up to 995 10^3 m^3/day (35 MMCFD) from April 12 to April 19 and then shut in for buildup. The top set of pressure recorders were recovered on April 26th.

The bottom recorder on the top set failed into the buildup, so only one pressure buildup was recorded from this set of recorders. The second set of recorders were recovered on May 4th and again one recorder failed shortly into the flow period. After the second set of recorders were recovered, a static gradient was performed and again indicated a gas gradient in the wellbore. All pressures used in the analysis below are at landing depth of 2650.3 mKB MD (2633.7 mKB TVD) and have been corrected to absolute pressure (93 kPa).

Test Overview

Figure 3 below shows an overview of the flow and buildup test. What is interesting in the test is the flowing bottom hole pressures at the four different rates, especially comparing rate 3 to the extended rate. What is unusual is that the producing bottom hole pressure actually increases from rate 3 (525 10^3 m^3/day) to the extended rate (940 10^3 m^3/day) which is contrary to theory. The best explanation for this behavior is that the well is cleaning up during the flow test, in other words Darcy skin is decreasing during the flow test. During the flow test it was observed that immediately after rate increases the WGR increased for a brief period and then fell back down. Analysis of the water produced during these periods indicates that it is spent acid from the stimulation completed on the well. More than likely, as the well rate is increased additional pay is cleaning up and contributing to the total flow. Given the unusual rate/pressure data seen during the flow test, any type of non-Darcy skin analysis, LIT analysis or C&n analysis is meaningless. Deliverability and wellbore AOF will have to be estimated using the reservoir parameters determined from the buildup analysis.

Appendix 5: Gas and Water Analyses

- attached

AGAT® Laboratories

GAS ANALYSIS

CONTAINER IDENTIFICATION: AGAT 18879

LABORATORY NUMBER: GF37918A (GG 38991A)

OPERATOR NAME: CHEVRON CANADA RESOURCES LIMITED

UNIQUE WELL IDENTIFIER:

WELL NAME: CHEVRON et al FORT LIARD K-29

FIELD OR AREA: FORT LIARD

POOL OR ZONE: NAHANNI

NAME OF SAMPLER:

COMPANY: NORWARD

TEST TYPE:

NO:

TEST RECOVERY:

TEST INTERVAL OR PERFS:

SAMPLING POINT:

	SEPARATOR	TREATOR	RESERVOIR	SOURCE	SAMPLED	RECEIVED
CASING PRESSURE kPa				1980	1980	2500
TEMPERATURE °C				28	28	21

DATE SAMPLED (Y M D):

DATE RECEIVED (Y M D): 99-04-15

DATE REPORTED (Y M D): 99-04-15

ANALYST: GWO NCO

OTHER INFORMATION: HIGH STAGE GAS RUN

COMPONENT	MOLE FRACTION AIR FREE AS RECEIVED	MOLE FRACTION AIR FREE ACID GAS FREE	PETROLEUM LIQUID CONTENT cm³/m³
H_2	0.0001	0.0001	
He	0.0011	0.0013	
N_2	0.0349	0.0425	
CO_2	0.1753	0.0000	
H_2S	0.0040	0.0000	
C_1	0.7840	0.9554	
C_2	0.0006	0.0007	
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
O_2			
Ar			
$CnHn$			
TOTAL	1.0000	1.0000	0.0

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

MOISTURE AND ACID GAS FREE	AIR FREE AS RECEIVED	VAPOUR PRESSURE CENTAMES PLUS
36.14	29.77	0.0 kPa

RELATIVE DENSITY

MOISTURE FREE AS SAMPLED

MEASURED	CALCULATED	MOISTURE AND ACID GAS FREE MEASURED	MOISTURE AND ACID GAS FREE CALCULATED
	0.740		0.771

PSEUDO CRITICAL PROPERTIES (CALCULATED)

AS SAMPLED pPc (abs)	AS SAMPLED pTc	ACID GAS FREE pPc (abs)	ACID GAS FREE pTc
5063 kPa	208.8 K	4547 kPa	181.6 K

RELATIVE MOLECULAR MASS

TOTAL GAS	CO_2
21.4	0.0

H_2S gm³: 5.74

REMARKS

EXCEED NORMAL LIMITS : CO2
H2S:FIELD=0.4% LAB=0.25%

AGAT® Laboratories

GAS ANALYSIS

CONTAINER IDENTIFICATION: AGAT 11119

LABORATORY NUMBER: GG38119A

OPERATOR NAME: CHEVRON CANADA RESOURCES LIMITED

UNIQUE WELL IDENTIFIER:

WELL NAME: CHEVRON et al LIARD K-29

ELEVATIONS KB m: GRD m:

FIELD OR AREA: LIARD

POOL OR ZONE: NAHANNI

NAME OF SAMPLER:

COMPANY: NORWARD ENERGY

TEST TYPE: NO:

TEST RECOVERY: NAHANNI DOLOMITE: LOWER FRACTURED ZONE

TEST INTERVAL OR PERFS:

SAMPLING POINT: METER RUN

	SEPARATOR	TREATER	RESERVOIR	SOURCE	SAMPLED	RECEIVED
GAUGE PRESSURE kPa				2450	2450	2680
TEMPERATURE °C				72	72	21

DATE SAMPLED (Y-M-D): 99-04-18

DATE RECEIVED (Y-M-D): 99-04-21

DATE REPORTED (Y-M-D): 99-04-21

ANALYST: MA NCO

OTHER INFORMATION: SAMPLED @ 14:00hrs

COMP	MOLE FRACTION AIR FREE AS RECEIVED	MOLE FRACTION AIR FREE ACID GAS FREE	PETROLEUM LIQUID CONTENT mL/m³
H_2	0.0004	0.0005	
He	0.0010	0.0013	
N_2	0.0340	0.0437	
CO_2	0.2175	0.0000	
H_2S	0.0049	0.0000	
C_1	0.7422	0.9545	
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
C_8			
C_9			
C_{10} +			
TOTAL	1.00000	1.00000	0.0

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

MOISTURE AND ACID GAS FREE: 36.07

AIR FREE AS RECEIVED: 28.18

VAPOUR PRESSURE PENTANES PLUS: 0.0 kPa

RELATIVE DENSITY

MOISTURE FREE AS SAMPLED — MEASURED: CALCULATED: 0.780

MOISTURE AND ACID GAS FREE — MEASURED: CALCULATED: 0.571

PSEUDO CRITICAL PROPERTIES (CALCULATED)

AS SAMPLED — pPc (abs): 5184 kPa; pTc: 213.7 K

ACID GAS FREE — pPc (abs): 4544 kPa; pTc: 187.4 K

RELATIVE MOLECULAR MASS

TOTAL GAS: 22.6

C_{7+}: 0.0

H_2S (gm³): 7.04

REMARKS:

EXCEED NORMAL LIMITS : CO2
FIELD H2S= 4900ppm/LAB= 0.17%

AGAT® Laboratories

WATER ANALYSIS

CONTAINER IDENTIFICATION: PB 2E

LABORATORY NUMBER: W38950B

OPERATOR NAME: CHEVRON CANADA RESOURCES LIMITED

UNIQUE WELL IDENTIFIER:

WELL NAME: CHEVRON et al FORT LIARD (K-29)

ELEVATIONS: KB m / GRD m

FIELD OR AREA:

POOL OR ZONE:

NAME OF SAMPLER:

COMPANY: NORWARD

TEST TYPE:

NO:

TEST RECOVERY: FORM:NAHANNI DOLOMITE, SP:HIGH STAGE, TIME: 13:30

SAMPLING POINT:

AMT & TYPE OF CUSHION:

MUD RESISTIVITY Ω m @ 25° C

TEST INTERVAL OR PERFS:

TYPE OF PRODUCTION: PUMPING | FLOWING | GAS LIFT | SWAB

PRODUCTION RATES: WATER m³/d | OIL m³/d | GAS 10^3 m³/d

	SEPARATOR	TREATER	RESERVOIR	SOURCE	SAMPLED	RECEIVED
GAUGE PRESSURE kPa						
TEMPERATURE ° C						

DATE SAMPLED (Y-M-D): 99-04-12

DATE RECEIVED (Y-M-D): 99-05-14

DATE REPORTED (Y-M-D): 99-05-27

ANALYST: LN NCO

OTHER INFORMATION: PH-4,SAL 20000ppm

ION	mg/L	MASS FRACTION	mmol/L
Na	70.0	0.047	3.0
K	4.7	0.003	0.1
Ca	368.0	0.246	9.2
Mg	23.3	0.016	1.0
Ba	N.A.	N.A.	N.A.
Sr	N.A.	N.A.	N.A.
Fe	93.5	0.062	1.7

ION	mg/L	MASS FRACTION	mmol/L
Cl	936.0	0.626	26.4
Br	N.A.	N.A.	N.A.
I	N.A.	N.A.	N.A.
HCO_3	NIL	NIL	NIL
SO_4	0.5	TRC*	TRC+
CO_3	NIL	NIL	NIL
OH	NIL	NIL	NIL
H_2S	N.D.	N.D.	N.D.

DISSOLVED TOTAL SOLIDS mg/L

EVAPORATED AT 110° C	EVAPORATED AT 180° C
AT IGNITION	**CALCULATED**
	1500.0

RELATIVE DENSITY: 0.991 @ 25° C

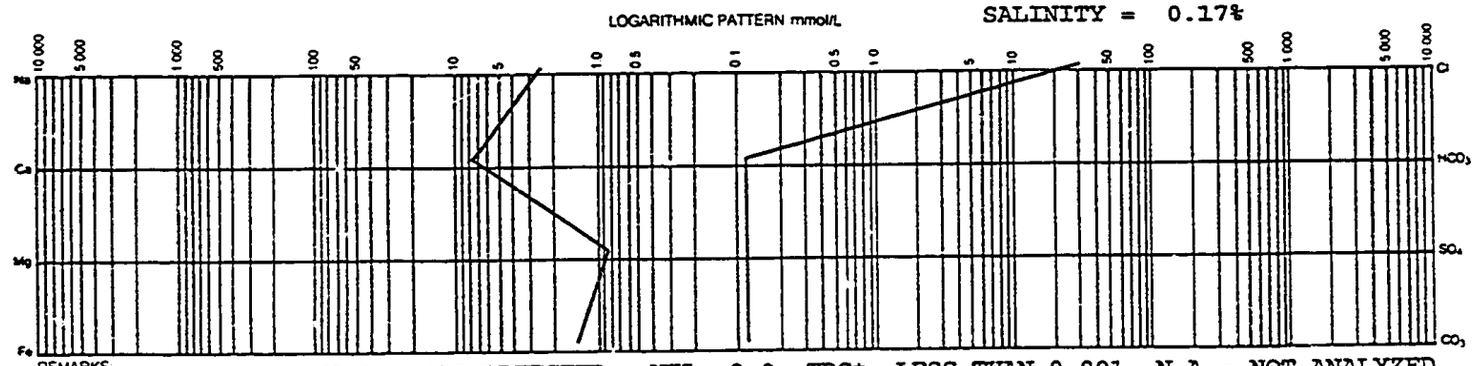
REFRACTIVE INDEX: N.A. @ 25° C

OBSERVED pH: 3.54 @ 25° C

RESISTIVITY OHM-m: 3.45 @ 25° C

LOGARITHMIC PATTERN mmol/L

SALINITY = 0.17%



REMARKS

TRC+= LESS THAN 0.1 N.D.= NOT DETECTED NIL= 0.0 TRC*= LESS THAN 0.001 N.A.= NOT ANALYZED

MINERAL ACID ACIDITY IS EQUAL TO 850.0 G/M3 AS CALCIUM CARBONATE

AGAT® Laboratories

WATER ANALYSIS

CONTAINER IDENTIFICATION: PB 3C

LABORATORY NUMBER: W38950C

OPERATOR NAME: CHEVRON CANADA RESOURCES LIMITED

UNIQUE WELL IDENTIFIER:

WELL NAME: CHEVRON et al FORT LIARD (K-29)

ELEVATIONS KB m: GRD m:

FIELD OR AREA:

POOL OR ZONE:

NAME OF SAMPLER:

COMPANY: NORWARD

TEST TYPE:

NO:

TEST RECOVERY: FORM:NAHANNI DOLOMITE, SP:LOWER FRACTURED ZONE

SAMPLING POINT:

AMT & TYPE OF CUSHION:

MUD RESISTIVITY Ω m @ 25° C:

TEST INTERVAL OR PERFS:

TYPE OF PRODUCTION: PUMPING | FLOWING | GAS LIFT | SWAB

PRODUCTION RATES: WATER m³/d | OIL m³/d | GAS 10³ m³/d

	SEPARATOR	TREATER	RESERVOIR	SOURCE	SAMPLED	RECEIVED
GAUGE PRESSURE kPa						
TEMPERATURE °C						

DATE SAMPLED (Y-M-D): 99-04-13

DATE RECEIVED (Y-M-D): 99-05-14

DATE REPORTED (Y-M-D): 99-05-27

ANALYST: LN NCO

OTHER INFORMATION: TIME: 21:00

ION	mg/L	MASS FRACTION	mmol/L
Na	1360.0	0.017	59.2
K	156.0	0.002	4.0
Ca	15700.0	0.198	392.0
Mg	8530.0	0.108	351.0
Ba	N.A.	N.A.	N.A.
Sr	N.A.	N.A.	N.A.
Fe	80.0	0.001	1.4

ION	mg/L	MASS FRACTION	mmol/L
Cl	52500.0	0.663	1480.0
Br	N.A.	N.A.	N.A.
I	N.A.	N.A.	N.A.
HCO_3	808.0	0.010	13.2
SO_4	23.3	TRC*	0.2
CO_3	NIL	NIL	NIL
OH	NIL	NIL	NIL
H_2S	N.D.	N.D.	N.D.

DISSOLVED

TOTAL SOLIDS mg/L

EVAPORATED AT 110° C:

EVAPORATED AT 180° C:

AT IGNITION:

CALCULATED: 79200.0

RELATIVE DENSITY: 1.071 @ 25° C

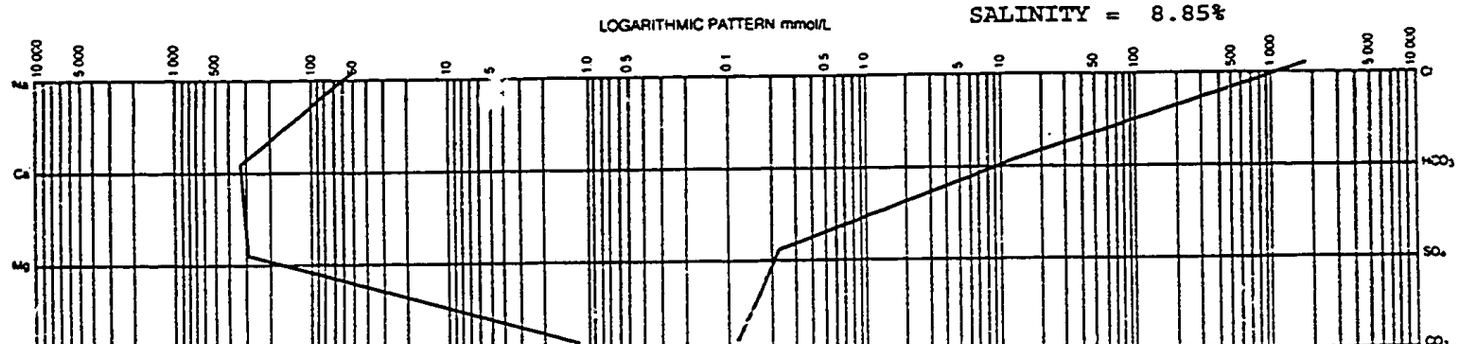
REFRACTIVE INDEX: N.A. @ 25° C

OBSERVED pH: 6.43 @ 25° C

RESISTIVITY/Ohm-m: 0.10 @ 25° C

LOGARITHMIC PATTERN mmol/L

SALINITY = 8.85%



REMARKS

TRC*= LESS THAN 0.1 N.D.= NOT DETECTED NIL= 0.0 TRC*= LESS THAN 0.001 N.A.= NOT ANALYZED

AGAT® Laboratories

WATER ANALYSIS

CONTAINER IDENTIFICATION: PB1A

LABORATORY NUMBER: WG30119A

OPERATOR NAME: CHEVRON CANADA RESOURCES LIMITED

UNIQUE WELL IDENTIFIER:

WELL NAME: CHEVRON et al FORT LIARD K-29

FIELD OR AREA:

POOL OR ZONE: NAHANNI

NAME OF SAMPLER:

COMPANY: NORWARD ENERGY

TEST TYPE:

NO.:

TEST RECOVERY: SP: NAHANNI DOLOMITE

SAMPLING POINT: HIGH STAGE SEPARATOR

ANT & TYPE OF CUSHION:

TEST INTERVAL OR PERFS:

TYPE OF PRODUCTION: PUMPING | FLOWING | GAS LIFT | SWAB

PRODUCTION RATES: WATER | OIL | GAS

	SEPARATOR	TREATER	RESERVOIR	SOURCE	SAMPLED	RECEIVED
GAUGE PRESSURE kPa						
TEMPERATURE °C						

DATE SAMPLED (Y-M-D): 99-04-15

DATE RECEIVED (Y-M-D): 99-04-21

DATE REPORTED (Y-M-D): 99-04-21

ANALYST: DH NCO

OTHER INFORMATION: 00:00 H2S #3

ION	mg/L	MASS FRACTION	mmol/L
Na	895.0	0.026	38.9
K	104.0	0.003	2.7
Ca	7500.0	0.216	187.0
Mg	3200.0	0.092	132.0
Ba	N.A.	N.A.	N.A.
Sr	N.A.	N.A.	N.A.
Fe	70.8	0.002	1.3

ION	mg/L	MASS FRACTION	mmol/L
Cl	22000.0	0.632	620.0
Br	N.A.	N.A.	N.A.
I	N.A.	N.A.	N.A.
HCO_3	946.0	0.027	15.5
SO_4	68.4	0.002	0.7
CO_3	NIL	NIL	NIL
OH	NIL	NIL	NIL
H_2S	N.D.	N.D.	N.D.

DISSOLVED

TOTAL SOLIDS mg/L

EVAPORATED AT 110° C:

AT IGNITION:

CALCULATED: 34804.6

RELATIVE DENSITY: 1.033 @ 25°C

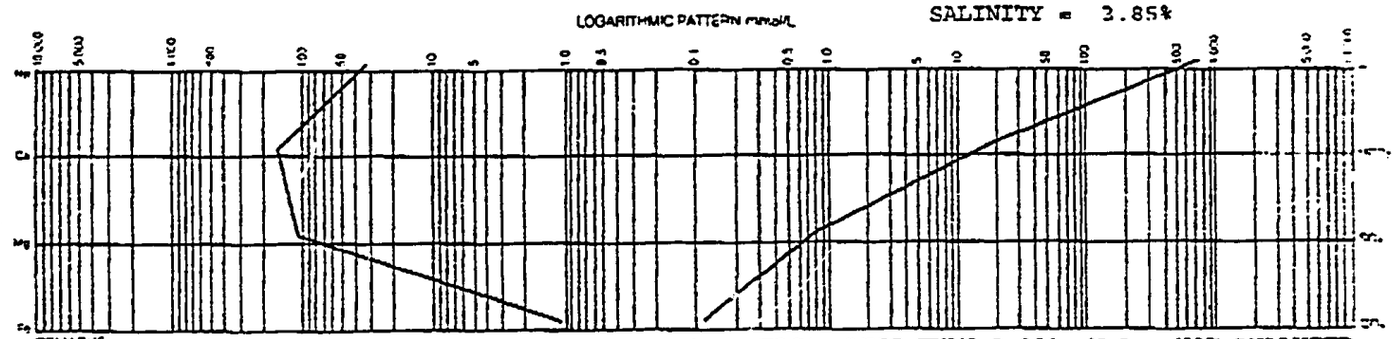
REFRACTIVE INDEX: N.A. @ 25°C

OBSERVED pH: 6.78 @ 25°C

RESISTIVITY: 0.20 @ 25°C

SALINITY = 3.85%

LOGARITHMIC PATTERN mmol/L



REMARKS

TRC+= LESS THAN 0.1 N.D.= NOT DETECTED NIL= 0.0 TRC*= LESS THAN 0.001 N.A.= NOT ANALYZED

AGAT® Laboratories

WATER ANALYSIS

CONTAINER IDENTIFICATION: PB2H

LABORATORY NUMBER: WG38119B

OPERATOR NAME: CHEVRON CANADA RESOURCES LIMITED

UNIQUE WELL IDENTIFIER:

WELL NAME: CHEVRON et al FORT LIARD K-29

ELEVATION: KB = GRD =

FIELD OR AREA:

POOL OR ZONE: NAHANNI

NAME OF SAMPLER:

COMPANY: NORWARD ENERGY

TEST TYPE: NO:

TEST RECOVERY: SP: NAHANNI DOLOMITE

SAMPLING POINT: HIGH STAGE SEPARATOR

AMT & TYPE OF CUSHION:

MUD RESISTIVITY @ =

TEST INTERVAL OR PERFS:

TYPE OF PRODUCTION: PUMPING | FLOWING | GAS LIFT | SWAB

PRODUCTION RATES: WATER | OIL | GAS

	SEPARATOR	TREATER	RESERVOIR	SOURCE	SAMPLED	RECEIVED
GAUGE PRESSURE kPa						
TEMPERATURE °C						

DATE SAMPLED (Y-M-D)	DATE RECEIVED (Y-M-D)	DATE REPORTED (Y-M-D)	ANALYST	OTHER INFORMATION
99-04-16	99-04-21	99-04-21	DH NCO	00:00 HPS #7

ION	mg/L	MASS FRACTION	mmol/L
Na	498.0	0.026	21.7
K	65.9	0.003	1.7
Ca	4370.0	0.230	109.0
Mg	1620.0	0.085	66.4
Ba	N.A.	N.A.	N.A.
Sr	N.A.	N.A.	N.A.
Fe	35.6	0.002	0.6

ION	mg/L	MASS FRACTION	mmol/L
Cl	12000.0	0.630	338.0
Br	N.A.	N.A.	N.A.
I	N.A.	N.A.	N.A.
HCO_3	381.0	0.020	6.2
SO_4	32.5	0.002	0.3
CO_3	NIL	NIL	NIL
OH	NIL	NIL	NIL
H_2S	34.1	0.002	1.0

DISSOLVED

TOTAL SOLIDS mg/L

EVAPORATED AT 110° C:

EVAPORATED AT 180° C:

AT IGNITION:

CALCULATED: 19000.0

RELATIVE DENSITY: 1.021 @ 25°C

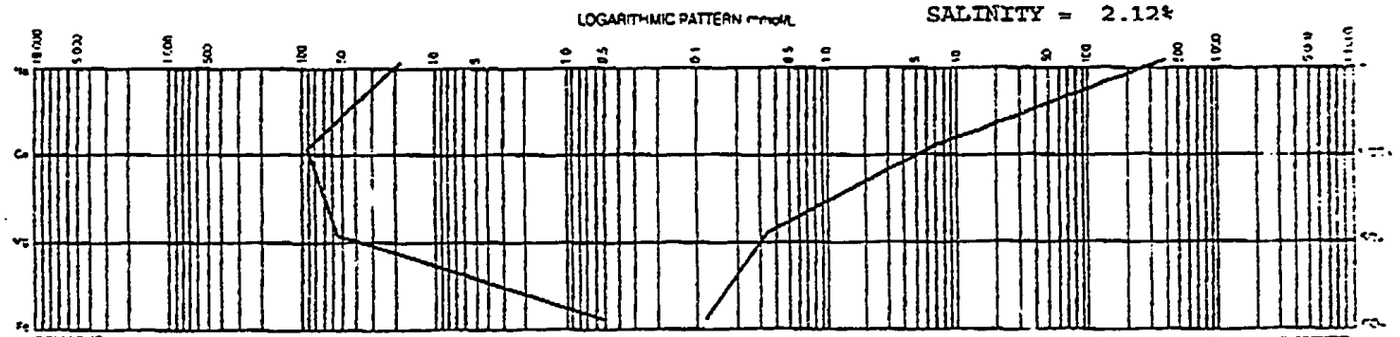
REFRACTIVE INDEX: N.A. @ 25°C

OBSERVED pH: 5.71 @ 25°C

RESISTIVITY: 0.33 @ 25°C

LOGARITHMIC PATTERN mmol/L

SALINITY = 2.12%



REMARKS

TRC*= LESS THAN 0.1 N.D.= NOT DETECTED NIL= 0.0 TRC*= LESS THAN 0.001 N.A.= NOT ANALYZED

AGAT® Laboratories

WATER ANALYSIS

CONTAINER IDENTIFICATION: PBJC

LABORATORY NUMBER: WG38119[illegible]

OPERATOR NAME: CHEVRON CANADA RESOURCES LIMITED

UNIQUE WELL IDENTIFIER:

WELL NAME: CHEVRON CL al FORT LIARD K-29

ELEVATIONS:

FIELD OR AREA:

POOL OR ZONE: NAHANNI

NAME OF SAMPLER:

COMPANY: NORWARD ENERGY

TEST TYPE:

NO:

TEST RECOVERY: SPT NAHANNI DOLOMITE

SAMPLING POINT: HIGH STAGE SEPARATOR

AMT & TYPE OF CUSHION:

MUD RESISTIVITY:

TEST INTERVAL OR PERFS:

TYPE OF PRODUCTION: FLOWING / FLOWING / GAS LIFT / SWAB

PRODUCTION RATES: WATER m3/d | OIL m3/d | GAS

	SEPARATOR	TREATER	RESERVOIR	SOURCE	SAMPLED	
GAUGE PRESSURE kPa						
TEMPERATURE °C						

DATE SAMPLED (Y-M-D): 99-04-18

DATE RECEIVED (Y-M-D): 99-04-21

DATE REPORTED (Y-M-D): 99-04-21

ANALYST: LN NCO

OTHER INFORMATION: 12:00 HRS #17

ION	mg/L	MASS FRACTION	mmol/L
Na	81.3	0.027	3.5
K	8.6	0.003	0.2
Ca	864.0	0.289	21.6
Mg	240.0	0.080	9.8
Ba	N.A.	N.A.	N.A.
Sr	N.A.	N.A.	N.A.
Fe	2.1	0.001	TRC+

ION	mg/L	MASS FRACTION	mmol/L
Cl	1250.0	0.418	35.3
Br	N.A.	N.A.	N.A.
I	N.A.	N.A.	N.A.
HCO_3	488.0	0.163	8.0
SO_4	21.0	0.007	0.2
CO_3	NIL	NIL	NIL
OH	NIL	NIL	NIL
H_2S	34.1	0.011	1.0

DISSOLVED TOTAL SOLIDS mg/L

EVAPORATED AT 110° C:

EVAPORATED AT [illegible]° C:

AT IGNITION:

CALCULATED: 2990.0

RELATIVE DENSITY: 1.000 @ 25° C

REFRACTIVE INDEX: N.A. @ [illegible]° C

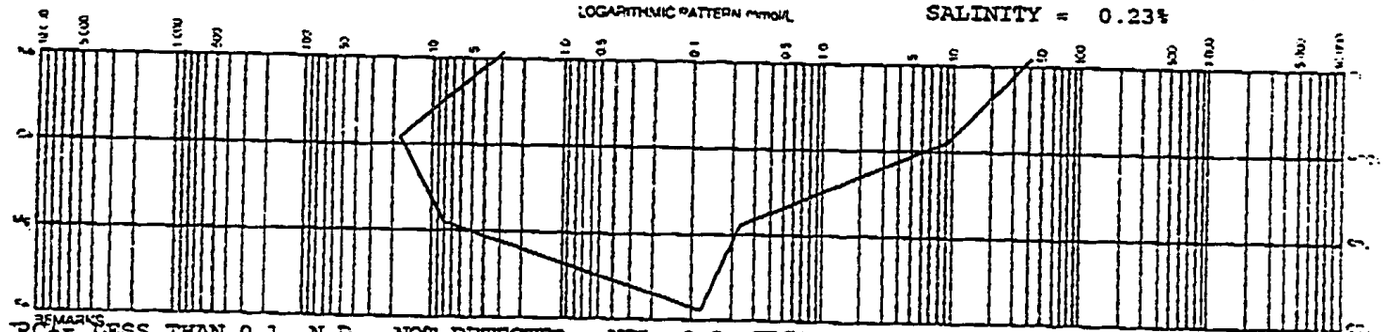
OBSERVED pH: 6.34 @ 25° C

RESISTIVITY [illegible] @ [illegible]° C: 1.82 @ [illegible]° C

THE IONIC BALANCE FOR THIS WATER EXCEEDS 10%. THE IMBALANCE IS CAUSED BY ** ANIONS ** NOT ANALYZED

SALINITY = 0.23%

LOGARITHMIC PATTERN mmol/L



REMARKS

TRC+= LESS THAN 0.1 N.D.= NOT DETECTED NIL= 0.0 TRC*= LESS THAN 0.001 N.A.= NOT ANALYZED

AGAT® Laboratories

WATER ANALYSIS

CONTAINER IDENTIFICATION: PB4D

LABORATORY NUMBER: WG3H119D

OPERATOR NAME: CHEVRON CANADA RESOURCES LIMITED

UNIQUE WELL IDENTIFIER:

WELL NAME: CHEVRON et al FORT LIARD K-29

LOC'N: ELEVATION:

FIELD OR AREA:

POOL OR ZONE: NAHANNI

NAME OF SAMPLER:

COMPANY: NORWARD ESERGY

TEST TYPE: NO:

TEST RECOVERY: SP: NAHANNI DOLOMITE

SAMPLING POINT: HIGH STAGE SEPARATOR

AMT & TYPE OF CUSHION:

MUD RESISTIVITY:

TEST INTERVAL OR PERFS:

TYPE OF PRODUCTION: PUMPING | FLOWING | GAS LIFT | SWAB

PRODUCTION RATES: WATER m³/d | OIL m³/d | GAS 10³ m³/d

	SEPARATOR	TREATER	RESERVOIR	SOURCE	SAMPLED	RECEIVED
GAUGE PRESSURE kPa						
TEMPERATURE °C						

DATE SAMPLED (Y-M-D): 99-04-18

DATE RECEIVED (Y-M-D): 99-04-21

DATE REPORTED (Y-M-D): 99-04-21

ANALYST: LN NCO

OTHER INFORMATION: 18:00 HRS #18

ION	mg/L	MASS FRACTION	mmol/L
Na^+	177.0	0.031	7.7
K^+	27.3	0.005	0.7
Ca^{2+}	1250.0	0.218	31.1
Mg^{2+}	408.0	0.071	16.8
Ba^{2+}	N.A.	N.A.	N.A.
Sr^{2+}	N.A.	N.A.	N.A.
Fe^{2+}	5.1	0.001	0.1

ION	mg/L	MASS FRACTION	mmol/L
Cl^-	3250.0	0.566	91.7
Br^-	N.A.	N.A.	N.A.
I^-	N.A.	N.A.	N.A.
HCO_3^-	564.0	0.098	9.2
SO_4^{2-}	24.0	0.004	0.3
CO_3^{2-}	NIL	NIL	NIL
OH^-	NIL	NIL	NIL
H_2S	34.1	0.006	1.0

DISSOLVED TOTAL SOLIDS mg/L

EVAPORATED AT 110° C:

EVAPORATED AT 180° C:

AT IGNITION:

CALCULATED: 5740.0

RELATIVE DENSITY: 1.020 @ 20°C

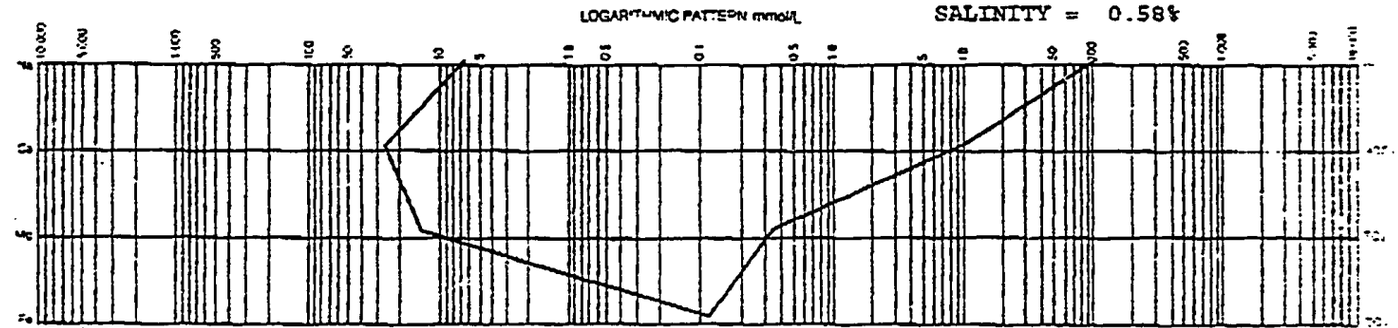
REFRACTIVE INDEX @ 20°C: N.A.

OBSERVED pH: 6.25 @ 20°C

RESISTIVITY Ω-m @ 20°C: 0.93

LOGARITHMIC PATTERN mmol/L

SALINITY = 0.58%



REMARKS:

TRC+= LESS THAN 0.1 N.D.= NOT DETECTED NIL= 0.0 TRC*= LESS THAN 0.001 N.A.= NOT ANALYZED

CORELAB

WATER ANALYSIS

215 - 1 (CONTAINER IDENTITY) | 52134-1999-1827 (LABORATORY NUMBER)

Chevron Canada Resources (OPERATOR) | 1 (PAGE)

LAT 60 28' LG 123 35' (LOCATION) | Chevron et al Liard K-29 (WELL OR SAMPLE LOCATION) | KB ELEV (m) | GR ELEV (m)

Liard (FIELD OR AREA) | POOL OR ZONE | SAMPLER

TEST TYPE AND NO. | TEST RECOVERY

Water Loss Filtrate (POINT OF SAMPLE) | AMT. AND TYPE CUSHION | @ ° MUD RESISTIVITY

TEST INTERVAL (meters)

PUMPING | FLOWING | GAS LIFT | SWAB

WATER m³/d | OIL m³/d | GAS m³/

SEPARATOR | RESERVOIR | @ °C CONTAINER WHEN SAMPLED | @ °C CONTAINER WHEN RECEIVED

Pressures, kPa (gauge)

SEPARATOR | Temperatures, °C

1999 02 03 (DATE SAMPLED Y/M/D) | 1999 04 08 (DATE RECEIVED Y/M/D) | 1999 04 13 (DATE ANALYZED Y/M/D) | MS (ANALYST) | SIGNATURE

CATIONS

ION	mg/L	mg Fraction	meq/L
Na	1,440	0.3312	62.6
K	25	0.0057	0.6
Ca	52	0.0120	2.6
Mg	9.3	0.0021	0.8
Ba			
Sr			
Fe	N.D.		
Mn			

ANIONS

ION	mg/L	mg Fraction	meq/L
Cl	264	0.0606	7.4
Br			
I			
HCO_3	1,359	0.3126	22.3
SO_4	740	0.1702	15.4
CO_3	459	0.1056	15.3
OH	0.00	0.0000	0.0
H_2S	N.D.		

Total Dissolved Solids (mg/L)

By Evaporation @ 110 °C | By Evaporation @ 180 °C

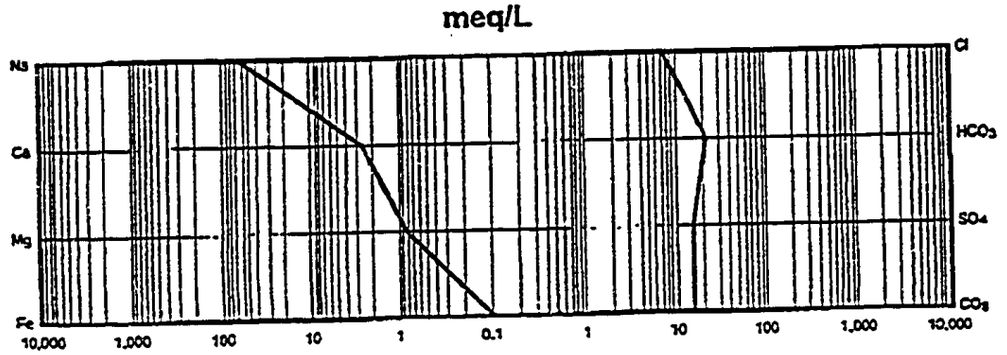
At Ignition | 4348 Calculated

1.0056 @ 15.6 °C Specific Gravity | 1.3330 @ 21 °C Refractive Index

9.6 pH | 1.963 @ 25 °C Resistivity (Ohm-Meters)

LOGARITHMIC PATTERNS OF DISSOLVED IONS

meq/L



REMARKS: N.D.- Not Detected.

WELL RECORDS FILE COPY

GEOLOGICAL REPORT

N.E.B. COPY

Geological Report

on

LIARDK29

Well Reached Total Depth on
Mar 27, 1999 @ 07:15

for

CHEVRON CANADA RESOURCES

Prepared For: Rick Schmidtke & Darcy Deibert
Chevron Canada Resources

Prepared By: Brock Lillico
B. Lillico Petroleum Consultants Ltd

Brock Lillico

RELEASE DATE
DATE DE DIFFUSION:
June 28/99

Well Summary

Storage Units: Metric

Well Information

Operator:	CHEVRON CANADA RESOURCES
Well Name:	LIARDK29
Location:	
UWI:	300K296030123300
Pool:	NFW
Field:	NFW
Province / State:	NWT
Country:	CANADA
License Number:	

Surface Node Co-ordinates
N / S:
E / W:

Hole Type: Deviated
Latitude: 60.5000000
Fault Indicator: Yes
Longitude: 123.5000000

Bottom Hole Node Co-ordinates

Latitude:
Longitude:

N / S: 27.63 meters South
E / W: 347.75 meters East

Elevations

Reference:			
Ground Elevation:	409.60	Kelly Bushing to Ground:	
Kelly Bushing Elevation:	418.80	Cut (-):	
Casing Flange Elevation:		Fill (+):	

Total Depth

	Measured Depth	True Vertical Depth
Total Depth Driller (Tally) :	3,000.00	2,916.19
Total Depth Driller (Strap or SLM):		
Total Depth Logger:		

Miscellaneous Depths

Plugback Depth:	Water Depth Reference:
Whipstock or Sidetrack Depth:	Water Depth:

Well Summary

Drilling Contractor:	AKITA DRILLING LTD	Spud Date:	Feb 3, 1999 @ 08:00
Rig Release Date:		Total Depth Date:	Mar 27, 1999 @ 07:15

Cores	#	Formation	Interval	Cut	Recovered	%

Daily Drilling Summary

Storage Units: Metric

Date	A.M. Depth	Progress	Rotating Hours	Avg. P.R.	Daily Costs	Formation	Operational Status @ Report Time
Feb 18, 1999	711		0.00	0.0		BESA RIVER	Picking up drill pipe
Feb 19, 1999	725		2.50			BESA RIVER	Drilling 311mm hole with GT-1 tooth
							bit.
Feb 20, 1999	972		22.00			BESA RIVER	Drilling 311mm hole
Feb 21, 1999	1,139		12.00			BESA RIVER	Tripping out of hole.
Feb 22, 1999	1,244		2.50			Besa River	Drilling 311mm hole with PDC and
							Mud Motor
Feb 23, 1999	1,349		6.00			Besa River	Pulling out of hole
Feb 24, 1999	1,384		4.50			First Black Shale	Pulling out of hole for MWD
Feb 25, 1999	1,432		8.00			First Black Shale	Running in hole with RR Button Bit
							Reed EHP43H, Mud Motor and
							MWD.
Feb 26, 1999	1,526		10.00			First Black Shale	Directionally Drilling 311mm hole
Feb 27, 1999	1,678		22.00			Lower Besa	Directionally Drilling 311mm hole
						River	
Feb 28, 1999	1,820		18.00			Lower Besa	Pulling out of hole.
						River	
Mar 1, 1999	1,897		14.00			Lower Besa	Directionally Drilling 311mm hole
						River	
Mar 2, 1999	2,026		21.80			Lower Besa	Directionally Drilling 311mm hole
						River	
Mar 3, 1999	2,133		18.00			Lower Besa	Pulling out of hole
						River	
Mar 4, 1999	2,188		9.00			Lower Besa	Directionally Drilling 311mm hole.
						River	
Mar 5, 1999	2,246		11.00			2nd Black Shale	Running in hole with New Bit #11
							Reed HP61.
Mar 6, 1999	2,276		10.50			2nd Black Shale	Weighting up invert mud system
Mar 7, 1999	2,291		8.00			2nd Black Shale	Running in hole with New Bit #12
							HP53
Mar 8, 1999	2,325		19.00			2nd Black Shale	Directionally Drilling 311mm hole.
Mar 9, 1999	2,356		22.00			2nd Black Shale	Pulling out of hole
Mar 10, 1999	2,369		7.50			2nd Black Shale	Directionally Drilling 311mm hole
Mar 11, 1999	2,389		9.00			2nd Black Shale	Preparing to run in hole.
Mar 12, 1999	2,414		17.00			2nd Black Shale	Directionally Drilling 311mm hole

Accumulated Daily Costs:

Daily Drilling Summary

Storage Units: Metric

Date	A.M. Depth	Progress	Rotating Hours	Avg. P.R.	Daily Costs	Formation	Operational Status @ Report Time
Mar 13, 1999	2,449		22.00			2nd Black Shale	Directionally Drilling 311mm hole
Mar 14, 1999	2,500		19.00			Nahanni	Pulling out of hole to log.
Mar 15, 1999	2,500		0.00	0.0		Nahanni	Logging Run #2 UBI-GPIT-EMS
Mar 16, 1999	2,500		0.00	0.0		Nahanni	Pulling out of hole for casing.
Mar 17, 1999	2,500		0.00	0.0		NAHANNI	Running 244mm Intermediate
							Casing, Currently at 2240m.
Mar 18, 1999	2,500		0.00	0.0		NAHANNI	Nipple up BOP's
Mar 19, 1999	2,500		0.00	0.0		Nahanni	Displace hole to water
Mar 20, 1999	2,503		0.30			Nahanni	Running in with Directional Tools.
Mar 21, 1999	2,575		18.00			Nahanni	Pulling out of hole
Mar 22, 1999	2,586		3.00			Nahanni	Directionally Drilling 216mm hole
Mar 23, 1999	2,652		23.00			Nahanni	Directionally Drilling 216mm hole
Mar 24, 1999	2,727		18.00			Nahanni	Pulling out of hole
Mar 25, 1999	2,781		12.00			Nahanni	Directionally Drilling 216mm hole
Mar 26, 1999	2,891		22.00			Nahanni	Directionally Drilling 216mm hole
Mar 27, 1999	3,000		21.50			Nahanni	Circulating bottom hole sample.

Accumulated Daily Costs:

Casing Data Summary

Storage Units: Metric

Casing Type: Surface

Casing Size:	340.0	**Hole Size:**	444.0
Casing Landed @:	701.30	**Total Joints:**	56
Casing Date:	Feb 15, 1999 @ 00:00	**Plug Down Date:**	Feb 15, 1999 @ 16:50

# of Joints / Length / O.D. / Weight: 56 Joints; 693.6m; 340mm; 101kg/m; Landed at 701m.

Cementing Details: Preflush 8m3 water + 3m3 CW100; Lead 84.9m3 1:1:2 + 0.5%D65 + 0.2%D46; Tail 8.4m3 RFC + 1%S1 + 0.2%D46

Remarks: Displaced with 6.5m3 water; 17m3 cement returns.

Casing Type: Intermediate

Casing Size:	244.0	**Hole Size:**	311.0
Casing Landed @:	2,500.00	**Total Joints:**	192
Casing Date:	Mar 17, 1999 @ 00:00	**Plug Down Date:**	Mar 17, 1999 @ 20:33

# of Joints / Length / O.D. / Weight: 192 Joints; 2505.52m; 244mm; 69.94kg/m & 64.74kg/m

Cementing Details: 78 Tonnes Lead, 23 Tonnes Tail

Remarks: Displaced with 96m3 Invert using rig pumps at 2m3/min; 6.5m3 good cement returns; Bumped plug with 17MPa; Set slips in tension with 160000DAN.

Bit Record Table (IADC Grading System)

Storage Units: Metric

*** For more detailed Bit Information refer to Bit Record ***

Bit #	Make	Type	IADC		Depth In	Depth Out	Made	Hours	Avg. P.R.	I.A.D.C. Bit Condition								
			S	T						I	O	MDC	Loc	B	G	ODC	RP1	RP2
1	SEC	S44G			0.0	57.0	57.0	12.70	4.5	5	5	WT	A	E	I	NO	PR	
2	SEC	SS81-J4			57.0	459.0	402.0	52.00	7.7	2	4	BT	H	F	I	WT	TQ	
3	HW	MAX-22G			459.0	529.0	70.0	15.30	4.6	2	2	NO		E	I	NO	BHA	
4	HW	GT1			529.0	711.0	182.0	27.80	6.5	1	1	NO	A	E	I	NO	TD	
5	SMITH	HOLEOP			529.0	711.0	182.0	16.30	11.2	1	1	NO	A	E	I	NO	TD	
4RR	HW	GT-1			711.0	1,183.0	472.0	37.80	12.5	1	1	WT	A	E	I	NO	PR	
6	Hycalog	DS12OH			1,183.0	1,321.0	138.0	9.80	14.1									
7	REED	EHP43H			1,330.0	1,349.0	19.0	3.00	6.3	1	1	WT	A	E	I	NO	DMF	
6RR	HYCAL	DS12OH			1,349.0	1,432.0	83.0	10.75	7.7	0	0	NO			I	NO	BHA	TQ
7RR	REED	EHP43H			1,432.0	1,518.0	86.0	8.00	10.8	8	8	BT	A	F	6	CI	PR	TQ
8	SEC	GS86F			1,518.0	1,820.0	302.0	42.00	7.2	5	6	BT	A	F	8	NO	TQ	
9	HW	GT-20			1,820.0	2,133.0	313.0	53.00	5.9	3	3	CT	M	F	I	CI	TQ	
10	SEC	GS84F			2,133.0	2,246.0	113.0	18.50	6.1	6	8	WT	A	F	2		TQ	
11	REED	HP62A			2,246.0	2,291.0	45.0	14.80	3.0	4	4	WT	A	E	2		PR	
12	REED	HP53A			2,291.0	2,356.0	65.0	40.30	1.6	3	6	BT	A	F	4	WT	TQ	
13	REED	EHP44H			2,356.0	2,389.0	33.0	18.30	1.8	3	2	BT	A	F	1	LT	TQ	
14	SMITH	F-3P			2,389.0	2,500.0	111.0	57.30	1.9	3	4	WT	A	F	1	NO	TD	
15	Security	GS86F			2,500.0	2,575.0	75.0	16.50	4.5	2	2	BT	A	E	I	WT	TQ	
16	Smith	F-3			2,575.0	2,727.0	152.0	41.50	3.7	5	6	BT	H	E	1	WT	TQ	
17	Reed	HP53A			2,727.0	3,000.0	273.0	59.00	4.6									

Total Rotating Hours: 554.65

Bit Record Table (TBG Grading System) Storage Units: Metric

*** For more detailed Bit Information refer to Bit Record ***

Bit #	Make	Type	Size	IADC		Depth In	Depth Out	Made	Hours	Avg. P.R.	Bit Condition		
				S	T						T	B	G
1	SEC	S44G	444.00			0.0	57.0	57.0	12.70	4.5			
2	SEC	SS81-J4	444.00			57.0	459.0	402.0	52.00	7.7			
3	HW	MAX-22GD	444.00			459.0	529.0	70.0	15.30	4.6			
4	HW	GT1	311.00			529.0	711.0	182.0	27.80	6.5			
5	SMITH	HOLEOPEN	444.00			529.0	711.0	182.0	16.30	11.2			
4RR	HW	GT-1	311.00			711.0	1,183.0	472.0	37.80	12.5			
6	Hycalog	DS12OH	311.00			1,183.0	1,321.0	138.0	9.80	14.1			
7	REED	EHP43H	311.00			1,330.0	1,349.0	19.0	3.00	6.3			
6RR	HYCALOG	DS12OH	311.00			1,349.0	1,432.0	83.0	10.75	7.7			
7RR	REED	EHP43H	311.00			1,432.0	1,518.0	86.0	8.00	10.8			
8	SEC	GS86F	311.00			1,518.0	1,820.0	302.0	42.00	7.2			
9	HW	GT-20	311.00			1,820.0	2,133.0	313.0	53.00	5.9			
10	SEC	GS84F	311.00			2,133.0	2,246.0	113.0	18.50	6.1			
11	REED	HP62A	311.00			2,246.0	2,291.0	45.0	14.80	3.0			
12	REED	HP53A	311.00			2,291.0	2,356.0	65.0	40.30	1.6			
13	REED	EHP44H	311.00			2,356.0	2,389.0	33.0	18.30	1.8			
14	SMITH	F-3P	311.00			2,389.0	2,500.0	111.0	57.30	1.9			
15	Security	GS86F	216.00			2,500.0	2,575.0	75.0	16.50	4.5			
16	Smith	F-3	216.00			2,575.0	2,727.0	152.0	41.50	3.7			
17	Reed	HP53A	216.00			2,727.0	3,000.0	273.0	59.00	4.6			

Total Rotating Hours: 554.65

Bit Record

Pump Data

Pump #1	**Model:**		**Size:**	**Type:**	
	Pump Rod Diameter:		**Liner Size:**	**Stroke Length:**	
	Efficiency Rating (%):				
Pump #2	**Model:**		**Size:**	**Type:**	
	Pump Rod Diameter:		**Liner Size:**	**Stroke Length:**	
	Efficiency Rating (%):				

Bit Data

Storage Units: Metric

Bit #: 1 **Make:** SEC **Type:** S44G **IADC Series / Type:** /
Serial #: 485679 **Size:** 444.0 **Jets / Nozzles:** 7.50 / 7.50 / 7.50 / **T.F.A.:** 721.00
Depth In: 0.00 **Depth Out:** 57.00 **Made:** 57.00 **Rotating Hours:** 12.70
Average Drill Rate: 4.49 **Total Rotating Hours:** 12.70
Bit Grade / Condition **I.A.D.C.:** 5 / 5 / WT / A / E / I / NO / PR / **T / B / G:** / /
Remarks:
Formations Drilled: Surface with Boulders
Drilling Parameters

	Min		Max		Min		Max
Force on Bit:	15,000	/	16,000	**R.P.M.:**	140	/	140
Pump 1 S.P.M. / Volume:		/		**Pump 2 S.P.M. / Volume:**		/	
S.P.P.:	2,100	/	2,100	**Mud Density:**	1,054	/	1,055
Drift Angle:		/		**Funnel Viscosity:**	43	/	44

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

Bit #: 2 **Make:** SEC **Type:** SS81-J4 **IADC Series / Type:** /
Serial #: 87700 **Size:** 444.0 **Jets / Nozzles:** 3.50 / 3.50 / 3.50 / 9.50 **T.F.A.:** 728.00
Depth In: 57.00 **Depth Out:** 459.00 **Made:** 402.00 **Rotating Hours:** 52.00
Average Drill Rate: 7.73 **Total Rotating Hours:** 64.70
Bit Grade / Condition **I.A.D.C.:** 2 / 4 / BT / H / F / I / WT / TQ / **T / B / G:** / /
Remarks:
Formations Drilled: Surface, Besa River
Drilling Parameters

	Min		Max		Min		Max
Force on Bit:	16,000	/	26,000	**R.P.M.:**	50	/	180
Pump 1 S.P.M. / Volume:		/		**Pump 2 S.P.M. / Volume:**		/	
S.P.P.:	5,300	/	9,800	**Mud Density:**	1,065	/	1,155
Drift Angle:	0.250	/	2.000	**Funnel Viscosity:**	55	/	77

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

Bit Data

Storage Units: Metric

Bit #: 3 **Make:** HW **Type:** AX-22GD **IADC Series / Type:** /
Serial #: T22CT **Size:** 444.0 **Jets / Nozzles:** 7.50 / 7.50 / 7.50 / **T.F.A.:**
Depth In: 459.00 **Depth Out:** 529.00 **Made:** 70.00 **Rotating Hours:** 15.30
Average Drill Rate: 4.58 **Total Rotating Hours:** 80.00
Bit Grade / Condition **I.A.D.C.:** 2 / 2 / NO / / E / I / NO / BHA / **T / B / G:** / /
Remarks:
Formations Drilled: Besa River
Drilling Parameters

	Min		Max		Min		Max
Force on Bit:	10,000	/	20,000	R.P.M.:	120	/	180
Pump 1 S.P.M. / Volume:		/		Pump 2 S.P.M. / Volume:		/	
S.P.P.:	12,500	/	13,100	Mud Density:	1,155	/	1,155
Drift Angle:	2.000	/	4.500	Funnel Viscosity:	54	/	55

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

Bit #: 4 **Make:** HW **Type:** GT1 **IADC Series / Type:** /
Serial #: Y79YK **Size:** 311.0 **Jets / Nozzles:** 0.00 / 0.00 / 0.00 / **T.F.A.:** 942.00
Depth In: 529.00 **Depth Out:** 711.00 **Made:** 182.00 **Rotating Hours:** 27.80
Average Drill Rate: 6.55 **Total Rotating Hours:** 107.80
Bit Grade / Condition **I.A.D.C.:** 1 / 1 / NO / A / E / I / NO / TD / **T / B / G:** / /
Remarks:
Formations Drilled: Besa River
Drilling Parameters

	Min		Max		Min		Max
Force on Bit:	1,000	/	5,000	R.P.M.:	150	/	180
Pump 1 S.P.M. / Volume:		/		Pump 2 S.P.M. / Volume:		/	
S.P.P.:	13,400	/	14,600	Mud Density:	1,146	/	1,155
Drift Angle:	3.000	/	4.500	Funnel Viscosity:	58	/	73

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

Bit #: 5 **Make:** SMITH **Type:** LEOPEN **IADC Series / Type:** /
Serial #: HO44780 **Size:** 444.0 **Jets / Nozzles:** 5.90 / 5.90 / 5.90 / **T.F.A.:** 596.00
Depth In: 529.00 **Depth Out:** 711.00 **Made:** 182.00 **Rotating Hours:** 16.30
Average Drill Rate: 11.17 **Total Rotating Hours:** 124.10
Bit Grade / Condition **I.A.D.C.:** 1 / 1 / NO / A / E / I / NO / TD / **T / B / G:** / /
Remarks:
Formations Drilled: Besa River
Drilling Parameters

	Min		Max		Min		Max
Force on Bit:	1,000	/	5,000	R.P.M.:	80	/	90
Pump 1 S.P.M. / Volume:		/		Pump 2 S.P.M. / Volume:		/	
S.P.P.:	12,100	/	13,400	Mud Density:	1,140	/	1,146
Drift Angle:	3.000	/	4.500	Funnel Viscosity:	58	/	103

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

Bit Data

Storage Units: Metric

Bit #: 4RR **Make:** HW **Type:** GT-1 **IADC Series / Type:** /
Serial #: Y79YIC **Size:** 311.0 **Jets / Nozzles:** 2.70 / 2.70 / 5.90 / **T.F.A.:**
Depth In: 711.00 **Depth Out:** 1,183.00 **Made:** 472.00 **Rotating Hours:** 37.80
Average Drill Rate: 12.49 **Total Rotating Hours:** 161.90
Bit Grade / Condition **I.A.D.C.:** 1 / 1 / WT / A / E / I / NO / PR / **T / B / G:** / /
Remarks:
Formations Drilled: Besa River
Drilling Parameters

	Min		Max		Min		Max
Force on Bit:	4,000	/	8,000	**R.P.M.:**	60	/	150
Pump 1 S.P.M. / Volume:	85	/	1,087.00	**Pump 2 S.P.M. / Volume:**	85.00	/	1,175.00
S.P.P.:	12,100	/	16,600	**Mud Density:**	910	/	920
Drift Angle:	3.000	/	4.000	**Funnel Viscosity:**	56	/	60

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

Bit #: 6 **Make:** Hycalog **Type:** DS12OH **IADC Series / Type:** /
Serial #: 444392 **Size:** 311.0 **Jets / Nozzles:** 5.90 / 5.90 / 5.90 / 5.90 **T.F.A.:**
Depth In: 1,183.00 **Depth Out:** 1,321.00 **Made:** 138.00 **Rotating Hours:** 9.80
Average Drill Rate: 14.08 **Total Rotating Hours:** 171.70
Bit Grade / Condition **I.A.D.C.:** / / / / / / / / **T / B / G:** / /
Remarks:
Formations Drilled: Besa River
Drilling Parameters

	Min		Max		Min		Max
Force on Bit:	2,000	/	3,000	**R.P.M.:**	200	/	220
Pump 1 S.P.M. / Volume:		/		**Pump 2 S.P.M. / Volume:**		/	
S.P.P.:	18,000	/	19,150	**Mud Density:**	930	/	930
Drift Angle:	5.000	/	7.750	**Funnel Viscosity:**	60	/	70

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

Bit #: 7 **Make:** REED **Type:** EHP43H **IADC Series / Type:** /
Serial #: XL5158 **Size:** 311.0 **Jets / Nozzles:** 2.20 / 2.20 / 2.20 / **T.F.A.:**
Depth In: 1,330.00 **Depth Out:** 1,349.00 **Made:** 19.00 **Rotating Hours:** 3.00
Average Drill Rate: 6.33 **Total Rotating Hours:** 174.70
Bit Grade / Condition **I.A.D.C.:** 1 / 1 / WT / A / E / I / NO / DMF / **T / B / G:** / /
Remarks:
Formations Drilled: Besa River
Drilling Parameters

	Min		Max		Min		Max
Force on Bit:	10,000	/	10,000	**R.P.M.:**	200	/	200
Pump 1 S.P.M. / Volume:		/		**Pump 2 S.P.M. / Volume:**		/	
S.P.P.:	17,000	/	17,000	**Mud Density:**	930	/	930
Drift Angle:		/		**Funnel Viscosity:**		/	

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

Bit Data

Storage Units: Metric

Bit #: 6RR **Make:** YCALOG **Type:** DS12OH **IADC Series / Type:** /
Serial #: 444392 **Size:** 311.0 **Jets / Nozzles:** 5.90 / 5.90 / 5.90 / 5.90 **T.F.A.:**
Depth In: 1,349.00 **Depth Out:** 1,432.00 **Made:** 83.00 **Rotating Hours:** 10.75
Average Drill Rate: 7.72 **Total Rotating Hours:** 185.45
Bit Grade / Condition **I.A.D.C.:** 0 / 0 / NO / / / I / NO / BHA / TQ **T / B / G:** / /
Remarks:
Formations Drilled: Besa River
Drilling Parameters

	Min		Max		Min		Max
Force on Bit:	3,000	/	4,000	R.P.M.:	200	/	200
Pump 1 S.P.M. / Volume:		/		Pump 2 S.P.M. / Volume:		/	
S.P.P.:	13,000	/	16,000	Mud Density:	970	/	980
Drift Angle:	7.900	/	11.900	Funnel Viscosity:	60	/	61

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

Bit #: 7RR **Make:** REED **Type:** EHP43H **IADC Series / Type:** /
Serial #: XL5158 **Size:** 311.0 **Jets / Nozzles:** 2.20 / 2.20 / 9.10 / **T.F.A.:**
Depth In: 1,432.00 **Depth Out:** 1,518.00 **Made:** 86.00 **Rotating Hours:** 8.00
Average Drill Rate: 10.75 **Total Rotating Hours:** 193.45
Bit Grade / Condition **I.A.D.C.:** 8 / 8 / BT / A / F / 6 / CI / PR / TQ **T / B / G:** / /
Remarks:
Formations Drilled: Besa River, First Black Shale
Drilling Parameters

	Min		Max		Min		Max
Force on Bit:	9,000	/	10,000	R.P.M.:	140	/	150
Pump 1 S.P.M. / Volume:		/		Pump 2 S.P.M. / Volume:		/	
S.P.P.:	13,000	/	13,000	Mud Density:	980	/	980
Drift Angle:	9.000	/	12.000	Funnel Viscosity:	60	/	60

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

Bit #: 8 **Make:** SEC **Type:** GS86F **IADC Series / Type:** /
Serial #: 725280 **Size:** 311.0 **Jets / Nozzles:** 9.10 / 9.10 / 9.10 / **T.F.A.:**
Depth In: 1,518.00 **Depth Out:** 1,820.00 **Made:** 302.00 **Rotating Hours:** 42.00
Average Drill Rate: 7.19 **Total Rotating Hours:** 235.45
Bit Grade / Condition **I.A.D.C.:** 5 / 6 / BT / A / F / 8 / NO / TQ / **T / B / G:** / /
Remarks:
Formations Drilled: First Black Shale, Lower Besa River
Drilling Parameters

	Min		Max		Min		Max
Force on Bit:	10,000	/	12,000	R.P.M.:	120	/	130
Pump 1 S.P.M. / Volume:		/		Pump 2 S.P.M. / Volume:		/	
S.P.P.:	11,000	/	12,000	Mud Density:	970	/	985
Drift Angle:	3.400	/	7.300	Funnel Viscosity:	61	/	69

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

Bit Data

Storage Units: Metric

Bit #: 9 **Make:** HW **Type:** GT-20 **IADC Series / Type:** /
Serial #: W10YM **Size:** 311.0 **Jets / Nozzles:** 9.00 / 9.00 / 7.50 / **T.F.A.:**
Depth In: 1,820.00 **Depth Out:** 2,133.00 **Made:** 313.00 **Rotating Hours:** 53.00
Average Drill Rate: 5.91 **Total Rotating Hours:** 288.45
Bit Grade / Condition **I.A.D.C.:** 3 / 3 / CT / M / F / I / CI / TQ / **T / B / G:** / /
Remarks:
Formations Drilled: Lower Besa River
Drilling Parameters

	Min		Max		Min		Max
Force on Bit:	12,000	/	15,000	**R.P.M.:**	100	/	130
Pump 1 S.P.M. / Volume:		/		**Pump 2 S.P.M. / Volume:**		/	
S.P.P.:	11,200	/	12,100	**Mud Density:**	1,010	/	1,015
Drift Angle:	3.400	/	4.800	**Funnel Viscosity:**		/	

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

Bit #: 10 **Make:** SEC **Type:** GS84F **IADC Series / Type:** /
Serial #: 740870 **Size:** 311.0 **Jets / Nozzles:** 9.00 / 9.00 / 7.50 / **T.F.A.:**
Depth In: 2,133.00 **Depth Out:** 2,246.00 **Made:** 113.00 **Rotating Hours:** 18.50
Average Drill Rate: 6.11 **Total Rotating Hours:** 306.95
Bit Grade / Condition **I.A.D.C.:** 6 / 8 / WT / A / F / 2 / / TQ / **T / B / G:** / /
Remarks:
Formations Drilled: Lower Besa River, scubbed out in 2nd Black Shale
Drilling Parameters

	Min		Max		Min		Max
Force on Bit:	12,000	/	14,000	**R.P.M.:**	100	/	130
Pump 1 S.P.M. / Volume:		/		**Pump 2 S.P.M. / Volume:**		/	
S.P.P.:	14,000	/	14,500	**Mud Density:**	1,015	/	1,020
Drift Angle:	4.500	/	6.600	**Funnel Viscosity:**	75	/	80

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

Bit #: 11 **Make:** REED **Type:** HP62A **IADC Series / Type:** /
Serial #: MM9034 **Size:** 311.0 **Jets / Nozzles:** 9.00 / 9.00 / 7.50 / **T.F.A.:**
Depth In: 2,246.00 **Depth Out:** 2,291.00 **Made:** 45.00 **Rotating Hours:** 14.80
Average Drill Rate: 3.04 **Total Rotating Hours:** 321.75
Bit Grade / Condition **I.A.D.C.:** 4 / 4 / WT / A / E / 2 / / PR / **T / B / G:** / /
Remarks:
Formations Drilled: 2nd Black Shale
Drilling Parameters

	Min		Max		Min		Max
Force on Bit:	12,000	/	14,000	**R.P.M.:**	100	/	130
Pump 1 S.P.M. / Volume:		/		**Pump 2 S.P.M. / Volume:**		/	
S.P.P.:	13,000	/	14,000	**Mud Density:**	1,025	/	1,230
Drift Angle:	3.000	/	4.000	**Funnel Viscosity:**	71	/	80

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

Bit Data

Storage Units: Metric

Bit #: 12 Make: REED Type: HP53A IADC Series / Type: /
Serial #: LK4965 Size: 311.0 Jets / Nozzles: 2.00 / 2.00 / 7.50 / T.F.A.:
Depth In: 2,291.00 Depth Out: 2,356.00 Made: 65.00 Rotating Hours: 40.30
Average Drill Rate: 1.61 Total Rotating Hours: 362.05
Bit Grade / Condition I.A.D.C.: 3 / 6 / BT / A / F / 4 / WT / TQ / T / B / G: / /
Remarks:
Formations Drilled: 2nd Black Shale
Drilling Parameters

	Min		Max		Min		Max
Force on Bit:	14,000	/	15,000	R.P.M.:	100	/	130
Pump 1 S.P.M. / Volume:		/		Pump 2 S.P.M. / Volume:		/	
S.P.P.:	16,000	/	16,900	Mud Density:	1,230	/	1,235
Drift Angle:	3.200	/	4.400	Funnel Viscosity:	66	/	72

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

Bit #: 13 Make: REED Type: EHP44H IADC Series / Type: /
Serial #: NN3675 Size: 311.0 Jets / Nozzles: 2.20 / 2.20 / 7.50 / T.F.A.:
Depth In: 2,356.00 Depth Out: 2,389.00 Made: 33.00 Rotating Hours: 18.30
Average Drill Rate: 1.80 Total Rotating Hours: 380.35
Bit Grade / Condition I.A.D.C.: 3 / 2 / BT / A / F / 1 / LT / TQ / T / B / G: / /
Remarks:
Formations Drilled: 2nd Black Shale
Drilling Parameters

	Min		Max		Min		Max
Force on Bit:	14,000	/	15,000	R.P.M.:	100	/	130
Pump 1 S.P.M. / Volume:		/		Pump 2 S.P.M. / Volume:		/	
S.P.P.:	16,000	/	16,900	Mud Density:	1,235	/	1,240
Drift Angle:	4.900	/	5.700	Funnel Viscosity:	65	/	70

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

Bit #: 14 Make: SMITH Type: F-3P IADC Series / Type: /
Serial #: LN5346 Size: 311.0 Jets / Nozzles: 2.20 / 2.20 / 2.20 / T.F.A.:
Depth In: 2,389.00 Depth Out: 2,500.00 Made: 111.00 Rotating Hours: 57.30
Average Drill Rate: 1.94 Total Rotating Hours: 437.65
Bit Grade / Condition I.A.D.C.: 3 / 4 / WT / A / F / 1 / NO / TD / T / B / G: / /
Remarks:
Formations Drilled: 2nd Black Shale
Drilling Parameters

	Min		Max		Min		Max
Force on Bit:	14,000	/	15,000	R.P.M.:	120	/	130
Pump 1 S.P.M. / Volume:		/		Pump 2 S.P.M. / Volume:		/	
S.P.P.:	14,600	/	16,900	Mud Density:	1,240	/	1,270
Drift Angle:	4.400	/	5.500	Funnel Viscosity:	56	/	67

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

Bit Data

Storage Units: Metric

Bit #: 15 **Make:** Security **Type:** GS86F **IADC Series / Type:** /
Serial #: 731699 **Size:** 216.0 **Jets / Nozzles:** 5.90 / 5.90 / 5.90 / **T.F.A.:**
Depth In: 2,500.00 **Depth Out:** 2,575.00 **Made:** 75.00 **Rotating Hours:** 16.50
Average Drill Rate: 4.55 **Total Rotating Hours:** 454.15
Bit Grade / Condition **I.A.D.C.:** 2 / 2 / BT / A / E / I / WT / TQ / **T / B / G:** / /
Remarks:
Formations Drilled: NAHANNI
Drilling Parameters

	Min		Max		Min		Max
Force on Bit:	12,000	/	16,000	**R.P.M.:**	60	/	85
Pump 1 S.P.M. / Volume:	120	/	1,500.00	**Pump 2 S.P.M. / Volume:**	120.00	/	1,500.00
S.P.P.:	9,700	/	10,200	**Mud Density:**	1,070	/	1,125
Drift Angle:	4.600	/	13.500	**Funnel Viscosity:**	58	/	75

Annular Velocity **Drill Collars:** **HeavyWeight Drill Pipe:** **Drill Pipe:**
Bottoms Up **Depth:** 2,665.00 **Theoretical:** 46 **Actual:** 52

Bit #: 16 **Make:** Smith **Type:** F-3 **IADC Series / Type:** /
Serial #: LR0031 **Size:** 216.0 **Jets / Nozzles:** 5.90 / 5.90 / 5.90 / **T.F.A.:**
Depth In: 2,575.00 **Depth Out:** 2,727.00 **Made:** 152.00 **Rotating Hours:** 41.50
Average Drill Rate: 3.66 **Total Rotating Hours:** 495.65
Bit Grade / Condition **I.A.D.C.:** 5 / 6 / BT / H / E / 1 / WT / TQ / **T / B / G:** / /
Remarks:
Formations Drilled: Nahanni
Drilling Parameters

	Min		Max		Min		Max
Force on Bit:	14,000	/	16,000	**R.P.M.:**	60	/	80
Pump 1 S.P.M. / Volume:		/		**Pump 2 S.P.M. / Volume:**		/	
S.P.P.:	9,200	/	9,500	**Mud Density:**	1,105	/	1,125
Drift Angle:	18.200	/	36.800	**Funnel Viscosity:**	45	/	55

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

Bit #: 17 **Make:** Reed **Type:** HP53A **IADC Series / Type:** /
Serial #: LQ **Size:** 216.0 **Jets / Nozzles:** 5.90 / 5.90 / 5.90 / **T.F.A.:**
Depth In: 2,727.00 **Depth Out:** 3,000.00 **Made:** 273.00 **Rotating Hours:** 59.00
Average Drill Rate: 4.63 **Total Rotating Hours:** 554.65
Bit Grade / Condition **I.A.D.C.:** / / / / / / / / **T / B / G:** / /
Remarks:
Formations Drilled: Nahanni
Drilling Parameters

	Min		Max		Min		Max
Force on Bit:	12,000	/	16,000	**R.P.M.:**	60	/	80
Pump 1 S.P.M. / Volume:		/		**Pump 2 S.P.M. / Volume:**		/	
S.P.P.:	9,200	/	9,600	**Mud Density:**	1,110	/	1,140
Drift Angle:	36.000	/	36.800	**Funnel Viscosity:**	45	/	60

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

Wireline Logging Summary

Storage Units: Metric

Logging Suite Number: 1
Wireline Logging Company: Schlumberger
District: Grande Prairie
Witness: B. Lillico

Engineer: Tanya Schneider
Unit Number: 2025

Was Pressure Control Equipment Utilized:
Was the Logging Job Mechanically Assisted:

Maximum Deviation: 12.000 °
Hole Size: 311.0

Total Lost Time:
Loggers' Total Down Time: 14.00
Total Job Time (From Rig up to Rig down): 31.50

	Measured Depth	True Vertical Depth
Casing Depth Driller	701.30	700.70
Casing Depth Logger	703.50	
Total Depth Driller (Tally)	2,500.00	2,491.40
Total Depth Driller (Strap or SLM)	2,502.00	

General Remarks: Loggers had difficulty with UBI, motor on bottom would not spin, tripped out and changed out the telemetry tool.
Ran UBI-GPIT-GAMMA RAY 2485-1975m, 800-702m.

Logging Run #: 1
Date: Mar 14, 1999

Drilling Fluid Data

Drilling Fluid Type: Oil Based Invert
Fluid Density: 1270 **Viscosity:** 57 **pH:** 9.0 **Fluid Loss:**

Mud Resistivity (Rm): @ °
Mud Resistivity (Rm) @ BHT: @ °
Mud Filtrate Resistivity (Rmf): @ °
Mud Cake Resistivity (Rmc): @ °

Maximum Temperature: 120.0 °
Source (Rmf):
Source (Rmc):

Logging Run Information

Date on Bottom: Mar 14, 1999
Total Depth Logger: 2,508.00 (MD) (TVD)

Logging Tools: AIT-DSI-EMS-AMS-GPIT; 2508-702m; Gamma Ray to Surface.

Remarks: Loggers Depth 8 meters deeper than Drillers Depth.

Hole Conditions: Excellent

Logging Run #: 2
Date: Mar 15, 1999

Drilling Fluid Data

Drilling Fluid Type: Oil Based Invert
Fluid Density: 1270 **Viscosity:** 57 **pH:** 9.0 **Fluid Loss:**

Mud Resistivity (Rm): @ °
Mud Resistivity (Rm) @ BHT: @ ° **Maximum Temperature:** 133.0 °
Mud Filtrate Resistivity (Rmf): @ ° **Source (Rmf):**
Mud Cake Resistivity (Rmc): @ ° **Source (Rmc):**

Logging Run Information

Date on Bottom: Mar 15, 1999
Total Depth Logger: 2,508.00 (MD) (TVD)

Logging Tools: UBI-GPIT-GAMMA RAY; Ran to bottom; tool failed; no log; Pulled out of hole and changed telemetry tool.

Remarks: Tool did not work; motor on bottom of UBI tool would not spin; Pulled out of hole, shale plugged onto spinning unit on bottom of tool.

Hole Conditions: Excellent

Logging Run #: 3
Date: Mar 15, 1999

Drilling Fluid Data

Drilling Fluid Type: Oil Based Invert
Fluid Density: 1270 **Viscosity:** 57 **pH:** 9.0 **Fluid Loss:**

Mud Resistivity (Rm): @ °
Mud Resistivity (Rm) @ BHT: @ ° **Maximum Temperature:** 117.0 °
Mud Filtrate Resistivity (Rmf): @ ° **Source (Rmf):**
Mud Cake Resistivity (Rmc): @ ° **Source (Rmc):**

Logging Run Information

Date on Bottom: Mar 15, 1999
Total Depth Logger: 2,485.00 (MD) (TVD)

Logging Tools: UBI-GPIT-GAMMA RAY; 2485-1975m, 800-702m.

Remarks: Did not run all the way to bottom, stopped at 2485m and logged out.

Hole Conditions: Excellent

Wireline Logging Summary

Storage Units: Metric

Logging Suite Number: 2
Wireline Logging Company: Schlumberger
District: Grande Prairie
Witness: B. Lillico

Engineer: Tanya Schneider
Unit Number: 2016

Was Pressure Control Equipment Utilized:
Was the Logging Job Mechanically Assisted:

Maximum Deviation: 37.000 °
Hole Size: 216.0

Total Lost Time:
Loggers' Total Down Time:
Total Job Time (From Rig up to Rig down):

	Measured Depth	True Vertical Depth
Casing Depth Driller		
Casing Depth Logger		
Total Depth Driller (Tally)	3,000.00	
Total Depth Driller (Strap or SLM)		

General Remarks: Geologist off location at TD; Planned logging program: #1 AIT-DSI, #2 CNL-LDT-ARI-CCL, #3 NGR-FMI

Logging Run #:
Date:

Drilling Fluid Data

Drilling Fluid Type:
Fluid Density: **Viscosity:** **pH:** **Fluid Loss:**

Mud Resistivity (Rm): @ °
Mud Resistivity (Rm) @ BHT: @ ° **Maximum Temperature:** °
Mud Filtrate Resistivity (Rmf): @ ° **Source (Rmf):**
Mud Cake Resistivity (Rmc): @ ° **Source (Rmc):**

Logging Run Information

Date on Bottom:
Total Depth Logger: (MD) (TVD)

Logging Tools:

Remarks:

Hole Conditions:

Deviation / Directional Survey Report

Directional Drilling Company:	
Directional Drillers:	
Measured While Drilling (MWD) Hands:	
Survey Type:	magnetic
Survey Mode:	single shot
Survey Date:	2/16/99
Survey Calculation Method:	minimum curvature
Vertical Section Calculated on:	56.66 ° plane

Survey Tie-In Information

Tie-In Depths **Measured Depth:** **True Vertical Depth (TVD):**
Tie-In Node **Latitude:** **Longitude:**
Tie-In Co-Ordinantes
N / S:
E / W:

Kick-Off (Whipstock) Information

Kick-Off Depths **Measured Depth:** **True Vertical Depth (TVD):**
Kick-Off Node **Latitude:** **Longitude:**
Kick-Off Co-Ordinantes
N / S:
E / W:

Remarks:

Survey Points

Storage Units: Metric

Measured Depth	T.V.D.	Drift Angle (°)	Azimuth (°)	+N/-S Distance	+E/-W Distance	Vertical Section	DogLeg Severity
221.00	221.00	0.250	1.70	0.48	0.02	0.28	0.03
306.00	306.00	1.250	311.70	1.28	-0.67	0.14	0.40
425.00	424.90	2.000	296.70	3.08	-3.50	-1.23	0.22
513.00	512.90	3.750	71.70	4.68	-2.14	0.79	1.85
538.00	537.80	4.350	51.70	5.52	-0.62	2.52	1.86
573.00	572.70	4.100	47.69	7.18	1.35	5.08	0.34
611.00	610.60	4.500	42.69	9.20	3.37	7.87	0.44
642.00	641.50	4.000	41.79	10.89	4.91	10.09	0.50
676.00	675.50	3.500	30.80	12.67	6.23	12.17	0.78
702.00	701.40	3.000	30.69	13.94	6.99	13.50	0.59
742.00	741.36	3.250	32.00	15.80	8.12	15.47	0.20
791.00	790.28	3.250	37.00	18.09	9.69	18.04	0.17
913.00	912.04	4.000	49.00	23.64	14.99	25.51	0.26
961.00	959.93	3.870	41.00	25.96	17.31	28.73	0.35
1,027.00	1,025.77	4.000	38.00	29.46	20.19	33.06	0.11
1,103.00	1,101.59	4.000	32.00	33.79	23.23	37.98	0.16
1,159.00	1,157.42	4.870	35.00	37.40	25.63	41.96	48.00
1,219.00	1,217.20	5.000	56.00	40.94	29.26	46.94	0.90
1,248.00	1,246.08	5.500	59.00	42.36	31.50	49.60	0.59
1,286.00	1,283.85	7.000	57.00	44.56	35.00	53.73	1.20
1,324.00	1,321.54	7.750	55.00	47.29	39.04	58.61	0.63

Deviation / Directional Survey Report

Directional Drilling Company:	Baker Hughes Inteq
Directional Drillers:	Barry Maser
Measured While Drilling (MWD) Hands:	Anthony Khan
Survey Type:	electronic
Survey Mode:	MWD
Survey Date:	2/25/99
Survey Calculation Method:	minimum curvature
Vertical Section Calculated on:	56.66 ° plane

Survey Tie-In Information

Tie-In Depths **Measured Depth:** **True Vertical Depth (TVD):**

Tie-In Node **Latitude:** **Longitude:**

Tie-In Co-Ordinantes

N / S:

E / W:

Kick-Off (Whipstock) Information

Kick-Off Depths **Measured Depth:** **True Vertical Depth (TVD):**

Kick-Off Node **Latitude:** **Longitude:**

Kick-Off Co-Ordinantes

N / S:

E / W:

Remarks:

Survey Points

Storage Units: Metric

Measured Depth	T.V.D.	Drift Angle (°)	Azimuth (°)	+N/-S Distance	+E/-W Distance	Vertical Section	DogLeg Severity
1,359.50	1,356.71	7.900	59.60	49.93	43.12	63.46	0.54
1,369.00	1,366.11	8.500	60.50	50.61	44.29	64.82	1.94
1,388.10	1,384.97	9.800	62.50	52.06	46.96	67.84	2.10
1,397.70	1,394.42	10.500	61.80	52.85	48.46	69.53	2.22
1,407.30	1,403.84	11.300	62.20	53.70	50.06	71.33	2.51
1,416.90	1,413.25	11.900	62.60	54.59	51.77	73.25	1.89
1,436.00	1,431.94	12.000	62.90	56.37	55.27	77.16	0.18
1,455.00	1,450.56	10.900	56.70	58.26	58.53	80.92	2.60
1,484.00	1,479.11	9.200	50.90	61.23	62.63	85.97	2.04
1,502.00	1,496.88	9.000	52.60	63.02	64.88	88.84	0.56
1,512.70	1,507.45	8.900	55.00	64.00	66.23	90.50	1.08
1,541.40	1,535.86	7.300	59.70	66.20	69.62	94.54	1.81
1,570.20	1,564.46	6.300	56.70	67.99	72.52	97.95	1.11
1,598.90	1,593.01	5.600	52.20	69.71	74.94	100.92	0.88
1,627.60	1,621.58	5.200	60.20	71.21	77.18	103.62	0.89
1,656.40	1,650.29	3.900	68.20	72.23	79.22	105.88	1.50
1,665.90	1,659.77	3.600	67.20	72.46	79.79	106.49	0.97
1,675.50	1,669.35	3.700	64.60	72.71	80.35	107.09	0.60
1,685.10	1,678.93	3.700	66.10	72.97	80.92	107.70	0.30
1,713.80	1,707.57	3.400	80.70	73.48	82.60	109.39	0.99
1,733.00	1,726.73	4.200	74.30	73.76	83.84	110.58	1.41
1,752.20	1,745.87	5.100	63.40	74.34	85.28	112.10	1.96
1,780.90	1,774.47	4.600	50.90	75.63	87.31	114.51	1.22
1,790.40	1,783.94	4.700	49.40	76.13	87.91	115.28	0.50
1,819.10	1,812.54	4.800	59.60	77.50	89.83	117.64	0.89
1,838.30	1,831.68	4.500	67.60	78.19	91.22	119.19	1.12
1,857.50	1,850.82	4.500	69.90	78.74	92.63	120.66	0.28
1,886.20	1,879.43	4.400	72.30	79.46	94.73	122.81	0.22
1,915.00	1,908.15	4.200	73.30	80.10	96.80	124.89	0.22
1,943.80	1,936.88	3.700	70.90	80.71	98.68	126.80	0.55
1,953.30	1,946.36	3.800	70.40	80.91	99.27	127.40	0.33
1,972.50	1,965.52	3.800	62.80	81.42	100.44	128.65	0.79
2,001.20	1,994.16	3.700	56.10	82.37	102.05	130.53	0.47
2,030.00	2,022.90	3.400	63.60	83.27	103.59	132.32	0.58
2,049.10	2,041.97	3.400	59.50	83.81	104.58	133.44	0.38
2,058.70	2,051.55	3.500	61.70	84.09	105.08	134.02	0.52

2,077.80	2,070.61	3.700	75.60	84.52	106.19	135.18	1.40
2,087.40	2,080.19	3.900	79.30	84.66	106.82	135.78	0.99
2,116.20	2,108.93	3.800	90.30	84.83	108.73	137.47	0.78
2,144.50	2,137.15	4.500	85.70	84.91	110.78	139.21	0.82
2,173.30	2,165.85	5.300	72.40	85.40	113.17	50.72	1.44
2,202.00	2,194.39	6.600	60.60	86.61	115.87	52.37	1.86
2,221.20	2,213.48	5.800	60.70	87.63	117.68	53.36	1.25
2,230.70	2,222.93	5.600	60.70	88.09	118.50	53.82	0.63
2,259.50	2,251.63	4.000	52.10	89.39	120.52	54.84	1.82
2,269.00	2,261.12	3.000	40.20	89.79	120.79	54.99	3.89
2,288.20	2,280.29	2.800	25.30	90.59	121.47	55.00	1.21
2,307.30	2,299.36	3.200	22.90	91.51	121.87	54.86	0.66
2,316.90	2,308.95	3.400	27.80	92.01	122.11	54.80	1.08
2,326.40	2,318.40	3.900	32.00	92.53	122.41	54.98	1.79
2,335.90	2,327.90	4.400	34.80	93.10	122.79	54.80	1.70
2,355.10	2,347.04	4.900	49.20	94.24	123.83	55.08	1.98
2,374.30	2,366.16	5.400	59.50	95.24	125.23	55.74	1.64
2,384.00	2,375.82	5.700	62.20	95.69	126.05	56.19	1.23
2,393.70	2,385.47	5.500	64.20	96.12	126.90	56.68	0.86
2,403.30	2,395.03	5.500	68.80	96.49	127.74	57.20	1.38
2,413.10	2,404.79	5.300	69.40	96.82	128.60	57.76	0.64
2,422.70	2,414.35	5.200	69.50	97.12	129.42	58.29	0.31
2,432.40	2,424.00	5.300	68.10	97.44	130.25	58.82	0.50
2,442.00	2,433.56	5.200	66.50	97.78	131.06	163.24	0.55
2,461.40	2,452.89	4.700	60.00	98.53	132.56	164.89	1.16
2,471.00	2,462.46	4.500	62.30	98.90	133.23	165.66	0.85
2,484.00	2,475.42	4.400	62.60	99.37	134.13	166.67	0.24

Deviation / Directional Survey Report

Directional Drilling Company:	Baker Hughes Inteq
Directional Drillers:	Barry Maser
Measured While Drilling (MWD) Hands:	Anthony Khan
Survey Type:	electronic
Survey Mode:	MWD
Survey Date:	3/20/99
Survey Calculation Method:	minimum curvature
Vertical Section Calculated on:	122.00 ° plane

Survey Tie-In Information

Tie-In Depths **Measured Depth:** **True Vertical Depth (TVD):**
Tie-In Node **Latitude:** **Longitude:**
Tie-In Co-Ordinantes
N / S:
E / W:

Kick-Off (Whipstock) Information

Kick-Off Depths **Measured Depth:** **True Vertical Depth (TVD):**
Kick-Off Node **Latitude:** **Longitude:**
Kick-Off Co-Ordinantes
N / S:
E / W:

Remarks: Last Survey at 3000m is an extrapolation. Directional work went very well, maximum angle 37.4 degrees, maximum dogleg 8.5 degrees per 30.

Survey Points

Storage Units: Metric

Measured Depth	T.V.D.	Drift Angle (°)	Azimuth (°)	+N/-S Distance	+E/-W Distance	Vertical Section	DogLeg Severity
2,510.00	2,501.34	4.600	71.00	100.17	136.00	62.26	0.79
2,519.60	2,510.90	5.700	91.90	100.28	136.84	62.91	6.74
2,529.30	2,520.54	7.200	103.30	100.12	137.91	63.90	6.08
2,539.00	2,530.14	9.400	107.90	99.74	139.26	65.24	7.10
2,548.60	2,539.59	11.000	112.50	99.15	140.85	66.91	5.61
2,558.30	2,549.07	13.500	115.90	98.30	142.72	68.94	8.04
2,569.70	2,560.12	15.000	120.40	96.97	145.19	71.74	4.90
2,579.30	2,569.36	16.100	122.50	95.63	147.39	74.32	3.86
2,588.80	2,578.44	18.200	126.60	94.03	149.69	77.11	7.65
2,598.40	2,587.51	20.300	129.00	92.09	152.19	80.26	7.01
2,608.00	2,596.44	22.600	128.80	89.89	154.92	83.75	7.19
2,617.50	2,605.12	15.300	129.00	87.47	157.92	87.57	8.53
2,626.90	2,613.53	27.800	128.60	84.83	161.19	91.74	8.00
2,636.40	2,621.85	29.800	126.40	82.05	164.83	96.30	7.15
2,646.00	2,630.10	31.900	123.90	79.22	168.85	101.21	7.69
2,655.60	2,638.16	33.900	123.20	76.34	173.20	106.43	6.36
2,665.20	2,646.02	36.000	122.40	73.36	177.82	111.92	6.72
2,674.80	2,653.75	36.800	121.10	70.36	182.66	117.62	3.47
2,684.50	2,661.50	37.100	120.60	67.37	187.67	123.45	1.31
2,694.20	2,669.22	37.400	121.80	64.33	192.69	129.32	2.43
2,703.90	2,676.97	36.700	122.50	61.22	197.64	135.17	2.53
2,713.50	2,684.70	35.900	121.40	58.21	202.46	140.85	3.22
2,723.20	2,692.57	35.600	120.60	55.30	207.32	146.52	1.72
2,732.90	2,700.46	35.700	121.30	52.39	212.17	152.17	1.30
2,742.60	2,708.31	36.200	122.70	49.37	217.00	157.86	2.98
2,752.20	2,716.04	36.600	123.40	46.26	221.77	163.56	1.80
2,761.90	2,723.84	36.200	121.80	43.16	226.62	169.31	3.19
2,771.60	2,731.66	36.500	122.70	40.09	231.48	175.06	1.89
2,781.20	2,739.35	36.900	122.90	36.99	236.31	180.80	1.30
2,790.90	2,747.14	36.300	122.20	33.87	241.18	186.58	2.26
2,800.60	2,754.94	36.600	122.40	30.80	246.05	192.34	1.00
2,810.20	2,762.65	36.600	121.80	27.75	250.90	198.07	1.12
2,819.90	2,770.47	36.000	121.00	24.76	255.80	203.81	2.36
2,829.60	2,778.36	35.100	118.90	21.95	260.69	209.45	4.69
2,839.30	2,786.29	35.300	119.10	19.23	265.58	215.03	0.71
2,848.90	2,794.11	35.600	120.30	16.45	270.41	220.59	2.37

2,858.60	2,801.97	36.000	119.40	13.65	275.33	226.26	2.04
2,868.30	2,809.98	36.300	120.30	10.80	280.30	231.98	1.89
2,877.80	2,817.49	35.800	120.90	7.96	285.11	237.57	1.93
2,887.30	2,825.19	35.800	119.50	5.16	289.91	243.12	2.59
2,896.80	2,832.87	36.300	120.50	2.37	294.75	248.71	2.44
2,906.40	2,840.58	36.900	120.30	-0.53	299.69	254.43	1.91
2,915.90	2,848.20	36.500	119.90	-3.38	304.60	260.11	1.47
2,925.50	2,855.95	35.800	118.40	-6.14	309.55	265.76	3.53
2,935.20	2,863.82	35.700	119.30	-8.87	314.51	271.42	1.66
2,944.90	2,871.68	36.000	119.60	-11.66	319.46	277.10	1.08
2,954.60	2,879.50	36.600	119.60	-14.50	324.45	282.83	1.86
2,964.30	2,887.32	36.000	119.30	-17.32	329.45	288.57	1.94
2,974.00	2,895.17	35.900	119.10	-20.10	334.42	294.26	0.48
2,983.00	2,902.45	36.100	119.20	-22.68	339.04	299.54	0.69
3,000.00	2,916.19	36.100	120.00	-27.63	347.75	309.55	0.83

Directional Survey Points

Storage Units: Metric

Survey Type: magnetic / single shot

Measured Depth	T.V.D.	Drift Angle (°)	Azimuth (°)	+N / -S Distance	+E / -W Distance	Vertical Section	DogLeg Severity
221.00	221.00	0.250	1.70	0.48	0.02	0.28	0.03
306.00	306.00	1.250	311.70	1.28	-0.67	0.14	0.40
425.00	424.90	2.000	296.70	3.08	-3.50	-1.23	0.22
513.00	512.90	3.750	71.70	4.68	-2.14	0.79	1.85
538.00	537.80	4.350	51.70	5.52	-0.62	2.52	1.86
573.00	572.70	4.100	47.69	7.18	1.35	5.08	0.34
611.00	610.60	4.500	42.69	9.20	3.37	7.87	0.44
642.00	641.50	4.000	41.79	10.89	4.91	10.09	0.50
676.00	675.50	3.500	30.80	12.67	6.23	12.17	0.78
702.00	701.40	3.000	30.69	13.94	6.99	13.50	0.59
742.00	741.36	3.250	32.00	15.80	8.12	15.47	0.20
791.00	790.28	3.250	37.00	18.09	9.69	18.04	0.17
913.00	912.04	4.000	49.00	23.64	14.99	25.51	0.26
961.00	959.93	3.870	41.00	25.96	17.31	28.73	0.35
1,027.00	1,025.77	4.000	38.00	29.46	20.19	33.06	0.11
1,103.00	1,101.59	4.000	32.00	33.79	23.23	37.98	0.16
1,159.00	1,157.42	4.870	35.00	37.40	25.63	41.96	48.00
1,219.00	1,217.20	5.000	56.00	40.94	29.26	46.94	0.90
1,248.00	1,246.08	5.500	59.00	42.36	31.50	49.60	0.59
1,286.00	1,283.85	7.000	57.00	44.56	35.00	53.73	1.20
1,324.00	1,321.54	7.750	55.00	47.29	39.04	58.61	0.63

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
1,359.50	1,356.71	7.900	59.60	49.93	43.12	63.46	0.54
1,369.00	1,366.11	8.500	60.50	50.61	44.29	64.82	1.94
1,388.10	1,384.97	9.800	62.50	52.06	46.96	67.84	2.10
1,397.70	1,394.42	10.500	61.80	52.85	48.46	69.53	2.22
1,407.30	1,403.84	11.300	62.20	53.70	50.06	71.33	2.51
1,416.90	1,413.25	11.900	62.60	54.59	51.77	73.25	1.89
1,436.00	1,431.94	12.000	62.90	56.37	55.27	77.16	0.18
1,455.00	1,450.56	10.900	56.70	58.26	58.53	80.92	2.60
1,484.00	1,479.11	9.200	50.90	61.23	62.63	85.97	2.04
1,502.00	1,496.88	9.000	52.60	63.02	64.88	88.84	0.56
1,512.70	1,507.45	8.900	55.00	64.00	66.23	90.50	1.08
1,541.40	1,535.86	7.300	59.70	66.20	69.62	94.54	1.81
1,570.20	1,564.46	6.300	56.70	67.99	72.52	97.95	1.11
1,598.90	1,593.01	5.600	52.20	69.71	74.94	100.92	0.88
1,627.60	1,621.58	5.200	60.20	71.21	77.18	103.62	0.89
1,656.40	1,650.29	3.900	68.20	72.23	79.22	105.88	1.50
1,665.90	1,659.77	3.600	67.20	72.46	79.79	106.49	0.97
1,675.50	1,669.35	3.700	64.60	72.71	80.35	107.09	0.60
1,685.10	1,678.93	3.700	66.10	72.97	80.92	107.70	0.30
1,713.80	1,707.57	3.400	80.70	73.48	82.60	109.39	0.99
1,733.00	1,726.73	4.200	74.30	73.76	83.84	110.58	1.41
1,752.20	1,745.87	5.100	63.40	74.34	85.28	112.10	1.96
1,780.90	1,774.47	4.600	50.90	75.63	87.31	114.51	1.22
1,790.40	1,783.94	4.700	49.40	76.13	87.91	115.28	0.50
1,819.10	1,812.54	4.800	59.60	77.50	89.83	117.64	0.89
1,838.30	1,831.68	4.500	67.60	78.19	91.22	119.19	1.12
1,857.50	1,850.82	4.500	69.90	78.74	92.63	120.66	0.28
1,886.20	1,879.43	4.400	72.30	79.46	94.73	122.81	0.22
1,915.00	1,908.15	4.200	73.30	80.10	96.80	124.89	0.22
1,943.80	1,936.88	3.700	70.90	80.71	98.68	126.80	0.55
1,953.30	1,946.36	3.800	70.40	80.91	99.27	127.40	0.33
1,972.50	1,965.52	3.800	62.80	81.42	100.44	128.65	0.79
2,001.20	1,994.16	3.700	56.10	82.37	102.05	130.53	0.47
2,030.00	2,022.90	3.400	63.60	83.27	103.59	132.32	0.58
2,049.10	2,041.97	3.400	59.50	83.81	104.58	133.44	0.38

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
2,058.70	2,051.55	3.500	61.70	84.09	105.08	134.02	0.52
2,077.80	2,070.61	3.700	75.60	84.52	106.19	135.18	1.40
2,087.40	2,080.19	3.900	79.30	84.66	106.82	135.78	0.99
2,116.20	2,108.93	3.800	90.30	84.83	108.73	137.47	0.78
2,144.50	2,137.15	4.500	85.70	84.91	110.78	139.21	0.82
2,173.30	2,165.85	5.300	72.40	85.40	113.17	50.72	1.44
2,202.00	2,194.39	6.600	60.60	86.61	115.87	52.37	1.86
2,221.20	2,213.48	5.800	60.70	87.63	117.68	53.36	1.25
2,230.70	2,222.93	5.600	60.70	88.09	118.50	53.82	0.63
2,259.50	2,251.63	4.000	52.10	89.39	120.52	54.84	1.82
2,269.00	2,261.12	3.000	40.20	89.79	120.79	54.99	3.89
2,288.20	2,280.29	2.800	25.30	90.59	121.47	55.00	1.21
2,307.30	2,299.36	3.200	22.90	91.51	121.87	54.86	0.66
2,316.90	2,308.95	3.400	27.80	92.01	122.11	54.80	1.08
2,326.40	2,318.40	3.900	32.00	92.53	122.41	54.98	1.79
2,335.90	2,327.90	4.400	34.80	93.10	122.79	54.80	1.70
2,355.10	2,347.04	4.900	49.20	94.24	123.83	55.08	1.98
2,374.30	2,366.16	5.400	59.50	95.24	125.23	55.74	1.64
2,384.00	2,375.82	5.700	62.20	95.69	126.05	56.19	1.23
2,393.70	2,385.47	5.500	64.20	96.12	126.90	56.68	0.86
2,403.30	2,395.03	5.500	68.80	96.49	127.74	57.20	1.38
2,413.10	2,404.79	5.300	69.40	96.82	128.60	57.76	0.64
2,422.70	2,414.35	5.200	69.50	97.12	129.42	58.29	0.31
2,432.40	2,424.00	5.300	68.10	97.44	130.25	58.82	0.50
2,442.00	2,433.56	5.200	66.50	97.78	131.06	163.24	0.55
2,461.40	2,452.89	4.700	60.00	98.53	132.56	164.89	1.16
2,471.00	2,462.46	4.500	62.30	98.90	133.23	165.66	0.85
2,484.00	2,475.42	4.400	62.60	99.37	134.13	166.67	0.24

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
2,510.00	2,501.34	4.600	71.00	100.17	136.00	62.26	0.79
2,519.60	2,510.90	5.700	91.90	100.28	136.84	62.91	6.74
2,529.30	2,520.54	7.200	103.30	100.12	137.91	63.90	6.08
2,539.00	2,530.14	9.400	107.90	99.74	139.26	65.24	7.10
2,548.60	2,539.59	11.000	112.50	99.15	140.85	66.91	5.61
2,558.30	2,549.07	13.500	115.90	98.30	142.72	68.94	8.04
2,569.70	2,560.12	15.000	120.40	96.97	145.19	71.74	4.90
2,579.30	2,569.36	16.100	122.50	95.63	147.39	74.32	3.86
2,588.80	2,578.44	18.200	126.60	94.03	149.69	77.11	7.65
2,598.40	2,587.51	20.300	129.00	92.09	152.19	80.26	7.01
2,608.00	2,596.44	22.600	128.80	89.89	154.92	83.75	7.19
2,617.50	2,605.12	15.300	129.00	87.47	157.92	87.57	8.53
2,626.90	2,613.53	27.800	128.60	84.83	161.19	91.74	8.00
2,636.40	2,621.85	29.800	126.40	82.05	164.83	96.30	7.15
2,646.00	2,630.10	31.900	123.90	79.22	168.85	101.21	7.69
2,655.60	2,638.16	33.900	123.20	76.34	173.20	106.43	6.36
2,665.20	2,646.02	36.000	122.40	73.36	177.82	111.92	6.72
2,674.80	2,653.75	36.800	121.10	70.36	182.66	117.62	3.47
2,684.50	2,661.50	37.100	120.60	67.37	187.67	123.45	1.31
2,694.20	2,669.22	37.400	121.80	64.33	192.69	129.32	2.43
2,703.90	2,676.97	36.700	122.50	61.22	197.64	135.17	2.53
2,713.50	2,684.70	35.900	121.40	58.21	202.46	140.85	3.22
2,723.20	2,692.57	35.600	120.60	55.30	207.32	146.52	1.72
2,732.90	2,700.46	35.700	121.30	52.39	212.17	152.17	1.30
2,742.60	2,708.31	36.200	122.70	49.37	217.00	157.86	2.98
2,752.20	2,716.04	36.600	123.40	46.26	221.77	163.56	1.80
2,761.90	2,723.84	36.200	121.80	43.16	226.62	169.31	3.19
2,771.60	2,731.66	36.500	122.70	40.09	231.48	175.06	1.89
2,781.20	2,739.35	36.900	122.90	36.99	236.31	180.80	1.30
2,790.90	2,747.14	36.300	122.20	33.87	241.18	186.58	2.26
2,800.60	2,754.94	36.600	122.40	30.80	246.05	192.34	1.00
2,810.20	2,762.65	36.600	121.80	27.75	250.90	198.07	1.12
2,819.90	2,770.47	36.000	121.00	24.76	255.80	203.81	2.36
2,829.60	2,778.36	35.100	118.90	21.95	260.69	209.45	4.69
2,839.30	2,786.29	35.300	119.10	19.23	265.58	215.03	0.71

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
2,848.90	2,794.11	35.600	120.30	16.48	270.41	220.59	2.37
2,858.60	2,801.97	36.000	119.40	13.65	275.33	226.26	2.04
2,868.30	2,809.98	36.300	120.30	10.80	280.30	231.98	1.89
2,877.80	2,817.49	35.800	120.90	7.96	285.11	237.57	1.93
2,887.30	2,825.19	35.800	119.50	5.16	289.91	243.12	2.59
2,896.80	2,832.87	36.300	120.50	2.37	294.75	248.71	2.44
2,906.40	2,840.58	36.800	120.30	-0.53	299.69	254.43	1.91
2,915.90	2,848.20	36.500	119.90	-3.38	304.60	260.11	1.47
2,925.50	2,855.95	35.800	118.40	-6.14	309.55	265.76	3.53
2,935.20	2,863.82	35.700	119.30	-8.87	314.51	271.42	1.66
2,944.90	2,871.68	36.000	119.60	-11.66	319.46	277.10	1.08
2,954.60	2,879.50	36.600	119.60	-14.50	324.45	282.83	1.86
2,964.30	2,887.32	36.000	119.30	-17.32	329.45	288.57	1.94
2,974.00	2,895.17	35.900	119.10	-20.10	334.42	294.26	0.48
2,983.00	2,902.45	36.100	119.20	-22.68	339.04	299.54	0.69
3,000.00	2,916.19	36.100	120.00	-27.63	347.75	309.55	0.83

Deviation Survey Points

Storage Units: Metric

Survey Type: magnetic / single shot

Measured Depth	rift Angle (°)	Azimuth (°)	Measured Depth	Drift Angle (°)	Azimuth (°)
221.00	0.250	1.70			
306.00	1.250	311.70			
425.00	2.000	296.70			
513.00	3.750	71.70			
538.00	4.350	51.70			
573.00	4.100	47.69			
611.00	4.500	42.69			
642.00	4.000	41.79			
676.00	3.500	30.80			
702.00	3.000	30.69			
742.00	3.250	32.00			
791.00	3.250	37.00			
913.00	4.000	49.00			
961.00	3.870	41.00			
1,027.00	4.000	38.00			
1,103.00	4.000	32.00			
1,159.00	4.870	35.00			
1,219.00	5.000	56.00			
1,248.00	5.500	59.00			
1,286.00	7.000	57.00			
1,324.00	7.750	55.00			

Deviation Survey Points

Storage Units: Metric

Survey Type: electronic / MWD

Measured Depth	rift Angle (°)	Azimuth (°)	Measured Depth	Drift Angle (°)	Azimuth (°)
1,359.50	7.900	59.60	2,058.70	3.500	61.70
1,369.00	8.500	60.50	2,077.80	3.700	75.60
1,388.10	9.800	62.50	2,087.40	3.900	79.30
1,397.70	10.500	61.80	2,116.20	3.800	90.30
1,407.30	11.300	62.20	2,144.50	4.500	85.70
1,416.90	11.900	62.60	2,173.30	5.300	72.40
1,436.00	12.000	62.90	2,202.00	6.600	60.60
1,455.00	10.900	56.70	2,221.20	5.800	60.70
1,484.00	9.200	50.90	2,230.70	5.600	60.70
1,502.00	9.000	52.60	2,259.50	4.000	52.10
1,512.70	8.900	55.00	2,269.00	3.000	40.20
1,541.40	7.300	59.70	2,288.20	2.800	25.30
1,570.20	6.300	56.70	2,307.30	3.200	22.90
1,598.90	5.600	52.20	2,316.90	3.400	27.80
1,627.60	5.200	60.20	2,326.40	3.900	32.00
1,656.40	3.900	68.20	2,335.90	4.400	34.80
1,665.90	3.600	67.20	2,355.10	4.900	49.20
1,675.50	3.700	64.60	2,374.30	5.400	59.50
1,685.10	3.700	66.10	2,384.00	5.700	62.20
1,713.80	3.400	80.70	2,393.70	5.500	64.20
1,733.00	4.200	74.30	2,403.30	5.500	68.80
1,752.20	5.100	63.40	2,413.10	5.300	69.40
1,780.90	4.600	50.90	2,422.70	5.200	69.50
1,790.40	4.700	49.40	2,432.40	5.300	68.10
1,819.10	4.800	59.60	2,442.00	5.200	66.50
1,838.30	4.500	67.60	2,461.40	4.700	60.00
1,857.50	4.500	69.90	2,471.00	4.500	62.30
1,886.20	4.400	72.30	2,484.00	4.400	62.60
1,915.00	4.200	73.30			
1,943.80	3.700	70.90			
1,953.30	3.800	70.40			
1,972.50	3.800	62.80			
2,001.20	3.700	56.10			
2,030.00	3.400	63.60			
2,049.10	3.400	59.50			

Deviation Survey Points

Storage Units: Metric

Survey Type: electronic / MWD

Measured Depth	rift Angle (°)	Azimuth (°)
2,510.00	4.600	71.00
2,519.60	5.700	91.90
2,529.30	7.200	103.30
2,539.00	9.400	107.90
2,548.60	11.000	112.50
2,558.30	13.500	115.90
2,569.70	15.000	120.40
2,579.30	16.100	122.50
2,588.80	18.200	126.60
2,598.40	20.300	129.00
2,608.00	22.600	128.80
2,617.50	15.300	129.00
2,626.90	27.800	128.60
2,636.40	29.800	126.40
2,646.00	31.900	123.90
2,655.60	33.900	123.20
2,665.20	36.000	122.40
2,674.80	36.800	121.10
2,684.50	37.100	120.60
2,694.20	37.400	121.80
2,703.90	36.700	122.50
2,713.50	35.900	121.40
2,723.20	35.600	120.60
2,732.90	35.700	121.30
2,742.60	36.200	122.70
2,752.20	36.600	123.40
2,761.90	36.200	121.80
2,771.60	36.500	122.70
2,781.20	36.900	122.90
2,790.90	36.300	122.20
2,800.60	36.600	122.40
2,810.20	36.600	121.80
2,819.90	36.000	121.00
2,829.60	35.100	118.90
2,839.30	35.300	119.10

Measured Depth	Drift Angle (°)	Azimuth (°)
2,848.90	35.600	120.30
2,858.60	36.000	119.40
2,868.30	36.300	120.30
2,877.80	35.800	120.90
2,887.30	35.800	119.50
2,896.80	36.300	120.50
2,906.40	36.900	120.30
2,915.90	36.500	119.90
2,925.50	35.800	118.40
2,935.20	35.700	119.30
2,944.90	36.000	119.60
2,954.60	36.600	119.60
2,964.30	36.000	119.30
2,974.00	35.900	119.10
2,983.00	36.100	119.20
3,000.00	36.100	120.00

Drilling Fluid Summary

Storage Units: Metric

Drilling Fluid Type:	Gel Chem Spud Mud	**From:**	0	**To:**	711
Drilling Fluid Type:	Oil based Invert	**From:**	771	**To:**	2,500
Drilling Fluid Type:	Gel Chem	**From:**	2,500	**To:**	3,000

Work Schedule

Storage Units: Metric

Company:	Lillico Petroleum Consultants			
Geologist:	**Brock Lillico**			
Work Performed	**From:**	Feb 16, 1999	**To:**	Mar 28, 1999
Depths Logged	**From:**	700	**To:**	3,000
Remarks:				

Company:	Lillico Petroleum Consultants			
Geologist:	**Cathy Lillico**			
Work Performed	**From:**	Mar 12, 1999	**To:**	Mar 28, 1999
Depths Logged	**From:**	2,427	**To:**	3,000
Remarks:	FID and TCD Gas Chromatograph, plus FID and CC Total Gas Detector.			

Formation Top Summary

Storage Units: Metric

Kelly Bushing Elevation: 418.80
Ground Elevation: 409.60

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
Thrust Fault Besa Rive	2,900.00					-2,481.20	-2,600.00
BESA RIVER	300.00	300.00	300.00			118.80	891.30
Exshaw 1st Black Shal	1,340.00	1,193.00	1,191.30	1,206.00	1,204.25	-785.45	361.05
LOWER BESA RIVER	1,669.00	1,567.00	1,561.30	1,571.00	1,565.30	-1,146.50	641.00
Muskwa 2nd Black Sha	2,340.00	2,219.00	2,211.30	2,214.00	2,206.30	-1,787.50	276.10
NAHANNI	2,565.00	2,484.00	2,475.40	2,491.00	2,482.40	-2,063.60	

Formation Evaluations

Storage Units: Metric

Kelly Bushing Elevation: 418.80
Ground Elevation: 409.60
Casing Flange Elevation:

All Depths Measured from Kelly Bushing Elevation

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

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

	Measured Depth	True Vertical Depth	Subsea	Thickness
Sample Top	300.00	300.00	118.80	891.30
Log Top				

Evaluation:

The Besa River is SHALE, medium gray to medium green gray, dark gray in part, micromicaceous, fissile, splintery, slightly calcareous, slightly fossiliferous with trace shell fragments, trace Crinoids, trace Brachiopods, trace open fractures with sparry calcite crystals, trace pyrite, trace blocky medium gray Marlstone stringers, trace Limestone stringers, medium brown, cryptocrystalline, slightly argillaceous, tight, no shows. The section at 1024-1046m had streaks of LIMESTONE, medium brown, microcrystalline to very fine crystalline, argillaceous to marly, tight, no shows. The section at 987-1010m had microfractures with a significant gas increase. Background gas rose from 0.2% to a range of 8% to 15%. The gas behaved like low volume fracture gas and bled off after 100 meters of drilling. Other gas peaks in the Besa River were at 770m .7%, 890m 1.05%, and 897m .585%

Conclusion:

The Besa River Shale has poor potential for hydrocarbon production.

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	1,193.00	1,191.30	-772.50	370.00
Log Top	1,206.00	1,204.25	-785.45	361.05

Evaluation:

The First Black Shale is SHALE: dark gray to dark brown gray to black, micromicaceous, fissile, slightly bituminous, scattered loose pyrite, trace disseminated microcrystalline pyrite, Marlstone stringers, medium to dark gray, cryptocrystalline, calcareous, tight, no shows, minor microfractures with trace anhydrite infill, trace slickenside, rare trace very coarse hexagonal quartz crystal fragments. A hard section of Ironstone and sideritic Marlstone was present at 1514-1522m which wiped a drillbit out at 1518m. Background gas ranged from 1% to 9.5% while drilling the bituminous 1st Black Shale.

Conclusion:

The 1st Black Shale has very poor hydrocarbon production potential, however, the zone looks like a good source rock.

Kelly Bushing Elevation: 418.80 Casing Flange Elevation:
Ground Elevation: 409.60
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	1,567.00	1,561.30	-1,142.50	650.00
Log Top	1,571.00	1,565.30	-1,146.50	641.00

Evaluation:
The Lower Besa River is SHALE, mainly medium gray, trace dark gray, grading to medium green gray in part, micromicaceous, fissile, moderately soft, slightly calcareous to marly in part, silty in part with increasing silt content and Siltstone laminations near lower part of interval, slightly bituminous, trace fossil remnants, pearly lustre in part, minor disseminated pyrite, trace microfractures, trace slickensides. At 1670-1685m is interbedded Ironstone, dark gray brown, argillaceous, marly, hard, and SHALE, dark gray brown, sideritic to very sideritic, marly, well indurated. At 1770-1820m is SHALE, dark gray to black, micromicaceous, fissile, bituminous, pyritic in part with trace pyritized spicules, trace siderite, interbedded SHALE, medium to dark gray, micromicaceous, fissile, very sideritic and hard in part, slightly bituminous in part, minor Ironstone streaks, dark gray brown, argillaceous, hard. Background gas over the interval 1567-2023m ranged from .6% to 2% with higher gas through the bits interval at 1770-1820m ranging from 1% to 4%. At 2023m a significant increase happened with background gas jumping to 7.5% at 2025m and slowly tapered off after that, dropping down to 2.5% by the 2nd Black Shale.

Conclusion:
The Lower Besa River has little hydrocarbon production potential.

Group:
Formation: Muskwa 2nd Black Shale
Member:
Boundary Type: conformable
Fault Type:

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

	Measured Depth	True Vertical Depth	Subsea	Thickness
Sample Top	2,219.00	2,211.30	-1,792.50	264.10
Log Top	2,214.00	2,206.30	-1,787.50	276.10

Evaluation:
The Second Black Shale is interbedded very hard siliceous Shale and softer bituminous Shale. SHALE, dark gray to black, micromicaceous, fissile to blocky in part, dolomitic in part, siliceous and very hard in part, trace conchoidal fracture, slightly bituminous, trace dolomite cemented microfractures, rare trace open microfractures with quartz crystals lining fracture plane, trace fracture porosity at 2259-2290m and at 2318m, very pyritic with abundant disseminated microcrystalline pyrite at the top of the zone, trace Marlstone, very dark gray to black, dolomitic, hard, tight, trace black argillaceous Chert, trace SHALE, dark brown gray to black, moderately soft, very bituminous, slightly calcareous with scattered calcareous white specks in part increasing towards base of interval. Background gas through the upper section, at 2219-2259m ranged from 2% to 3% with a light mud weight of 1025kg/m3. At 2259-2290m a fractured, gas charged section had readings of 4% to 11.8%. Mud weight

Kelly Bushing Elevation: 418.80 Casing Flange Elevation:
Ground Elevation: 409.60
All Depths Measured from Kelly Bushing Elevation

was increased to to 1230kg/m3 to control gas levels. The remainder of the shale, with mud weights ranging from 1230-1255kg/m3, gas levels varied from 1.5% to 3% with peaks at 2360m 4.2%, and at 2392m 5.7%.

Conclusion:
The Second Black Shale has potential for gas production from fractures in shale, and looks like a good source rock. This combination of good source potential and fractures may help feed the primary objective Nahanni Formation.

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	2,484.00	2,475.40	-2,056.60	
Log Top	2,491.00	2,482.40	-2,063.60	

Evaluation:
The Nahanni is Dolomite; light to medium gray, to medium brown gray in part, fine to medium crystalline with scattered coarse to very coarse white Dolomite crystals, trace fossil shadows (circular, Amphipora? Coral? Crinoid?), trace poor intercrystalline porosity with scattered pyrobitumen plugging, poor vug and fracture porosity in part, no fluorescence, trace clear quartz crystals, trace stylolites, medium to very coarse crystalline drusy Dolomite rhombs and rosettes, trace microfractures with white Dolomite veins, trace twinned Dolomite crystals. Fossil shadows seen in samples at 2570-2650m may be reefal. The is siliceous at 2625-3000m with pseudomorphs and silty residue. Thin Shale streaks showed up at 2700-2980m Shale, medium green to gray green, dark gray green in part, waxy in part, pyritic with disseminated microcrystalline pyrite. At the base of the well, at 2985-3000m Chert was present, medium to dark gray, hard. At 2635-2640m is LIMESTONE, medium gray brown, cryptocrystalline, clean, slightly fossiliferous, tight, no shows, scattered stylolites, trace disseminated pyrite. Intermediate Casing was set 16 meters into the zone at 2500m. After casing the well was drilled out with a water base gel-chem mud at 1050kg/m3 density. Background drilled gas over the interval 2484-2512m ranged from 1.75% to 4.66%. At 2513m, background gas climbed to 11%, mud weight was increased to 1120kg/m3 to control gas influx. Interval 2513-2605m gas ranged from .3% to 11.2% with mud weight at 1085 to 1120kg/m3. At 2606-2700m gas ranged from .4% to 3.72% with mud weights of 1105-1110kg/m3. The Lower section at 2700-3000m gas ranged from .1% to 1.0% with a peak at 2743m of 4.54% (mud weight at 1115-1140kg/m3). The best looking sections from sample and background gas data are 2510-2570m, and a white coarse crystalline Dolomite at 2640-2700m.

Conclusion:
The Nahanni has good potential for gas production. The intercrystalline porosity is streaky and plugged with pyrobitumen, however, throughout the Nahanni there is evidence of vug and / or fracture porosity with large drusy Dolomite rhombs and rosettes to 5mm, also hexagonal quartz crystals to 5mm. If these large pore spaces are connected, the Nahanni has excellent potential.

711.00 to 715.00 (4.00)	**SHALE** medium gray to green gray, fissile, splintery, micromicaceous, slightly calcareous in part, trace pyrite, trace calcite viens, rare trace sparry calcite crystals along flat fracture planes, trace Limestone stringers
715.00 to 720.00 (5.00)	**SHALE** as above, slightly calcareous in part, trace microfractures with calcite infilling, trace siderite
720.00 to 725.00 (5.00)	**SHALE** medium gray to medium green gray, dark gray in part, micromicaceous, fissile, splintery, slightly calcareous, slightly fossiliferous, trace iron filings (surface casing)
725.00 to 730.00 (5.00)	**SHALE** as above, mainly medium gray to green gray, slightly fossiliferous, trace Crinoids, trace pyrite
730.00 to 735.00 (5.00)	**SHALE** medium gray to green gray, micromicaceous, fissile, splintery, slightly calcareous in part, fossiliferous with trace shell fragments, trace pyrite
735.00 to 740.00 (5.00)	**SHALE** medium gray to medium green gray, dark gray in part, micromicaceous, fissile, slightly fossiliferous, trace blocky medium gray Marlstone stringers, trace pyrite
740.00 to 745.00 (5.00)	**SHALE** as above, fissile in part, slightly calcareous and blocky in part, trace fossil remnants, trace pyrite, trace iron filings (casing)
745.00 to 750.00 (5.00)	**SHALE** medium gray to medium green gray, micromicaceous, slightly calcareous in part, fissile to blocky in part, trace pyrite
750.00 to 755.00 (5.00)	**SHALE** as above, medium gray to medium green gray, slightly calcareous, fissile, micromicaceous, increasing Limestone stringers
755.00 to 760.00 (5.00)	**SHALE** mainly medium gray, micromicaceous, fissile, slightly calcareous in part
760.00 to 765.00 (5.00)	**SHALE** medium gray to green gray, micromicaceous, fissile, slightly calcareous and blocky in part, trace microfractures
765.00 to 770.00 (5.00)	**SHALE** as above, medium gray to green gray, trace microfractures, calcite healed in part, trace Limestone stringers
770.00 to 775.00 (5.00)	**SHALE** medium gray, dark gray in part, micromicaceous, fissile, increasing calcite filled microfractures, trace Limestone stringers, medium brown, cryptocrystalline, slightly argillaceous, tight, no shows

775.00 to 780.00 (5.00)	**SHALE** medium to dark gray as above, green gray in part, fissile, micromicaceous, slightly calcareous, trace open fractures with sparry calcite crystals, trace pyrite
780.00 to 785.00 (5.00)	**SHALE** mainly medium gray, medium green gray in part, micromicaceous, fissile, slightly calcareous in part, trace Limestone stringers
785.00 to 790.00 (5.00)	**SHALE** as above, medium gray, fissile, micromicaceous, slightly calcareous, trace Limestone stringers
790.00 to 795.00 (5.00)	**SHALE** medium gray to green gray, micromicaceous, fissile, slightly calcareous in part, trace slickenside, trace iron filings (casing)
795.00 to 800.00 (5.00)	**SHALE** medium gray to green gray, mainly fissile, blocky in part, micromicaceous, fossiliferous with trace Brachiopods, trace pyrite, trace slickenside
800.00 to 805.00 (5.00)	**SHALE** as above, slightly fossiliferous, trace Brachiopods, slightly calcareous, trace pyrite
805.00 to 810.00 (5.00)	**SHALE** medium gray, micromicaceous, fissile, slightly calcareous in part, trace calcite veins, trace iron filings
810.00 to 815.00 (5.00)	**SHALE** medium gray, micromicaceous, fissile, slightly fossiliferous, slightly calcareous in part
815.00 to 820.00 (5.00)	**SHALE** as above, medium gray, slightly calcareous in part, trace Limestone stringers, medium gray brown, cryptocrystalline, slightly argillaceous, tight, no shows, trace pyrite
820.00 to 825.00 (5.00)	**SHALE** medium gray to medium green gray in part, micromicaceous, fissile, slightly calcareous in part, slightly fossiliferous, trace slickenside
825.00 to 830.00 (5.00)	**SHALE** medium gray, micromicaceous, fissile, trace calcite filled microfractures
830.00 to 835.00 (5.00)	**SHALE** mainly medium gray, micromicaceous, fissile, blocky in part, slightly bentonitic in part
835.00 to 840.00 (5.00)	**SHALE** medium gray as above, minor calcareous veins to 2mm
840.00 to 845.00 (5.00)	**SHALE** medium gray, green gray in part, dark gray in part, micromicaceous, fissile, blocky in part, slightly fossiliferous, trace microfractures, trace pyrite

845.00 to 850.00 (5.00)	**SHALE** as above, scattered slickenside, trace Limestone stringers, trace iron filings
850.00 to 855.00 (5.00)	**SHALE** medium gray, dark gray in part, medium brown gray in part, micromicaceous, fissile, slightly fossiliferous, scattered slickenside
855.00 to 860.00 (5.00)	**SHALE** as above, slightly fossiliferous, trace slickenside
860.00 to 865.00 (5.00)	**SHALE** mainly medium gray, to dark gray in part, micromicaceous, fissile, slightly fossiliferous, trace calcite veins
865.00 to 870.00 (5.00)	**SHALE** medium gray, micromicaceous, fissile, trace slickenside, trace Limestone stringers, trace iron filings (casing)
870.00 to 875.00 (5.00)	**SHALE** as above, mainly medium gray, medium green gray in part, micromicaceous, fissile
875.00 to 880.00 (5.00)	**SHALE** mainly medium gray, dark gray in part, interlaminated in part, micromicaceous, fissile, trace calcite filled microfractures, trace slickenside
880.00 to 885.00 (5.00)	**SHALE** as above, slightly fossiliferous with trace shell fragments, trace slickenside
885.00 to 890.00 (5.00)	**SHALE** medium gray to medium green gray, micromicaceous, fissile, slightly fossiliferous, trace slickenside
890.00 to 895.00 (5.00)	**SHALE** as above, micromicaceous, fissile, fossiliferous, trace pyrite
895.00 to 900.00 (5.00)	**SHALE** medium to dark gray, green gray in part, micromicaceous, fissile, trace Limestone stringers
900.00 to 905.00 (5.00)	**SHALE** as above, trace slickenside, trace Limestone stringers, medium brown, microcrystalline to very fine crystalline, tight, no shows
905.00 to 910.00 (5.00)	**SHALE** medium gray to green gray, dark gray in part, micromicaceous, fissile, trace slickenside
910.00 to 915.00 (5.00)	**SHALE** as above, slightly fossiliferous, trace Limestone stringers

915.00 to 920.00 (5.00)	**SHALE** medium gray to medium green gray, interlaminated dark gray in part, micromicaceous, fissile, slightly fossiliferous, scattered slickenside
920.00 to 925.00 (5.00)	**SHALE** as above, medium to dark gray in part, micromicaceous, fissile, trace microfractures
925.00 to 930.00 (5.00)	**SHALE** medium gray to medium green gray as above, trace dark gray, micromicaceous, fissile, trace microfractures, trace sparry calcite crystals (open fractures?)
930.00 to 935.00 (5.00)	**SHALE** medium to dark gray, micromicaceous, fissile, slightly fossiliferous, trace shell fragments, trace microfractures, trace iron filings
935.00 to 940.00 (5.00)	**SHALE** as above, micromicaceous, fissile, slightly fossiliferous
940.00 to 945.00 (5.00)	**SHALE** medium gray as above with increasing dark gray Shale, micromicaceous, fissile, slightly fossiliferous, trace slickenside, trace pyrite
945.00 to 950.00 (5.00)	**SHALE** medium to dark gray, green gray in part, micromicaceous, fissile, slightly fossiliferous, trace microfractures and calcite veins to 2mm, trace slickenside
950.00 to 955.00 (5.00)	**SHALE** medium to dark gray, micromicaceous, fissile, splintery in part, moderately soft, slightly calcareous
955.00 to 960.00 (5.00)	**SHALE** medium to dark gray, micromicaceous, fissile, trace microfractures and calcite veins to 3mm
960.00 to 965.00 (5.00)	**SHALE** as above, slightly fossiliferous, trace slickenside, trace Limestone stringers
965.00 to 970.00 (5.00)	**SHALE** - medium to dark gray, micromicaceous, fissile, slightly calcareous in part, slightly fossiliferous
970.00 to 975.00 (5.00)	**SHALE** as above, micromicaceous, slightly calcareous, trace Limestone stringers
975.00 to 980.00 (5.00)	**SHALE** medium to dark gray, micromicaceous, fissile, slightly calcareous in part, trace microfractures
980.00 to 985.00 (5.00)	**SHALE** as above, slightly fossiliferous with trace Brachiopods, trace calcite veins

985.00 to 990.00 (5.00)	**SHALE** mainly medium gray as above, trace dark gray, micromicaceous, fissile, slightly fossiliferous, trace Brachiopods, scattered microfractures and calcite veins
990.00 to 995.00 (5.00)	**SHALE** as above, micromicaceous, fissile, calcareous in part, decreasing microfractures, trace Limestone streaks, dark gray brown, cryptocrystalline to microcrystalline, argillaceous, tight, no shows, scattered white calcite veins
995.00 to 1,000.00 (5.00)	**SHALE** medium to dark gray, micromicaceous, fissile, slightly calcareous, slightly fossiliferous, trace microfractures
1,000.00 to 1,005.00 (5.00)	**SHALE** as above, trace Limestone stringers
1,005.00 to 1,010.00 (5.00)	**SHALE** medium gray with increasing dark gray, micromicaceous, fissile, slightly calcareous, slightly fossiliferous with trace Crinoids, trace microfractures healed with calcite, trace slickenside
1,010.00 to 1,015.00 (5.00)	**SHALE** as above, rare trace Anhydrite inclusion
1,015.00 to 1,020.00 (5.00)	**SHALE** mainly dark gray, medium gray in part, micromicaceous, fissile, calcareous in part, marly and blocky in part, slightly fossiliferous, trace microfractures cemented with calcite
1,020.00 to 1,025.00 (5.00)	**SHALE** medium to dark gray, micromicaceous, fissile to blocky, becoming calcareous to very calcareous in part, marly, moderately indurated, trace microfractures, minor Limestone, medium brown, microcrystalline to very fine crystalline, argillaceous to marly, tight, no shows
1,025.00 to 1,030.00 (5.00)	**SHALE** medium to dark gray as above, micromicaceous, fissile, calcareous in part, slightly fossiliferous, trace LIMESTONE as above, argillaceous, tight, no shows
1,030.00 to 1,035.00 (5.00)	**SHALE** medium to dark gray, fissile to blocky in part, calcareous, slightly fossiliferous, trace microfractures and calcite veins, trace slickenside, decreasing Limestone as above
1,035.00 to 1,040.00 (5.00)	**SHALE** mainly dark gray, blocky, calcareous to very calcareous, marly, minor calcite healed microfractures, trace Limestone, dark gray brown, cryptocrystalline, very argillaceous grading to Marlstone, tight, no shows
1,040.00 to 1,045.00 (5.00)	**SHALE** dark gray as above, blocky, calcareous to very calcareous, marly, minor calcite healed microfractures, decreasing Limestone as above

1,045.00 to 1,050.00 (5.00)	**SHALE** medium to dark gray, micromicaceous, fissile, calcareous in part, trace pyrite
1,050.00 to 1,055.00 (5.00)	**SHALE** medium gray, green gray in part, micromicaceous, fissile, slightly calcareous in part, fossiliferous
1,055.00 to 1,060.00 (5.00)	**SHALE** as above
1,060.00 to 1,065.00 (5.00)	**SHALE** medium gray, micromicaceous, fissile, slightly calcareous, trace microfractures
1,065.00 to 1,070.00 (5.00)	**SHALE** mainly medium gray, micromicaceous, fissile to blocky, calcareous to very calcareous in part, marly, trace pyrite
1,070.00 to 1,075.00 (5.00)	**SHALE** mainly medium gray, dark gray in part, micromicaceous, fissile, slightly calcareous in part, trace pyrite
1,075.00 to 1,080.00 (5.00)	**SHALE** medium gray as above, calcareous and marly in part, moderately indurated in part, trace slickenside
1,080.00 to 1,085.00 (5.00)	**SHALE** as above, calcareous in part with very calcareous stringers, slightly fossiliferous
1,085.00 to 1,090.00 (5.00)	**SHALE** medium gray to medium brown gray, micromicaceous, fissile, slightly calcareous, trace pyrite, trace Marlstone stringers
1,090.00 to 1,095.00 (5.00)	**SHALE** medium gray, micromicaceous, fissile, blocky in part, slightly calcareous to very calcareous in part, trace microfractures
1,095.00 to 1,100.00 (5.00)	**SHALE** medium gray to brown gray, micromicaceous, fissile, calcareous, trace white calcite filled microfractures
1,100.00 to 1,105.00 (5.00)	**SHALE** mainly medium gray, dark gray in part, brown gray in part, micromicaceous, fissile, slightly calcareous in part
1,105.00 to 1,110.00 (5.00)	**SHALE** as above, trace microfractures
1,110.00 to 1,115.00 (5.00)	**SHALE** mainly medium gray, micromicaceous, fissile, blocky in part, very slightly calcareous in part

1,115.00 to 1,120.00 (5.00)	**SHALE** medium gray, micromicaceous, fissile, slightly calcareous in part, trace pyrite
1,120.00 to 1,125.00 (5.00)	**SHALE** as above, well indurated in part, calcareous and blocky in part
1,125.00 to 1,130.00 (5.00)	**SHALE** medium gray, micromicaceous, fissile to blocky, slightly calcareous in part, trace microfractures
1,130.00 to 1,135.00 (5.00)	**SHALE** mainly medium gray, trace dark gray, micromicaceous, fissile, slightly calcareous in part, slightly fossiliferous, trace disseminated pyrite
1,135.00 to 1,140.00 (5.00)	**SHALE** as above, micromicaceous, slightly calcareous, marly
1,140.00 to 1,145.00 (5.00)	**SHALE** as above, slightly calcareous, trace Anhydrite inclusions
1,145.00 to 1,150.00 (5.00)	**SHALE** medium gray, micromicaceous, fissile, slightly calcareous, slightly fossiliferous, trace microfractures and calcite veins to 2mm, trace disseminated microcrystalline pyrite
1,150.00 to 1,155.00 (5.00)	**SHALE** as above, slightly calcareous, slightly fossiliferous
1,155.00 to 1,160.00 (5.00)	**SHALE** as above
1,160.00 to 1,165.00 (5.00)	**SHALE** medium gray, medium green gray in part, micromicaceous, fissile to blocky, slightly calcareous
1,165.00 to 1,170.00 (5.00)	**SHALE** as above, mainly medium gray, slightly calcareous, slightly fossiliferous, minor microfractures
1,170.00 to 1,175.00 (5.00)	**SHALE** medium gray, micromicaceous, fissile, blocky in part, slightly calcareous to very calcareous in part, marly, slightly fossiliferous, scattered calcite healed microfractures
1,175.00 to 1,180.00 (5.00)	**SHALE** mainly medium gray, trace dark gray, micromicaceous, fissile, calcareous in part, slightly fossiliferous, trace microfractures
1,180.00 to 1,185.00 (5.00)	**SHALE** as above, mainly medium gray, slightly calcareous, trace microfractures

1,185.00 to 1,190.00 (5.00)	**SHALE** dark gray to very dark gray, micromicaceous, fissile, moderately soft, rarely calcareous, slightly bituminous in part
1,190.00 to 1,195.00 (5.00)	**SHALE** mainly dark gray as above, trace medium gray and slightly calcareous, micromicaceous, fissile, slightly bituminous, trace pyrite
1,195.00 to 1,200.00 (5.00)	**SHALE** dark gray to very dark gray, dark brown gray in part, micromicaceous, fissile, slightly bituminous in part, trace pyrite with pyritized spicules in part
1,200.00 to 1,205.00 (5.00)	**SHALE** medium to dark gray, very dark gray to black in part, micromicaceous, fissile, calcareous in part, slightly bituminous in part, microfractures with calcite infill and trace Anhydrite filling in part, minor pyrite
1,205.00 to 1,210.00 (5.00)	**SHALE** as above, medium to dark gray, increasing microfractures with mainly anhydrite infill, scattered pyrite
1,210.00 to 1,220.00 (10.00)	**SHALE** dark gray to very dark gray, micromicaceous, fissile, trace pyrite
1,220.00 to 1,225.00 (5.00)	**SHALE** medium to dark gray, micromicaceous, fissile, slightly sideritic
1,225.00 to 1,230.00 (5.00)	**SHALE** medium to dark gray, micromicaceous, fissile, slightly sideritic, trace pyrite
1,230.00 to 1,235.00 (5.00)	**SHALE** as above, slightly sideritic, increasing pyrite
1,235.00 to 1,240.00 (5.00)	**SHALE** medium to dark gray, micromicaceous, fissile, slightly sideritic in part, minor pyrite, trace microfractures with anhydritic cement
1,240.00 to 1,245.00 (5.00)	**SHALE** dark gray, micromicaceous, fissile, slightly bituminous in part
1,245.00 to 1,250.00 (5.00)	**SHALE** mainly medium gray, decreasing dark gray, micromicaceous, fissile, trace pyrite
1,250.00 to 1,255.00 (5.00)	**SHALE** medium to dark gray, micromicaceous, fissile, slightly sideritic in part, trace pyrite
1,255.00 to 1,260.00 (5.00)	**SHALE** as above, trace fossil remnants, trace pyrite
1,260.00 to 1,265.00 (5.00)	**SHALE** medium to dark gray, micromicaceous, fissile, minor siderite, trace pyrite

1,265.00 to 1,270.00 (5.00)	**SHALE** medium to dark gray as above, micromicaceous, fissile, minor disseminated pyrite
1,270.00 to 1,275.00 (5.00)	**SHALE** medium to dark gray, micromicaceous, fissile, minor pyrite
1,275.00 to 1,280.00 (5.00)	**SHALE** medium to dark gray as above
1,280.00 to 1,285.00 (5.00)	**SHALE** mainly dark gray, micromicaceous, fissile, trace fossil remnants, trace loose pyrite and disseminated pyrite
1,285.00 to 1,290.00 (5.00)	**SHALE** mainly dark gray as above, trace dark brown gray, minor pyrite
1,290.00 to 1,295.00 (5.00)	**SHALE** as above, dark gray to dark brown gray, micromicaceous, fissile, slightly bituminous in part, trace pyrite
1,295.00 to 1,300.00 (5.00)	**SHALE** dark gray to dark brown gray as above, increasing disseminated pyrite
1,300.00 to 1,305.00 (5.00)	**SHALE** dark gray, dark brown gray in part, micromicaceous, fissile, trace pyrite nodules and disseminated specks
1,305.00 to 1,310.00 (5.00)	**SHALE** as above, trace fossil shadows, trace pyrite
1,310.00 to 1,320.00 (10.00)	**SHALE** dark gray to dark brown gray as above, increasing pyrite, interbedded SHALE, medium gray, micromicaceous, fissile to blocky, calcareous, marly, harder than dark Shale
1,320.00 to 1,335.00 (15.00)	**SHALE** dark gray to very dark gray in part, micromicaceous, fissile, well indurated and blocky in part, bituminous, slightly calcareous in part, trace carbonaceous specks, trace pyrite
1,335.00 to 1,340.00 (5.00)	**SHALE** mainly dark gray as above, micromicaceous, fissile, slightly fossiliferous, slightly bituminous, pyritic with pyritized spicules in part
1,340.00 to 1,345.00 (5.00)	**SHALE** dark gray, micromicaceous, fissile, slightly bituminous, minor pyrite
1,345.00 to 1,350.00 (5.00)	**SHALE** medium to dark gray, micromicaceous, fissile, calcareous and blocky in part, minor pyrite with trace pyritized spicules, trace very bituminous marly black Shale

1,350.00 to 1,355.00 (5.00)	**SHALE** dark gray to black, micromicaceous, fissile, slightly bituminous, trace pyrite
1,355.00 to 1,360.00 (5.00)	**SHALE** dark gray to dark brown gray to black, micromicaceous, fissile, moderately indurated in part, scattered pyrite, rare trace thin calcite healed microfractures
1,360.00 to 1,365.00 (5.00)	**SHALE** as above, dark gray to black, scattered pyrite, trace microfractures mainly calcite filled, trace anhydrite infill
1,365.00 to 1,370.00 (5.00)	**SHALE** dark gray to dark brown gray to black, micromicaceous, fissile, moderately soft to moderately indurated, slightly bituminous in part, minor disseminated pyrite
1,370.00 to 1,375.00 (5.00)	**SHALE** dark gray to black as above, trace medium gray Shale, scattered loose pyrite and disseminated pyrite
1,375.00 to 1,380.00 (5.00)	**SHALE** dark gray to black, micromicaceous, fissile, slightly bituminous, minor disseminated pyrite
1,380.00 to 1,385.00 (5.00)	**SHALE** as above, slightly bituminous, trace pyrite
1,385.00 to 1,390.00 (5.00)	**SHALE** dark gray to dark brown gray to black, micromicaceous, fissile, slightly bituminous, scattered loose pyrite, trace disseminated microcrystalline pyrite, trace dark gray Marlstone stringers
1,390.00 to 1,395.00 (5.00)	**SHALE** dark gray to dark brown gray to black, micromicaceous, fissile, slightly bituminous, trace pyrite, increasing Marlstone stringers, dark gray, tight
1,395.00 to 1,400.00 (5.00)	**SHALE** very dark gray to black, dark brown gray, fissile, moderately soft, bituminous, trace pyrite, rare trace clear coarse quartz fragments
1,400.00 to 1,405.00 (5.00)	**SHALE** very dark gray to dark brown gray to black, micromicaceous, fissile, slightly bituminous, manganese pyrite, trace marly stringers, rare trace very coarse hexagonal quartz crystal fragments
1,405.00 to 1,410.00 (5.00)	**SHALE** as above, minor pyrite, rare trace microfractures with anhydrite infill
1,410.00 to 1,415.00 (5.00)	**SHALE** very dark gray to dark brown gray to black, micromicaceous, fissile, slightly bituminous, minor loose pyrite

1,415.00 to 1,420.00 (5.00)	**SHALE** as above, slightly bituminous, moderately soft in part, trace pyrite, texture distorted by high rpm stratabit in part
1,420.00 to 1,425.00 (5.00)	**SHALE** dark gray to dark brown gray to black, micromicaceous, fissile, slightly bituminous, trace pyrite
1,425.00 to 1,430.00 (5.00)	**SHALE** as above, mainly dark brown gray, slightly bituminous
1,430.00 to 1,435.00 (5.00)	**SHALE** dark gray to black, micromicaceous, fissile, moderately soft in part, slightly bituminous, trace medium gray Shale, bit-trip, poor sample
1,435.00 to 1,440.00 (5.00)	**SHALE** very dark gray to black, dark brown gray, micromicaceous, fissile, slightly bituminous, scattered pyrite
1,440.00 to 1,445.00 (5.00)	**SHALE** very dark gray to black, micromicaceous, fissile, moderately indurated, trace pyrite, rare trace thin calcite filled microfractures
1,445.00 to 1,450.00 (5.00)	**SHALE** as above, slightly bituminous, trace Marlstone, medium gray, cryptocrystalline, calcareous, tight, no shows
1,450.00 to 1,455.00 (5.00)	**SHALE** very dark gray to black, micromicaceous, fissile, moderately to well indurated, trace pyrite, scattered fractures cemented with calcite, trace coarse loose white and clear calcite crystals
1,455.00 to 1,460.00 (5.00)	**SHALE** very dark gray to black, micromicaceous, fissile, slightly bituminous, moderately indurated, trace pyrite, decreasing microfractures
1,460.00 to 1,465.00 (5.00)	**SHALE** very dark gray to black as above, slightly bituminous, minor calcite healed microfractures, trace slickenside
1,465.00 to 1,470.00 (5.00)	**SHALE** very dark gray to black, micromicaceous, blocky, moderately to well indurated, bituminous, trace slickenside, trace pyrite
1,470.00 to 1,475.00 (5.00)	**SHALE** as above, bituminous, trace pyrite, trace slickenside, trace microfractures
1,475.00 to 1,480.00 (5.00)	**SHALE** very dark gray to black, dark brown gray in part, micromicaceous, fissile in part to blocky in part, moderately to well indurated, trace pyrite

1,480.00 to 1,485.00 (5.00)	**SHALE** as above, bituminous, moderately indurated, trace pyrite
1,485.00 to 1,490.00 (5.00)	**SHALE** dark gray to black, micromicaceous, fissile to blocky, siliceous, bituminous, moderately to well indurated, trace pyrite
1,490.00 to 1,495.00 (5.00)	**SHALE** very dark gray to black, micromicaceous, blocky, moderately to well indurated, bituminous, trace slickenside, trace pyrite
1,495.00 to 1,500.00 (5.00)	**SHALE** dark gray to black as above, trace slickenside, trace pyrite, minor Marlstone, dark gray, microcrystalline to very fine crystalline, dolomitic, tight, no shows
1,500.00 to 1,505.00 (5.00)	**SHALE** dark gray to black, micromicaceous, blocky, siliceous, bituminous, well indurated, trace pyrite, trace Marlstone stringers, dark gray, dolomitic, tight, trace siderite
1,505.00 to 1,510.00 (5.00)	**SHALE** as above, dark gray to black, dark brown gray in part, bituminous, siliceous, well indurated, trace slickenside, trace pyrite
1,510.00 to 1,515.00 (5.00)	**SHALE** as above, dark gray to dark brown gray to black, bituminous, siliceous and well indurated, minor pyrite, scattered Marlstone, dark gray to dark brown gray, microcrystalline to very fine crystalline, dolomitic, tight, no shows, trace siderite
1,515.00 to 1,518.00 (3.00)	**MARLSTONE** dark gray to dark brown gray, microcrystalline to very fine crystalline, dolomitic, tight, no shows, interbedded Shale, dark gray to dark brown gray to black, micromicaceous, slightly bituminous, siliceous, minor pyrite, trace siderite, trace calcite healed microfractures
1,518.00 to 1,525.00 (7.00)	**SHALE** dark gray to black, dark brown gray in part, micromicaceous, well indurated, siliceous, very sideritic in part, abundant Ironstone, dark gray brown, argillaceous, very hard
1,525.00 to 1,530.00 (5.00)	**SHALE** dark gray to dark brown gray to black, micromicaceous, sideritic to very sideritic grading to argillaceous Ironstone in part, hard, marly in part, slightly bituminous, scattered disseminated pyrite
1,530.00 to 1,535.00 (5.00)	**SHALE** dark gray to black as above, sideritic and hard, slightly bituminous, scattered argillaceous Ironstone, trace conchoidal fracture, trace pyrite
1,535.00 to 1,540.00 (5.00)	**SHALE** dark gray to dark brown gray to black, micromicaceous, blocky, siliceous, sideritic in part, well indurated, trace pyrite, decreasing Ironstone

1,540.00 to 1,545.00 (5.00)	**SHALE** dark gray to black, micromicaceous, fissile to blocky, very sideritic and hard in part, slightly softer and bituminous in part, trace pyrite
1,545.00 to 1,550.00 (5.00)	**SHALE** as above, sideritic and very hard in part, bituminous, trace pyrite
1,550.00 to 1,555.00 (5.00)	**SHALE** dark gray to black, micromicaceous, fissile, moderately to well indurated, sideritic in part with trace argillaceous Ironstone streaks, slightly bituminous, trace pyrite
1,555.00 to 1,560.00 (5.00)	**SHALE** dark gray to black, micromicaceous, fissile to blocky, slightly softer, sideritic streaks, bituminous, trace pyrite
1,560.00 to 1,565.00 (5.00)	**SHALE** dark gray to black as above, dark brown gray in part, bituminous, sideritic and very hard in part
1,565.00 to 1,570.00 (5.00)	**SHALE** dark gray to black as above, interbedded SHALE, medium gray, micromicaceous, fissile, softer than dark Shale, trace pyrite
1,570.00 to 1,575.00 (5.00)	**SHALE** medium gray, micromicaceous, fissile, minor pyrite, decreasing dark Shale as above
1,575.00 to 1,580.00 (5.00)	**SHALE** medium gray as above, micromicaceous, fissile, pearly lustre in part, minor disseminated pyrite
1,580.00 to 1,585.00 (5.00)	**SHALE** mainly medium gray, dark gray in part, micromicaceous, fissile, trace pyrite
1,585.00 to 1,590.00 (5.00)	**SHALE** medium gray as above, trace medium green gray, micromicaceous, fissile, trace fossil remnants, trace pyrite
1,590.00 to 1,595.00 (5.00)	**SHALE** medium gray, micromicaceous, fissile, marly streaks
1,595.00 to 1,600.00 (5.00)	**SHALE** as above, marly streaks, trace pyrite
1,600.00 to 1,605.00 (5.00)	**SHALE** mainly medium gray, trace dark gray, micromicaceous, fissile, marly streaks
1,605.00 to 1,610.00 (5.00)	**SHALE** medium gray as above, slightly calcareous to marly in part, trace pyrite, interbedded SHALE, dark gray (sloughing?), micromicaceous, fissile to blocky, moderately indurated, slightly bituminous, trace slickenside

1,610.00 to 1,615.00 (5.00)	**SHALE** mainly medium gray, trace dark gray, micromicaceous, fissile, moderately soft, slightly calcareous to marly in part, trace pyrite
1,615.00 to 1,620.00 (5.00)	**SHALE** medium gray as above, trace dark gray, grading to medium green gray in part, micromicaceous, fissile
1,620.00 to 1,625.00 (5.00)	**SHALE** medium gray as above, micromicaceous, fissile, trace pyrite, minor Shale, dark gray to black, micromicaceous, fissile to blocky, slightly bituminous
1,625.00 to 1,630.00 (5.00)	**SHALE** medium gray, medium green gray in rare in part, micromicaceous, fissile, moderately soft, trace slickenside, trace pyrite
1,630.00 to 1,635.00 (5.00)	**SHALE** as above, trace pyrite
1,635.00 to 1,640.00 (5.00)	**SHALE** medium gray, micromicaceous, fissile, slightly calcareous in part, minor pyrite
1,640.00 to 1,645.00 (5.00)	**SHALE** medium gray, micromicaceous, fissile, moderately soft in part, slightly calcareous to marly in part, trace pyrite
1,645.00 to 1,650.00 (5.00)	**SHALE** as above, mottled medium to dark gray in part, slightly calcareous in part, trace pyrite
1,650.00 to 1,655.00 (5.00)	**SHALE** medium gray, micromicaceous, fissile, very slightly calcareous in part, trace pyrite
1,655.00 to 1,660.00 (5.00)	**SHALE** medium gray, medium green gray in part, micromicaceous, fissile, marly stringers
1,660.00 to 1,665.00 (5.00)	**SHALE** medium gray as above, micromicaceous, fissile in part, slightly calcareous and moderately indurated in part
1,665.00 to 1,670.00 (5.00)	**SHALE** medium to dark gray, micromicaceous, fissile, slightly calcareous in part, trace sideritic streaks, trace pyrite
1,670.00 to 1,675.00 (5.00)	**SHALE** medium gray as above, interbedded SHALE, dark gray brown, sideritic to very sideritic, marly, well indurated
1,675.00 to 1,680.00 (5.00)	**SHALE** medium gray, micromicaceous, fissile, interbedded Ironstone, dark gray brown, argillaceous, marly, hard, minor Shale, dark gray to black, micromicaceous, black, moderately indurated, slightly bituminous

1,680.00 to 1,685.00 (5.00)	**SHALE** medium gray, medium green gray in part, micromicaceous, fissile, slightly calcareous in part, trace calcite healed microfractures, trace siderite
1,685.00 to 1,690.00 (5.00)	**SHALE** medium to dark gray, micromicaceous, fissile, sideritic and well indurated in part, scattered Ironstone stringers
1,690.00 to 1,695.00 (5.00)	**shale** medium to dark gray, brown gray in part, micromicaceous, fissile to blocky in part, mainly soft with harder sideritic streaks
1,695.00 to 1,700.00 (5.00)	**SHALE** medium to dark gray as above, micromicaceous, decreasing sideritic stringers
1,700.00 to 1,705.00 (5.00)	**SHALE** medium gray, medium green gray in part, micromicaceous, fissile, slightly calcareous in part, moderately soft
1,705.00 to 1,710.00 (5.00)	**SHALE** medium gray to green gray as above, slightly calcareous and marly in part, trace pyrite
1,710.00 to 1,715.00 (5.00)	**SHALE** medium gray as above, micromicaceous, fissile, sideritic in part
1,715.00 to 1,720.00 (5.00)	**SHALE** medium gray to medium green gray, micromicaceous, fissile, moderately soft
1,720.00 to 1,725.00 (5.00)	**SHALE** medium to dark gray, micromicaceous, fissile to blocky in part, minor disseminated pyrite
1,725.00 to 1,730.00 (5.00)	**SHALE** as above, trace disseminated pyrite
1,730.00 to 1,735.00 (5.00)	**SHALE** medium to dark gray, micromicaceous, fissile, slightly bituminous in part, trace pyrite
1,735.00 to 1,740.00 (5.00)	**SHALE** medium gray as above with increasing dark gray Shale, micromicaceous, fissile, slightly sideritic in part, slightly bituminous in part, trace disseminated microcrystalline pyrite
1,740.00 to 1,745.00 (5.00)	**SHALE** medium to dark gray, micromicaceous, fissile, blocky in part, slightly marly in part, trace siderite, trace pyrite
1,745.00 to 1,750.00 (5.00)	**SHALE** medium to dark gray to dark brown gray, micromicaceous, fissile to blocky, sideritic and hard in part, scattered Ironstone stringers, trace pyrite

1,750.00 to 1,755.00 (5.00)	**SHALE** as above, sideritic in part with decreasing Ironstone stringers
1,755.00 to 1,760.00 (5.00)	**SHALE** medium to dark gray, micromicaceous, fissile, slightly calcareous in part
1,760.00 to 1,765.00 (5.00)	**SHALE** as above, slightly calcareous in part, bituminous in part
1,765.00 to 1,770.00 (5.00)	**SHALE** medium to dark gray, micromicaceous, fissile, slightly calcareous in part, sideritic streak
1,770.00 to 1,775.00 (5.00)	**SHALE** dark gray to black, micromicaceous, fissile, bituminous, pyritic in part with trace pyritized spicules, trace siderite
1,775.00 to 1,780.00 (5.00)	**SHALE** dark gray to black as above, bituminous, trace pyrite
1,780.00 to 1,785.00 (5.00)	**SHALE** very dark gray to black, micromicaceous, fissile to blocky, bituminous, trace siderite, trace pyrite
1,785.00 to 1,790.00 (5.00)	**SHALE** very dark gray to black as above, micromicaceous, fissile to blocky, bituminous, sideritic in part with scattered loose siderite, trace pyrite
1,790.00 to 1,795.00 (5.00)	**SHALE** dark gray to dark brown gray to black, micromicaceous, fissile to blocky in part, slightly bituminous, slightly sideritic in part, trace pyrite
1,795.00 to 1,800.00 (5.00)	**SHALE** medium to dark gray, to black in part, micromicaceous, fissile, very sideritic and hard in part, slightly bituminous in part, minor Ironstone streaks, dark gray brown, argillaceous, hard
1,800.00 to 1,805.00 (5.00)	**SHALE** medium to dark gray, dark brown gray to black in part, micromicaceous, moderately indurated, bituminous with brown streak in part, sideritic and very hard in part with trace Ironstone stringers
1,805.00 to 1,810.00 (5.00)	**SHALE** as above, increasing medium gray, decreasing dark gray, bituminous in part, trace slickenside
1,810.00 to 1,815.00 (5.00)	**SHALE** medium to dark gray, dark brown gray in part, micromicaceous, fissile to blocky, slightly bituminous in part, sideritic in part
1,815.00 to 1,820.00 (5.00)	**SHALE** mainly dark gray as abcve, medium gray in part, micromicaceous, fissile, slightly bituminous, sideritic in part with trace Ironstone stringers, trace disseminated pyrite

1,820.00 to 1,825.00 (5.00)	**SHALE** dark gray to gray brown, micromicaceous, slightly sideritic, marly, trace pyrite
1,825.00 to 1,830.00 (5.00)	**SHALE** medium to dark gray, gray brown and sideritic in part, micromicaceous, moderately indurated, slightly silty in part
1,830.00 to 1,835.00 (5.00)	**SHALE** medium to dark gray as above, brown gray in part, marly in part
1,835.00 to 1,840.00 (5.00)	**SHALE** medium to dark gray, micromicaceous, fissile, slightly calcareous to marly, trace Limestone stringers, medium brown, cryptocrystalline, slightly argillaceous, tight, no shows
1,840.00 to 1,845.00 (5.00)	**SHALE** medium gray, medium green gray in part, trace dark gray, micromicaceous, fissile, slightly calcareous in part, moderately soft
1,845.00 to 1,850.00 (5.00)	**SHALE** medium gray as above, green gray in part, mottled dark gray in part, slightly calcareous to marly, trace Marlstone stringers, trace Shale, light to medium gray, very soft, trace Siltstone, light to medium gray, very siliceous and hard in part, slightly calcareous, argillaceous in part, tight, no shows
1,850.00 to 1,855.00 (5.00)	**SHALE** medium gray to medium green gray, trace dark gray, micromicaceous, fissile, slightly calcareous in part, silty in part, minor Siltstone laminations, medium gray, mainly quartzose, siliceous, well indurated, slightly calcareous, slightly argillaceous in part, micromicaceous, tight, no shows
1,855.00 to 1,860.00 (5.00)	**SHALE** as above, mainly medium gray to medium green gray, silty in part with scattered Siltstone streaks
1,860.00 to 1,865.00 (5.00)	**SHALE** medium gray as above, decreasing Siltstone streaks, trace Shale, light to medium gray, very soft, slightly bentonitic
1,865.00 to 1,870.00 (5.00)	**SHALE** medium gray to medium green gray, micromicaceous, fissile, moderately soft, silty in part, slightly calcareous in part, trace pyrite, trace Siltstone laminations
1,870.00 to 1,875.00 (5.00)	**SHALE** medium to dark gray to green gray, micromicaceous, fissile, moderately soft, light gray and very soft in part, sideritic and moderately indurated in part, minor pyrite, trace siderite
1,875.00 to 1,880.00 (5.00)	**SHALE** as above, mainly medium gray, micromicaceous, slightly silty with trace Siltstone laminations, light to medium gray, quartzose, siliceous and hard, slightly calcareous in part, tight, no shows

1,880.00 to 1,885.00 (5.00)	**SHALE** as above, medium to dark gray in part, sideritic with trace Ironstone stringers, trace Limestone, medium brown, cryptocrystalline, argillaceous, tight, no shows
1,885.00 to 1,890.00 (5.00)	**SHALE** medium gray, micromicaceous, fissile, silty to very silty in part, marly in part, trace Siltstone stringers as above
1,890.00 to 1,895.00 (5.00)	**SHALE** medium gray as above, slightly silty with trace Siltstone laminations as above
1,895.00 to 1,900.00 (5.00)	**SHALE** medium gray to medium brown gray, micromicaceous, fissile to blocky, sideritic and well indurated in part, slightly silty in part, marly in part, trace Siltstone, medium gray, quartzose, very siliceous, slightly calcareous, slightly argillaceous, tight, no shows
1,900.00 to 1,905.00 (5.00)	**SHALE** as above, slightly sideritic in part, marly in part, silty, scattered mica (lost circulation material)
1,905.00 to 1,910.00 (5.00)	**SHALE** medium gray to medium brown gray, micromicaceous, fissile to blocky, mainly moderately soft, sideritic and hard in part, slightly silty in part
1,910.00 to 1,915.00 (5.00)	**SHALE** medium to dark gray, brown gray in part, micromicaceous, fissile to blocky, moderately indurated, slightly sideritic in part, silty in part, trace pyrite
1,915.00 to 1,920.00 (5.00)	**SHALE** medium gray to brown gray, micromicaceous, fissile to blocky, sideritic and well indurated, scattered Ironstone stringers
1,920.00 to 1,925.00 (5.00)	**SHALE** medium brown gray as above, sideritic, micromicaceous, moderately indurated, trace Siltstone stringers
1,925.00 to 1,930.00 (5.00)	**SHALE** medium gray, micromicaceous, fissile to blocky in part, sideritic in part, trace slickenside
1,930.00 to 1,935.00 (5.00)	**SHALE** as above, sideritic and moderately indurated in part, trace slickenside
1,935.00 to 1,940.00 (5.00)	**SHALE** medium gray to green gray in part, micromicaceous, fissile to blocky in part, slightly sideritic in part, trace slickenside
1,940.00 to 1,945.00 (5.00)	**SHALE** as above, moderately indurated, trace slickenside

1,945.00 to 1,950.00 (5.00)	**SHALE** medium gray as above, silty, minor Siltstone streaks
1,950.00 to 1,955.00 (5.00)	**SHALE** medium gray to medium green gray, micromicaceous, calcareous to marly in part, silty in part, slightly fossiliferous with trace shell fragments, trace Siltstone laminations
1,955.00 to 1,960.00 (5.00)	**SHALE** medium gray as above, slightly sideritic in part, scattered SHALE, dark gray to dark brown gray to black, micromicaceous, fissile, slightly calcareous, silty, bituminous in part
1,960.00 to 1,965.00 (5.00)	**SHALE** medium gray to green gray as above, micromicaceous, trace slickenside, minor dark gray to black Shale streak as above, minor Siltstone laminations, medium gray, slightly calcareous, siliceous, hard, tight, no shows
1,965.00 to 1,970.00 (5.00)	**SHALE** medium to dark gray, green gray in part, micromicaceous, fissile in part, blocky in part, silty to very silty in part, trace slickenside, trace microfractures, trace Siltstone laminations
1,970.00 to 1,975.00 (5.00)	**SHALE** medium gray as above, silty in part, calcareous in part, minor Siltstone laminations, medium to dark gray, quartzose, siliceous, well indurated, calcareous in part, slightly argillaceous, micromicaceous, tight, no shows
1,975.00 to 1,980.00 (5.00)	**SHALE** medium to dark gray, micromicaceous, fissile to blocky, hardness varies from moderately soft to moderately indurated, silty to very silty in part, slightly calcareous to dolomitic in part, trace Siltstone, medium to dark gray, quartzose, argillaceous to very argillaceous in part, siliceous, slightly dolomitic, tight, no shows
1,980.00 to 1,985.00 (5.00)	**SHALE** medium to dark gray as above, slightly silty with scattered Siltstone laminations, slightly dolomitic, trace pyrite, trace light to medium gray Shale, very soft
1,985.00 to 1,990.00 (5.00)	**SHALE** mainly medium gray as above, silty to very silty in part, slightly dolomitic, moderately indurated, trace Siltstone laminations
1,990.00 to 1,995.00 (5.00)	**SHALE** medium gray to medium green gray in part, micromicaceous, mainly fissile, blocky in part, slightly silty, trace light gray Shale, very soft
1,995.00 to 2,000.00 (5.00)	**SHALE** medium gray as above, fissile, much of the medium gray Shale is water sensitive and can be washed away when cleaning sample with water
2,000.00 to 2,005.00 (5.00)	**SHALE** medium gray, micromicaceous, fissile, slightly dolomitic in part, silty, trace pyrite

2,005.00 to 2,010.00 (5.00)	**SHALE** medium gray, to dark gray in part, micromicaceous, fissile to blocky in part, calcareous to dolomitic, silty in part, trace pyrite, trace Siltstone laminations
2,010.00 to 2,015.00 (5.00)	**SHALE** medium to dark gray as above, calcareous to dolomitic, slightly silty in part, trace fractures with coarse white calcite crystalline cement
2,015.00 to 2,020.00 (5.00)	**SHALE** as above, dolomitic in part, trace light gray Shale, very soft, bentonitic
2,020.00 to 2,025.00 (5.00)	**SHALE** medium to dark gray, micromicaceous, fissile in part, blocky and silty in part, rare trace calcite healed microfractures
2,025.00 to 2,030.00 (5.00)	**SHALE** medium gray, micromicaceous, fissile, bentonitic and soft in part, moderately indurated and silty in part, trace microfractures
2,030.00 to 2,035.00 (5.00)	**SHALE** as above, mainly medium gray as above, soft to moderately indurated, silty in part, micromicaceous, trace slickenside
2,035.00 to 2,040.00 (5.00)	**SHALE** medium gray, micromicaceous, fissile, slightly silty in part
2,040.00 to 2,045.00 (5.00)	**SHALE** medium gray as above, trace calcite healed microfractures, trace slickenside, trace pyrite
2,045.00 to 2,050.00 (5.00)	**SHALE** medium gray to medium green gray, micromicaceous, fissile, trace pyrite, rare trace clear hexagonal quartz crystals
2,050.00 to 2,055.00 (5.00)	**SHALE** medium gray to green gray as above, trace fossil remnants, minor calcite healed microfractures
2,055.00 to 2,060.00 (5.00)	**SHALE** medium gray to green gray as above, increasing microfractures, calcite healed in part, trace dolomitic cement, trace clear loose quartz crystals
2,060.00 to 2,065.00 (5.00)	**SHALE** medium to dark gray, to green gray in part, micromicaceous, fissile, trace microfractures, trace slickenside, trace clear hexagonal quartz crystals
2,065.00 to 2,070.00 (5.00)	**SHALE** as above, mainly medium gray, micromicaceous, slightly silty in part, trace pyrite
2,070.00 to 2,075.00 (5.00)	**SHALE** medium gray, medium green gray in part, micromicaceous, fissile, slightly silty, minor microfractures, trace Siltstone laminations

2,075.00 to 2,080.00 (5.00)	**SHALE** medium gray as above, micromicaceous, moderately soft in part, silty and hard in part, trace microfractures, trace Siltstone laminations, trace pyrite
2,080.00 to 2,085.00 (5.00)	**SHALE** medium gray as above, hardness ranges from moderately soft to moderately indurated, silty in part, trace Siltstone laminations, trace slickenside
2,085.00 to 2,090.00 (5.00)	**SHALE** medium gray, micromicaceous, fissile, moderately soft in part, silty and moderately indurated in part
2,090.00 to 2,095.00 (5.00)	**SHALE** as above, trace Shale, light to medium gray, very soft
2,095.00 to 2,100.00 (5.00)	**SHALE** medium gray, micromicaceous, fissile, slightly silty in part, trace pyrite, trace light gray soft Shale
2,100.00 to 2,105.00 (5.00)	**SHALE** medium gray as above, micromicaceous, fissile, silty in part, calcareous to marly in part, trace microfractures, trace light gray soft Shale as above
2,105.00 to 2,110.00 (5.00)	**SHALE** medium gray, medium to dark green gray in part, micromicaceous, fissile, slightly silty in part, trace light gray soft Shale
2,110.00 to 2,115.00 (5.00)	**SHALE** medium gray to medium green gray in part, micromicaceous, fissile, trace disseminated pyrite, trace light gray soft Shale
2,115.00 to 2,120.00 (5.00)	**SHALE** medium gray as above, silty in part with trace Siltstone laminations
2,120.00 to 2,125.00 (5.00)	**SHALE** as above, micromicaceous, fissile, trace pyrite
2,125.00 to 2,130.00 (5.00)	**SHALE** mainly medium gray, micromicaceous, fissile, slightly silty in part, moderately soft, trace pyrite, trace light gray soft Shale
2,130.00 to 2,135.00 (5.00)	**SHALE** medium to dark gray, micromicaceous, fissile to blocky, moderately indurated, slightly dolomitic to marly in part, trace disseminated microcrystalline pyrite
2,135.00 to 2,140.00 (5.00)	**SHALE** mainly medium gray as above, micromicaceous, blocky
2,140.00 to 2,145.00 (5.00)	**SHALE** medium gray as above, micromicaceous, fissile to blocky, trace microfractures

2,145.00 to 2,150.00 (5.00)	**SHALE** as above, minor calcite healed microfractures
2,150.00 to 2,155.00 (5.00)	**SHALE** medium gray, minor dark gray, micromicaceous, fissile to blocky in part, moderately soft to moderately indurated in part, silty in part with trace hard Siltstone laminations
2,155.00 to 2,160.00 (5.00)	**SHALE** medium to dark gray as above, slightly silty in part, trace light gray soft Shale
2,160.00 to 2,165.00 (5.00)	**SHALE** medium to dark gray, micromicaceous, fissile to blocky in part, trace open microfractures (drillbit action?), increasing light gray soft SHALE
2,165.00 to 2,170.00 (5.00)	**SHALE** medium to dark gray as above, micromicaceous, fissile, slightly silty in part, trace pyrite, trace Siltstone laminations
2,170.00 to 2,175.00 (5.00)	**SHALE** medium to dark gray, micromicaceous, fissile to blocky in part, slightly silty, trace pyrite, trace Siltstone laminations
2,175.00 to 2,180.00 (5.00)	**SHALE** medium to dark gray as above, slightly silty in part, trace microfractures
2,180.00 to 2,185.00 (5.00)	**SHALE** medium gray, micromicaceous, fissile, moderately soft, slightly silty in part, trace pyrite, trace Siltstone laminations, increasing SHALE, light gray, fissile, very soft, easily washed away while washing with water
2,185.00 to 2,190.00 (5.00)	**SHALE** medium gray with increasing dark gray, micromicaceous, fissile, moderately indurated
2,190.00 to 2,195.00 (5.00)	**SHALE** as above, mainly dark gray to dark green gray, micromicaceous, fissile
2,195.00 to 2,200.00 (5.00)	**SHALE** dark gray to dark green gray, micromicaceous, fissile, trace microfractures cemented with dolomite in part, trace drusy Dolomite crystals lining open open fractures, trace fracture porosity
2,200.00 to 2,205.00 (5.00)	**SHALE** dark gray to dark green gray as above, slightly sideritic in part
2,205.00 to 2,210.00 (5.00)	**SHALE** dark gray to very dark gray, micromicaceous, fissile to blocky in part, dolomitic and marly
2,210.00 to 2,215.00 (5.00)	**SHALE** dark gray to very dark gray, micromicaceous, fissile to blocky in part, dolomitic, trace pyrite, trace Marlstone, very dark gray to black, dolomitic, hard, tight

2,215.00 to 2,220.00 (5.00)	**SHALE** dark gray to very dark gray, dark green gray in part, micromicaceous, fissile, slightly dolomitic in part, marly, trace slickenside, abundant disseminated microcrystalline pyrite
2,220.00 to 2,225.00 (5.00)	**SHALE** dark gray to black, micromicaceous, fissile, slightly bituminous, trace pyrite
2,225.00 to 2,230.00 (5.00)	**SHALE** dark gray as above, micromicaceous, fissile, very pyritic with abundant disseminated microcrystalline pyrite
2,230.00 to 2,235.00 (5.00)	**SHALE** dark gray to very dark gray as above, micromicaceous, fissile, pyritic in part, minor Marlstone, dark brown gray, microcrystalline, dolomitic, tight, no shows
2,235.00 to 2,240.00 (5.00)	**SHALE** dark gray to dark brown gray, micromicaceous, fissile, slightly bituminous, pyritic to very pyritic in part
2,240.00 to 2,245.00 (5.00)	**SHALE** dark gray to black, micromicaceous, fissile to blocky in part, slightly bituminous, siliceous and very hard in part, pyritic to very pyritic with scattered disseminated microcrystalline pyrite in part
2,245.00 to 2,250.00 (5.00)	**SHALE** dark gray to black, micromicaceous, blocky in part, slightly bituminous, siliceous and very hard in part, trace conchoidal fracture, pyritic with scattered disseminated microcrystalline pyrite in part, trace black argillaceous Chert
2,250.00 to 2,255.00 (5.00)	**SHALE** dark gray to black as above, dark brown gray in part, very siliceous grading to argillaceous Chert in part, trace conchoidal fracture, scattered pyrite, trace dolomite cemented microfractures, rare trace open microfractures with quartz crystals lining fracture plane
2,255.00 to 2,260.00 (5.00)	**SHALE** dark gray to black as above, very siliceous grading to black Chert in part, scattered microfractures cemented with dolomite, rare trace open microfractures with drusy quartz crystal lining, trace fracture porosity, trace SHALE, dark brown gray to black, moderately soft, very bituminous
2,260.00 to 2,265.00 (5.00)	**SHALE** very dark gray to black, blocky, very siliceous grading to black argillaceous Chert, very hard, scattered microfractures with quartz crystal lining, trace poor fracture porosity, trace pyrite veins and pyritic inclusions, trace slickenside
2,265.00 to 2,270.00 (5.00)	**SHALE** very dark gray to black, blocky, very siliceous and very hard, scattered fractures with quartz crystal lining, trace quartz crystal fragments to 5mm, trace fracture porosity, trace pyrite veins and pyritic inclusions, minor Chert, black

2,270.00 to 2,275.00 (5.00)	**SHALE** very dark gray to black as above, very siliceous, cherty and hard, minor fractures with quartz lining, scattered loose quartz crystal fragments, trace poor fracture porosity, no shows, minor Dolomite, dark gray brown, microcrystalline, very argillaceous grading to Marlstone, tight, no shows
2,275.00 to 2,280.00 (5.00)	**SHALE** very dark gray to black, very siliceous, cherty and hard, trace slickenside, scattered disseminated pyrite and pyritic inclusions, trace microfractures, trace dark gray brown Dolomite as above
2,280.00 to 2,285.00 (5.00)	**SHALE** very dark gray to black as above, very siliceous and hard, trace conchoidal fracture, minor microfractures cement tight with quartz in part, open with drusy quartz crystals in part, trace pyrite
2,285.00 to 2,290.00 (5.00)	**SHALE** very dark gray to black as above, very siliceous grading to Chert, hard, trace open fractures with very coarse hexagonal quartz crystals and crystal fragments to 5mm, trace fracture porosity
2,290.00 to 2,295.00 (5.00)	**SHALE** dark gray to black, siliceous in part, moderately indurated to hard, trace pyrite, trace Shale, dark brown gray, bituminous, moderately soft
2,295.00 to 2,300.00 (5.00)	**SHALE** very dark gray to black, very siliceous and hard, cherty, trace conchoidal fracture, minor pyrite, trace quartz healed microfractures
2,300.00 to 2,305.00 (5.00)	**SHALE** very dark gray to black as above, siliceous in part, moderately indurated to hard, bituminous, minor disseminated microcrystalline pyrite, trace Shale, medium to dark gray, moderately soft, slightly calcareous
2,305.00 to 2,310.00 (5.00)	**SHALE** dark gray to black, siliceous and very hard in part, calcareous in part with trace white calcareous specks and laminations, trace fractures with sparry calcite calcite crystals
2,310.00 to 2,315.00 (5.00)	**SHALE** dark gray to black, fissile in part, blocky in part, very siliceous and hard, slightly calcareous in part, minor microfractures healed with both calcite and quartz crystals
2,315.00 to 2,320.00 (5.00)	**SHALE** dark gray to black as above, scattered fractures with very coarse calcite crystals, trace fractures porosity
2,320.00 to 2,325.00 (5.00)	**SHALE** very dark gray to black, siliceous, hard, trace conchoidal fracture, slightly calcareous in part, trace calcite healed microfractures

2,325.00 to 2,330.00 (5.00)	**SHALE** very dark gray to black in part, siliceous, cherty and very hard, scattered Shale, medium to dark gray, calcareous, moderately soft
2,330.00 to 2,335.00 (5.00)	**SHALE** very dark gray to black, siliceous in part, moderately indurated to very hard, trace conchoidal fracture, bituminous, slightly calcareous in part, trace pyrite, trace slickenside
2,335.00 to 2,340.00 (5.00)	**SHALE** dark gray to black as above, soft with scattered calcareous white specks in part, trace slickenside
2,340.00 to 2,345.00 (5.00)	**SHALE** very dark gray to black, siliceous, very hard, trace conchoidal fracture, interbedded SHALE, dark brown gray to black, moderately soft, very calcareous with trace calcite white specks, bituminous, trace calcite veins
2,345.00 to 2,350.00 (5.00)	**SHALE** dark gray to dark brown gray, micromicaceous, fissile, slightly calcareous with trace white calcareous specks and veins, moderately soft, trace pyrite, decreasing SHALE, very dark gray to black, siliceous and very hard
2,350.00 to 2,355.00 (5.00)	**SHALE** dark gray to very dark gray, brown gray as above, moderately soft, calcareous, minor black siliceous Shale as above
2,355.00 to 2,360.00 (5.00)	**SHALE** dark gray to black, micromicaceous, fissile, slightly calcareous to very calcareous in part, moderately soft, interbedded SHALE, black, siliceous and very hard, trace microfractures with quartz and pyrite veins
2,360.00 to 2,365.00 (5.00)	**SHALE** dark gray to black as above, calcareous to very calcareous with trace calcareous white specks, bituminous, interbedded siliceous Shale as above, trace pyrite
2,365.00 to 2,370.00 (5.00)	**SHALE** dark gray to black, calcareous to very calcareous, moderately soft, trace pyrite
2,370.00 to 2,375.00 (5.00)	**SHALE** dark gray to black as above, calcareous, scattered calcite healed fractures
2,375.00 to 2,380.00 (5.00)	**SHALE** dark gray to black, very hard, siliceous, trace conchoidal fracture, slightly calcareous in part, scattered microfractures with calcite veins to 5mm, trace pyrite
2,380.00 to 2,385.00 (5.00)	**SHALE** dark gray to black as above, siliceous, hard, conchoidal fracture, calcareous to marly in part, scattered microfractures with calcite cement, trace pyrite
2,385.00 to 2,390.00 (5.00)	**SHALE** dark gray to black, siliceous, hard, slightly calcareous in part, bituminous Shale, dark gray, moderately soft, calcareous

2,390.00 to 2,395.00 (5.00)	**SHALE** dark gray to black, calcareous with trace calcareous white specks in part moderately soft to moderately indurated, siliceous and hard in part, bituminous, trace pyrite
2,395.00 to 2,400.00 (5.00)	**SHALE** as above, calcareous, bituminous, siliceous and hard in part, minor microfractures with calcareous cement, trace pyrite
2,400.00 to 2,405.00 (5.00)	**SHALE** dark gray to black, calcareous to very calcareous, moderately soft, siliceous and hard in part, bituminous, trace white calcite veins and specks
2,405.00 to 2,410.00 (5.00)	**SHALE** very dark gray to black, very calcareous, bituminous, moderately soft, trace disseminated microcrystalline pyrite
2,410.00 to 2,415.00 (5.00)	**SHALE** dark gray to black as above, calcareous, bituminous, moderately soft
2,415.00 to 2,420.00 (5.00)	**SHALE** dark gray to black, calcareous, marly, slightly siliceous in part, bituminous, mainly moderately soft, trace calcareous white specks and laminations
2,420.00 to 2,425.00 (5.00)	**SHALE** dark gray to black as above, bituminous, slightly calcareous with trace calcareous white specks, trace pyrite
2,425.00 to 2,430.00 (5.00)	**SHALE** medium to dark gray, calcareous to very calcareous, bituminous, soft, trace pyrite
2,430.00 to 2,435.00 (5.00)	**SHALE** dark gray to black, calcareous to very calcareous as above, bituminous, moderately soft
2,435.00 to 2,440.00 (5.00)	**SHALE** dark gray to black as above, calcareous with scattered white calcareous veins, specks and inclusions
2,440.00 to 2,445.00 (5.00)	**SHALE** dark gray to black, calcareous to very calcareous with trace calcareous white specks, slightly siliceous, moderately indurated, bituminous, trace pyrite
2,445.00 to 2,450.00 (5.00)	**SHALE** as above, calcareous, siliceous, moderately indurated, scattered Shale, dark gray to black, very calcareous, moderately soft
2,450.00 to 2,455.00 (5.00)	**SHALE** dark gray to black, slightly calcareous to very calcareous, trace calcite veins and white specks, slightly bituminous, trace pyrite

2,455.00 to 2,460.00 (5.00)	**SHALE** as above, calcareous, slightly siliceous in part, trace conchoidal fracture, bituminous, trace calcareous white specks, trace calcite filled microfractures
2,460.00 to 2,465.00 (5.00)	**SHALE** dark gray to black, siliceous, well indurated, slightly calcareous in part, slightly bituminous, minor calcareous chalky white specks and veins
2,465.00 to 2,470.00 (5.00)	**SHALE** dark gray to black as above, siliceous, calcareous grading to Marlstone in part, minor microfractures at acute angles, calcite filled
2,470.00 to 2,475.00 (5.00)	**SHALE** dark gray to black, dark brown gray in part, slightly calcareous to very calcareous with trace calcareous white specks and calcite filled microfractures, bituminous, siliceous, trace conchoidal fracture
2,475.00 to 2,480.00 (5.00)	**SHALE** mainly dark gray to black, trace medium gray, very calcareous, marly, soft, bituminous
2,480.00 to 2,484.00 (4.00)	**SHALE** medium to dark gray to black, very calcareous with scattered chalky calcareous white specks and inclusions, bituminous, moderately soft
2,484.00 to 2,490.00 (6.00)	**DOLOMITE** light to medium gray, to medium brown gray, microcrystalline to medium crystalline, to coarse crystalline in part, poor intercrystalline and pin point porosity, trace pyrobitumen, trace clear coarse quartz crystals
2,489.00 to 2,495.00 (6.00)	**DOLOMITE** as above, light to medium gray, fine to coarse crystalline, indicated poor to fair intercrystalline and pin point porosity (drusy coarse Dolomite rhombs and coarse hexagonal quartz crystals), trace pyrobitumen
2,494.00 to 2,500.00 (6.00)	**DOLOMITE** as above, with light gray coarse Dolomite crystals, mainly tight, trace pyrobitumen, trace medium to dark gray Dolomite, very fine to fine crystalline, tight, no shows, poor sample
2,500.00 to 2,503.00 (3.00)	**DOLOMITE** light to medium gray, to medium brown gray in part, fine to medium crystalline with scattered coarse to very coarse white Dolomite crystals, trace poor intercrystalline porosity, no fluorescence, scattered pyrobitumen, trace clear quartz crystals
2,503.00 to 2,510.00 (7.00)	**DOLOMITE** off white to very light gray to medium gray brown, very fine to medium crystalline to coarse crystalline in part, trace poor intercrystalline porosity mainly plugged with pyrobitumen, no fluorescence, trace stylolites, minor white Dolomite rhombs, trace microfractures with white Dolomite veins

2,510.00 to 2,515.00 (5.00)	**DOLOMITE** off white to light gray, medium gray brown in part, mainly fine to coarse crystalline, very fine to fine medium brown Dolomite in part, trace coarse to very coarse Dolomite crystals, trace poor intercrystalline and fracture porosity mainly plugged with scattered pyrobitumen, no fluorescence, abundant Dolomite rhombs, trace twinned Dolomite crystals, rare trace quartz crystals (hexagonal in part), scattered white Dolomite veins in medium gray brown Dolomite host rock
2,515.00 to 2,520.00 (5.00)	**DOLOMITE** as above, off white to light gray, medium gray brown in part, very fine to coarse crystalline, poor intercrystalline porosity, trace fracture porosity, scattered pyrobitumen, scattered very coarse Dolomite rhombs, sample 60% coarse white Dolomite, 40% very fine to fine crystalline brown Dolomite
2,520.00 to 2,525.00 (5.00)	**DOLOMITE** off white to very light gray, medium gray brown in part, trace dark gray brown, very fine to coarse crystalline, trace poor intercrystalline and fracture porosity with pyrobitumen in part, streak fair intercrystalline porosity plugged with pyrobitumen, no fluorescence, trace clear quartz crystals
2,525.00 to 2,530.00 (5.00)	**DOLOMITE** off white to medium gray brown, very fine to coarse crystalline, poor intercrystalline, vug and fracture porosity, intercrystalline porosity mainly plugged with pyrobitumen, trace very coarse clean drusy Dolomite crystal clusters (vugs?), no fluorescence, trace clear quartz crystals
2,530.00 to 2,535.00 (5.00)	**DOLOMITE** light to dark gray, very fine to medium crystalline, to coarse crystalline in part, poor intercrystalline, and fracture porosity, intercrystalline porosity plugged with pyrobitumen, no fluorescence, scattered drusy Dolomite rhombs, trace clear quartz crystals
2,535.00 to 2,540.00 (5.00)	**DOLOMITE** as above, mainly tight with trace poor intercrystalline porosity, decreasing pyrobitumen, scattered drusy Dolomite crystals, sample 50% coarse white Dolomite crystals, 50% medium to dark brown gray very fine to fine crystalline tight Dolomite
2,540.00 to 2,545.00 (5.00)	**DOLOMITE** light to medium gray to brown gray, fine to medium crystalline, to coarse crystalline in part, poor intercrystalline porosity, minor pyrobitumen, no fluorescence, trace pyrite, scattered very coarse drusy Dolomite rhombs
2,545.00 to 2,550.00 (5.00)	**DOLOMITE** light to medium gray to gray brown, fine to medium crystalline, to coarse crystalline in part, streaks poor to fair intercrystalline porosity, pyrobitumen plugging in part, scattered drusy Dolomite rhombs, trace quartz crystals
2,550.00 to 2,555.00 (5.00)	**DOLOMITE** as above, mainly medium brown to medium gray brown, very fine to fine crystalline, with minor coarse to very coarse white Dolomite crystals, mainly tight with trace poor intercrystalline porosity, minor pyrobitumen

2,555.00 to 2,560.00 (5.00)	**DOLOMITE** medium to dark gray brown, very fine to fine crystalline, bituminous with minor pyrobitumen residue, mainly tight, no fluorescence, streak Dolomite, off white to light gray, medium to very coarse crystalline drusy Dolomite rhombs and rosettes, fair intercrystalline and vug porosity, no fluorescence, no pyrobitumen on coarse crystals, scattered coarse light gray calcite crystals
2,560.00 to 2,565.00 (5.00)	**DOLOMITE** off white to medium to dark gray, very fine to coarse crystalline, to very coarse crystalline in part, streaks poor intercrystalline and vug porosity, no fluorescence, very coarse drusy Dolomite rhombs and rosettes have no pyrobitumen (vugs?), fine to coarse intercrystalline porosity has pyrobitumen plugging
2,565.00 to 2,570.00 (5.00)	**DOLOMITE** as above, fine to medium crystalline gray to brown gray Dolomite with coarse to very coarse crystalline white Dolomite rhombs, trace fossil shadows (circular, Amphipora? Coral? Crinoid?) indicated poor to fair vug &/or fracture porosity, trace intercrystalline porosity, no fluorescence, trace pyrobitumen plugging intercrystalline porosity
2,570.00 to 2,575.00 (5.00)	**DOLOMITE** light to medium gray to brown gray, very fine to medium crystalline, to coarse crystalline in part, poor intercrystalline porosity mainly pyrobitumen plugged, decreasing coarse white Dolomite crystals, trace stylolites, trace pyrite
2,575.00 to 2,580.00 (5.00)	**DOLOMITE** mainly medium gray to brown gray, fine to medium crystalline with scattered coarse to very coarse off white to light gray Dolomite crystals, trace circular fossil shadows (Amphipora?) (reefal?), trace poor intercrystalline porosity (mainly plugged with pyrobitumen), poor vug porosity, no fluorescence
2,580.00 to 2,585.00 (5.00)	**DOLOMITE** as above, medium to dark gray to brown gray host rock with white Dolomite crystals, very fine to medium crystalline with scattered white to light gray coarse to very coarse Dolomite crystals, decreasing porosity, decreasing coarse white Dolomite 25%, dark gray host rock 75%
2,585.00 to 2,590.00 (5.00)	**DOLOMITE** dark gray, very fine to fine crystalline, fossiliferous, trace Amphipora, trace poor intercrystalline and vug porosity, no fluorescence, trace pyrobitumen, scattered very coarse drusy Dolomite rhombs to 3mm, trace calcite crystals, trace clear quartz crystals (hexagonal in part)
2,590.00 to 2,595.00 (5.00)	**DOLOMITE** dark gray to dark brown gray as above, very fine to medium crystalline, fossiliferous, trace Amphipora, trace Brachiopods, Stromatoporoid remnants? mainly tight with trace very poor intercrystalline and vug porosity, no fluorescence, decreasing pyrobitumen to rare trace, scattered very coarse white Dolomite crystals, trace quartz crystals

2,595.00 to 2,600.00 (5.00)	**DOLOMITE** dark gray to dark brown gray host rock as above, increasing white Dolomite crystals, fossiliferous, trace poor intercrystalline and vug porosity, minor pyrobitumen, scattered coarse to very coarse Dolomite crystals, trace rhombs, trace quartz crystals
2,600.00 to 2,605.00 (5.00)	**DOLOMITE** medium to dark gray as above, mainly tight, streak of DOLOMITE, off white to very light gray, fine to very coarse crystalline, indicated fair porosity, mainly clean coarse Dolomite crystals, minor rhombs, trace quartz crystals (hexagonal in part)
2,605.00 to 2,610.00 (5.00)	**DOLOMITE** dark gray, dark brown gray in part, very fine to medium crystalline, fossiliferous, mainly tight with trace poor vug and fracture? porosity, no pyrobitumen, scattered coarse to very coarse Dolomite crystals, trace very coarse calcite crystals, trace white Dolomite veins in dark gray host rock, trace stylolites
2,610.00 to 2,615.00 (5.00)	**DOLOMITE** dark gray as above, fossiliferous, tight, scattered Dolomite, light to medium gray, fine to medium crystalline, fossiliferous, trace poor intercrystalline and vug porosity, trace pyrobitumen in part, scattered drusy Dolomite crystals and rhombs to 5mm, trace hexagonal quartz crystals, rare trace pyrite
2,615.00 to 2,620.00 (5.00)	**DOLOMITE** light to dark gray to brown gray, very fine to coarse crystalline, fossiliferous, mainly tight due to pyrobitumen plugging intercrystalline porosity, poor vug porosity, scattered coarse to very coarse drusy Dolomite crystals, trace quartz crystals
2,620.00 to 2,625.00 (5.00)	**DOLOMITE** mainly dark gray, medium to dark brown gray in part, very fine to medium crystalline, fossiliferous, mainly tight, no shows, scattered coarse white Dolomite crystals, trace clear quartz crystals
2,625.00 to 2,630.00 (5.00)	**DOLOMITE** medium to dark gray host rock as above, slightly siliceous with trace cherty residue, increasing off white to light gray coarse to very coarse Dolomite crystals, trace poor vug porosity, no shows, no pyrobitumen, trace Dolomite rhombs and rosettes, trace clear quartz crystals, 50% dark gray Dolomite, 50% coarse white crystals
2,630.00 to 2,635.00 (5.00)	**DOLOMITE** dark gray, medium to dark brown gray in part, very fine to medium crystalline, trace fossil shadows, tight, no shows, 80% dark gray Dolomite, 20% coarse white crystals, trace medium to dark gray Chert
2,635.00 to 2,640.00 (5.00)	**LIMESTONE** medium gray brown, cryptocrystalline, clean, slightly fossiliferous, tight, no shows, scattered stylolites, trace disseminated pyrite
2,640.00 to 2,645.00 (5.00)	**DOLOMITE** dark gray, very fine to fine crystalline, slightly fossiliferous, scattered very fine bituminous residue, tight, no shows, streak DOLOMITE, light gray, fine to coarse crystalline, poor intercrystalline and vug porosity, pyrobitumen plugging

intercrystalline porosity, no fluorescence

2,645.00 to 2,650.00 (5.00)	**DOLOMITE** light gray to light to medium brown gray, fine to coarse crystalline, trace fossil remnants, streaks poor to fair intercrystalline and trace vug porosity, no fluorescence, scattered pyrobitumen plugging intercrystalline porosity
2,650.00 to 2,655.00 (5.00)	**DOLOMITE** light to medium gray host rock, very fine to fine crystalline, fossiliferous (reefal?), abundant white coarse to very coarse Dolomite crystals, streaks poor intercrystalline porosity, trace vug porosity, no fluorescence, rare trace pyrobitumen, mainly clean, trace very coarse Dolomite rhombs
2,655.00 to 2,660.00 (5.00)	**DOLOMITE** light to dark gray to brown gray in part, fine to coarse crystalline, trace fossil remnants, streaks poor intercrystalline porosity, trace vug porosity, no fluorescence, minor pyrobitumen, scattered white coarse to very coarse Dolomite crystals, rhombic in part, trace white Dolomite veins, trace medium gray Chert
2,660.00 to 2,665.00 (5.00)	**DOLOMITE** medium to dark gray as above, fine to medium crystalline, abundant off white to light gray very to very coarse Dolomite crystals, trace fossil shadows, fair vug porosity, no fluorescence, trace pyrobitumen, trace clear quartz crystals
2,665.00 to 2,670.00 (5.00)	**DOLOMITE** as above, indicated fair vug porosity, no fluorescence, trace intercrystalline porosity with some pyrobitumen plugging, trace Dolomite, medium brown, microcrystalline, clean, tight, no shows
2,670.00 to 2,675.00 (5.00)	**DOLOMITE** light to dark gray, very fine to coarse crystalline, slightly fossiliferous, streaks poor to fair vug porosity, trace intercrystalline porosity pyrobitumen plugging in part, no fluorescence, scattered medium brown microcrystalline Dolomite as above, siliceous with abundant silicified spicules, tight, no shows
2,675.00 to 2,680.00 (5.00)	**DOLOMITE** off white to light gray, sample is 90% coarse to very coarse crystalline, fair intercrystalline and vug porosity, minor pyrobitumen, Dolomite rhombs to 2mm, trace clear hexagonal quartz crystals
2,680.00 to 2,685.00 (5.00)	**DOLOMITE** off white to light gray as above, coarse to very coarse crystalline, fair intercrystalline and vug porosity, minor pyrobitumen, scattered drusy Dolomite rhombs, increasing quartz crystals
2,685.00 to 2,690.00 (5.00)	**DOLOMITE** off white to light gray, medium to very coarse crystalline, sample mainly loose white coarse Dolomite crystals, fair vug and intercrystalline porosity, trace pyrobitumen
2,690.00 to 2,695.00 (5.00)	**DOLOMITE** dark gray with off white to light gray coarse Dolomite crystals, fine to coarse crystalline, slightly fossiliferous, fair intercrystalline and vug porosity, trace

	pyrobitumen plugging, scattered drusy Dolomite rhombs to 2mm, rare trace twinned rhombohedral Dolomite crystals, trace quartz crystals
2,695.00 to 2,700.00 (5.00)	**DOLOMITE** as above, increasing coarse to very coarse white Dolomite crystals, fair vug and intercrystalline porosity, no fluorescence, minor pyrobitumen
2,700.00 to 2,705.00 (5.00)	**DOLOMITE** off white to light gray, sample predominately loose medium to very coarse Dolomite crystals, indicated fair vug porosity, trace intercrystalline porosity, mrn pyrobitumen, trace pyrite, rare trace green Shale, waxy, pyritic
2,705.00 to 2,710.00 (5.00)	**DOLOMITE** medium gray, microcrystalline to very fine crystalline, clean, tight, no shows, trace stylolites
2,710.00 to 2,715.00 (5.00)	**DOLOMITE** medium to dark gray to gray brown, very fine to fine crystalline, microsucrosic with pyrobitumen in part, trace fossil remnants, tight, no shows, trace white Dolomite veins, minor pyrobitumen
2,715.00 to 2,720.00 (5.00)	**DOLOMITE** medium gray as above, very fine to fine crystalline, tight, no shows, interbedded DOLOMITE, very light gray, fine to coarse crystalline, streaks poor to fair vug porosity, trace intercrystalline porosity, no fluorescence, trace pyrobitumen, scattered loose coarse to very coarse Dolomite crystals, trace rhombs, trace quartz crystals
2,720.00 to 2,725.00 (5.00)	**DOLOMITE** light to medium gray, brown gray in part, very fine to coarse crystalline, slightly fossiliferous, cherty with clear qtx inclusions, siliceous with scattered silty and sandy residue, poor to fair vug porosity, trace intercrystalline porosity, no fluorescence, trace pyrobitumen, trace disseminated pyrite
2,725.00 to 2,730.00 (5.00)	**DOLOMITE** mainly dark gray, medium gray in part, trace light gray, very fine to fine crystalline, abundant black bituminous residue, slightly fossiliferous, tight with trace poor intercrystalline and vug porosity, no fluorescence, trace pyrobitumen, trace drusy Dolomite crystals and quartz crystals lining vugs, sample is 75% dark gray Dolomite, 25% coarse white crystals
2,730.00 to 2,735.00 (5.00)	**DOLOMITE** medium to dark gray as above, very fine to medium crystalline, tight, no shows, trace pyrite, increasing coarse to very coarse white Dolomite crystals, trace Shale, medium gray green, waxy, pyritic with minor disseminated microcrystalline pyrite
2,735.00 to 2,740.00 (5.00)	**DOLOMITE** off to light gray, fine to coarse crystalline, trace poor intercrystalline porosity with some pyrobitumen plugging, streaks poor vug porosity, no fluorescence, 80% loose medium to very coarse Dolomite crystals

2,740.00 to 2,745.00 (5.00)	**DOLOMITE** off white to light to medium gray, medium to very coarse crystalline, streaks fair to good vug porosity, no fluorescence, no pyrobitumen on coarse crystals, trace pyrobitumen in medium gray fine to medium crystalline Dolomite, abundant quartz crystals and crystal fragments
2,745.00 to 2,750.00 (5.00)	**DOLOMITE** light to medium gray, fine to coarse crystalline, fossiliferous, streaks fair vug porosity, trace intercrystalline porosity with pyrobitumen, no fluorescence, trace white Dolomite veins, trace stylolites, 80% of sample is loose white Dolomite crystals, trace green Shale streaks, pyritic with disseminated microcrystalline pyrite
2,750.00 to 2,755.00 (5.00)	**DOLOMITE** light to medium gray, medium to very coarse crystalline, fossiliferous, indicated fair vug porosity, no fluorescence, trace pyrobitumen, scattered loose Dolomite crystals, trace green pyritic Shale
2,755.00 to 2,760.00 (5.00)	**DOLOMITE** off white to light to medium gray, fine to coarse crystalline, fossiliferous, streaks fair vug porosity, trace intercrystalline with pyrobitumen, scattered Dolomite crystals, rhombs in part, trace clear quartz crystals, minor pyrite, increasing Shale, medium green to gray green, waxy in part, pyritic with disseminated microcrystalline pyrite
2,760.00 to 2,765.00 (5.00)	**DOLOMITE** off white to light to medium gray as above, fine to coarse crystalline, fossiliferous, streaks poor to fair vug porosity, scattered pyrobitumen, no fluorescence, trace pyrite, scattered Dolomite, dark gray, very fine to fine crystalline, fossiliferous, tight, no shows
2,765.00 to 2,770.00 (5.00)	**DOLOMITE** mainly medium gray, microcrystalline to fine crystalline, tight, no shows, scattered white to light gray coarse Dolomite as above, streaks poor vug porosity, trace green Shale streaks
2,770.00 to 2,775.00 (5.00)	**DOLOMITE** light to medium gray, fine to very coarse crystalline, slightly fossiliferous, mainly tight with streaks poor to fair vug porosity, trace intercrystalline porosity with pyrobitumen, no fluorescence, scattered drusy Dolomite crystals, minor Shale, mottled green to dark gray, pyritic, fissile, waxy in part
2,775.00 to 2,780.00 (5.00)	**DOLOMITE** off white to very light gray, sample is 80% coarse white Dolomite, 20% medium gray fine to coarse crystalline, mainly tight with trace poor vug porosity, scattered coarse to very coarse Dolomite crystals, mainly clean, pyrobitumen in part, trace clear quartz crystals
2,780.00 to 2,785.00 (5.00)	**DOLOMITE** as above, mainly off white coarse to very coarse crystals, indicated poor to fair vug porosity, no fluorescence, trace Dolomite rhombs, trace calcite crystals, trace quartz crystals, trace green Shale laminations

2,785.00 to 2,790.00 (5.00)	**DOLOMITE** medium to dark gray, fine to coarse crystalline, very fossiliferous, trace Amphipora? tight, no shows, interbedded DOLOMITE, off white to light gray, fine to very coarse crystalline, mainly loose Dolomite crystals, indicated fair vug porosity, no fluorescence, trace green Shale laminations
2,790.00 to 2,795.00 (5.00)	**DOLOMITE** medium to dark gray as above, tight, no shows, decreasing white Dolomite crystals
2,795.00 to 2,800.00 (5.00)	**DOLOMITE** off white to very light gray, medium to very coarse crystalline, streaks fair vug porosity with Dolomite rhombs and quartz crystals lining vugs, minor medium to dark gray fossiliferous Dolomite as above
2,800.00 to 2,805.00 (5.00)	**DOLOMITE** medium to dark gray, fine to coarse crystalline, fossiliferous, tight, no shows, scattered coarse to very coarse Dolomite crystals, clean, trace calcite crystals, trace quartz crystals, trace pyrite, trace green Shale streaks
2,805.00 to 2,810.00 (5.00)	**DOLOMITE** off white to very light gray, sample is 80% coarse to very coarse Dolomite crystals, siliceous to very siliceous with trace silicified Dolomite pseudomorphs, scattered siliceous residue, indicated poor to fair vug porosity, mainly clean, trace pyrobitumen, scattered Dolomite rhombs, minor clear quartz crystals
2,810.00 to 2,815.00 (5.00)	**DOLOMITE** off white to light gray as above, 65% coarse white Dolomite crystals, 35% mottled light to dark gray Dolomite, fine to coarse crystalline, tight with trace poor intercrystalline porosity, no shows, scattered drusy Dolomite rhombs and rosettes, trace pyrite, rare trace silver coloured sulfide, rhombohedral crystals, moderately soft
2,815.00 to 2,820.00 (5.00)	**DOLOMITE** off white to light gray as above, mainly medium to very coarse Dolomite crystals, siliceous with trace silicified Dolomite pseudomorphs, mainly tight with trace poor vug and intercrystalline porosity, no shows, trace Shale stringers, dark gray green, pyritic, waxy
2,820.00 to 2,825.00 (5.00)	**DOLOMITE** as above, mainly coarse to very coarse white crystals, siliceous with Dolomite pseudomorphs, tight, no shows, trace calcite crystals, trace clear quartz crystals
2,825.00 to 2,830.00 (5.00)	**DOLOMITE** medium to dark gray, mottled, fine to coarse crystalline, fossiliferous, trace Amphipora, tight with possible poor vug porosity, no shows, scattered coarse to very coarse Dolomite crystals, trace quartz crystals; 60% dark Dolomite, 40% coarse white crystals
2,830.00 to 2,835.00 (5.00)	**DOLOMITE** light to dark gray, 60% white coarse crystals, 40% dark mottled Dolomite, fine to coarse crystalline, fossiliferous, siliceous with pseudomorphs and silty residue, mainly tight with trace vug and fracture porosity, no shows, trace quartz crystals,

hexagonal in part

2,835.00 to 2,840.00 (5.00)	**DOLOMITE** light to dark gray, mottled, fine to coarse crystalline, fossiliferous, siliceous in part, tight with streaks poor vug porosity, trace fracture porosity, no shows, trace quartz crystals
2,840.00 to 2,845.00 (5.00)	**DOLOMITE** light to dark gray as above, tight, no shows, increasing clear quartz crystals, trace Limestone, dark gray brown, cryptocrystalline to microcrystalline, tight, no shows
2,845.00 to 2,850.00 (5.00)	**DOLOMITE** as above, light to dark gray, mottled, fine to very coarse crystalline, siliceous with Dolomite pseudomorphs, tight with trace vug and fracture porosity, no shows, trace quartz crystals
2,850.00 to 2,855.00 (5.00)	**DOLOMITE** as above, 60% coarse white Dolomite crystals, 40% medium to dark mottled Dolomite host rock, siliceous and cherty, tight with streaks poor intercrystalline, vug and fracture porosity, no shows, trace pyrobitumen, trace quartz crystals
2,855.00 to 2,860.00 (5.00)	**DOLOMITE** as above, white to light to dark gray, mottled, fine to very coarse crystalline, siliceous with Dolomite pseudomorphs and clear quartz crystals, trace poor vug and fracture porosity, no shows, trace Shale streaks, medium to dark green, waxy, pyritic
2,860.00 to 2,865.00 (5.00)	**DOLOMITE** off white to light to dark gray, fine to very coarse crystalline, trace fossil remnants, siliceous with scattered pseudomorphs, mainly tight with trace poor fracture and vug porosity, no shows, trace Shale stringers, medium to dark gray green, trace dark gray, waxy, pyritic with disseminated microcrystalline pyrite
2,865.00 to 2,870.00 (5.00)	**DOLOMITE** as above, increasing coarse white Dolomite crystals to 70%, siliceous with pseudomorphs and quartz inclusions, mainly tight with poor vug and fracture porosity, no shows, trace Shale streaks, green, waxy, pyritic
2,870.00 to 2,875.00 (5.00)	**DOLOMITE** light to dark gray as above, fine to coarse crystalline with abundant off white coarse to very coarse crystals, fossiliferous, mainly tight with trace fracture porosity, no shows, rare trace pyrobitumen, trace Dolomite rhombs and hexagonal quartz
2,875.00 to 2,880.00 (5.00)	**DOLOMITE** off white to light to medium gray, fine to coarse crystalline with abundant coarse to very coarse white crystals, siliceous, mainly tight with trace fracture porosity, no shows, trace Shale streaks, medium to dark gray green, waxy, pyritic with disseminated microcrystalline pyrite in part, sample is 80% coarse white Dolomite crystals
2,880.00 to 2,885.00 (5.00)	**DOLOMITE** as above, mainly coarse white crystals, trace intercrystalline porosity with

pyrobitumen plugging, decreasing green Shale streaks

2,885.00 to 2,890.00 (5.00)	**DOLOMITE** off white to light to medium gray, fine to very coarse crystalline, siliceous in part, mainly tight with trace fracture and vug porosity, trace intercrystalline porosity with pyrobitumen, no shows, trace Shale streaks, medium to dark green to gray green, waxy, trace pyrite
2,890.00 to 2,895.00 (5.00)	**DOLOMITE** as above, mainly off white to light gray, increasing intercrystalline porosity plugged with pyrobitumen, no fluorescence
2,895.00 to 2,900.00 (5.00)	**DOLOMITE** off white to light to medium gray, fine to very coarse crystalline, slightly siliceous in part with trace cherty residue, poor intercrystalline porosity with pyrobitumen plugging in part, trace vug porosity, no shows, trace Shale streaks, medium green, waxy, pyritic with scattered disseminated microcrystalline pyrite
2,900.00 to 2,905.00 (5.00)	**DOLOMITE** light to medium gray as above, to dark gray in part, fine to coarse crystalline, siliceous in part with trace crystal pseudomorphs, trace poor intercrystalline porosity with pyrobitumen plugging in part, trace fracture porosity, no fluorescence, trace fine to medium Dolomite crystals growing on fracture plane? or vugs?
2,905.00 to 2,910.00 (5.00)	**DOLOMITE** medium to dark gray, microcrystalline, slightly calcareous with trace white calcite veins, minor bituminous residue, slightly silty, tight, no shows, scattered white calcite and dolomite healed microfractures, trace disseminated microcrystalline pyrite
2,910.00 to 2,915.00 (5.00)	**DOLOMITE** medium gray as above, microcrystalline to very fine crystalline, slightly argillaceous and silty, tight, no shows, trace recemented microfractures
2,915.00 to 2,920.00 (5.00)	**DOLOMITE** medium gray, microcrystalline, tight, no shows, trace microfractures to 2mm healed with white Dolomite
2,920.00 to 2,925.00 (5.00)	**DOLOMITE** off white to light to medium gray, very fine to coarse crystalline, slightly siliceous with scattered silicified Dolomite pseudomorphs, trace poor intercrystalline, vug and fracture porosity, no shows, intercrystalline plugged with pyrobitumen, trace very fine to coarse Dolomite crystals on vug or fracture planes
2,925.00 to 2,930.00 (5.00)	**DOLOMITE** medium to dark gray, fine to coarse crystalline, scattered bituminous residue, streaks poor to fair intercrystalline porosity with pyrobitumen plugging in part, no fluorescence, trace pyrite
2,930.00 to 2,935.00 (5.00)	**DOLOMITE** off white to light to dark gray, fine to coarse crystalline, slightly siliceous in part with fine silty residue, fossiliferous, poor intercrystalline porosity mainly pyrobitumen

	plugged, trace fracture and vug porosity with drusy crystal growths, 40% coarse white Dolomite crystals, 60% medium to dark gray Dolomite
2,935.00 to 2,940.00 (5.00)	**DOLOMITE** medium to dark gray, mainly fine to medium crystalline, scattered coarse crystalline white Dolomite, slightly fossiliferous, mainly tight with trace poor intercrystalline porosity with pyrobitumen plugging, no fluorescence
2,940.00 to 2,945.00 (5.00)	**DOLOMITE** medium to dark gray, fine to medium crystalline, trace coarse crystalline, fossiliferous, trace Amphipora?, tight, no shows, minor pyrobitumen, trace microsucrosic very fine crystalline Dolomite with abundant pyrobitumen, trace green Shale streaks
2,945.00 to 2,950.00 (5.00)	**DOLOMITE** medium gray, light to medium gray in part, very fine to medium crystalline, fossiliferous, streaks poor to fair intercrystalline porosity, pyrobitumen plugged in part, poor vug porosity with minor drusy Dolomite rhombs
2,950.00 to 2,955.00 (5.00)	**DOLOMITE** as above, mainly medium gray, very fine to medium crystalline, mainly tight with trace poor intercrystalline and vug porosity, no fluorescence, trace pyrobitumen, trace microfractures cemented with white dolomite, trace white coarse Dolomite crystals
2,955.00 to 2,960.00 (5.00)	**DOLOMITE** off white to light to dark gray, very fine to coarse crystalline, slightly fossiliferous, tight with trace poor intercrystalline and trace vug porosity, no shows, trace white dolomite veins
2,960.00 to 2,965.00 (5.00)	**DOLOMITE** light to medium gray, dark gray in part, fine to coarse crystalline, slightly fossiliferous, mainly tight with trace poor intercrystalline porosity, pyrobitumen plugged, trace coarse white Dolomite crystals and rhombs
2,965.00 to 2,970.00 (5.00)	**DOLOMITE** light to dark gray, very fine to medium crystalline, trace coarse crystalline, slightly fossiliferous, mainly tight with trace very poor intercrystalline porosity, no shows, pyrobitumen plugging in part, rare trace pin point porosity, no shows, increasing coarse to very coarse white Dolomite, trace calcite crystals
2,970.00 to 2,975.00 (5.00)	**DOLOMITE** medium to dark gray, very fine to fine crystalline, to medium crystalline in part, trace coarse crystalline, fossiliferous, tight, no shows, trace stylolites, minor Chert, medium to dark gray
2,975.00 to 2,980.00 (5.00)	**DOLOMITE** very light gray to dark gray, very fine to medium crystalline, to coarse crystalline in part, slightly fossiliferous, streaks poor intercrystalline porosity with pyrobitumen plugging in part, no fluorescence, trace hexagonal quartz crystals, trace Dolomite rhombs

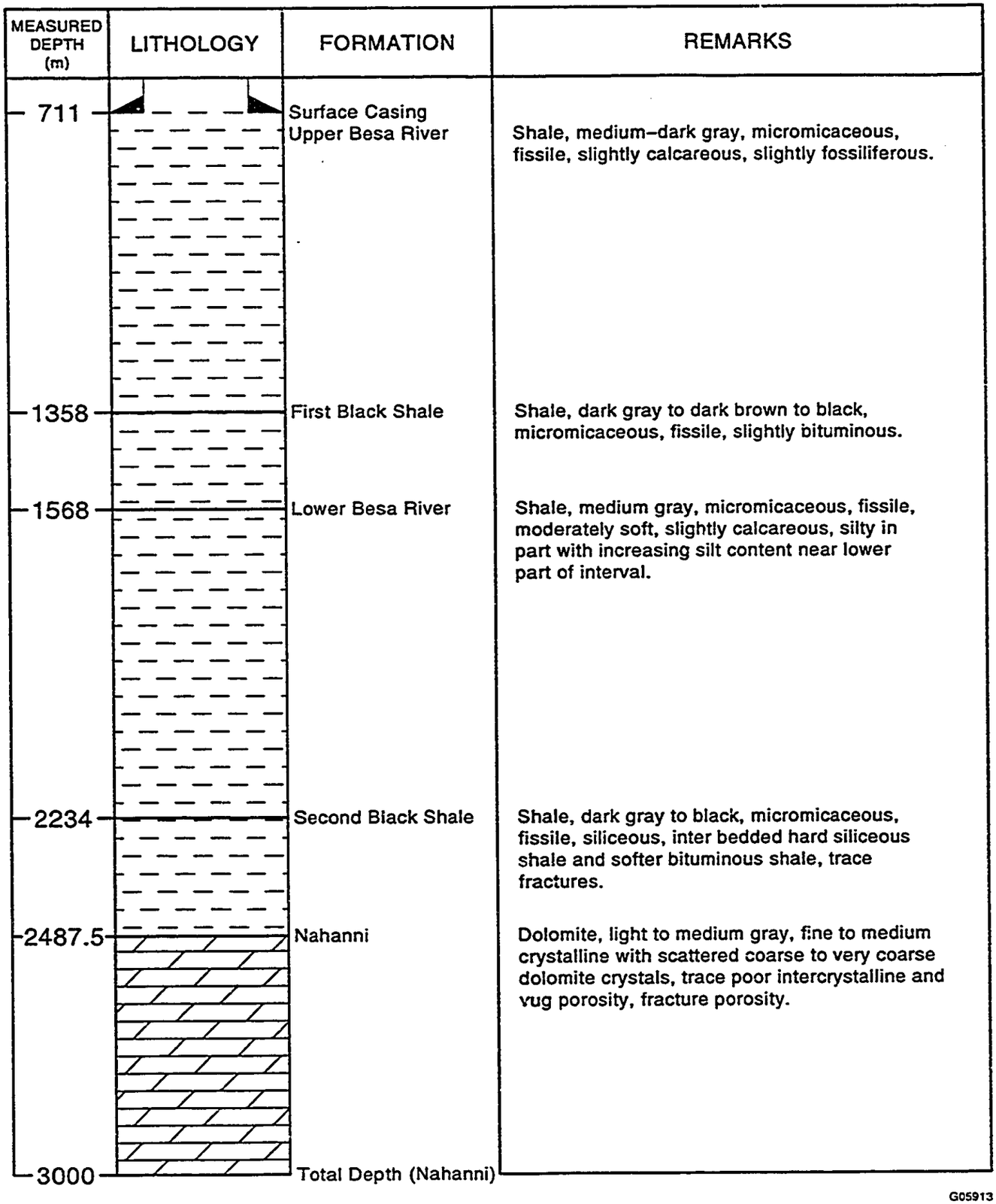
2,980.00 to 2,985.00 (5.00)	**DOLOMITE** as above, streak light gray Dolomite, fine to medium crystalline, poor to fair intercrystalline porosity with pyrobitumen plugging
2,985.00 to 2,990.00 (5.00)	**DOLOMITE** light to medium gray, fine to coarse crystalline, fossiliferous with scattered unrecognizable fossil shadows, streaks poor intercrystalline porosity mainly pyrobitumen plugged, no fluorescence, minor medium gray Chert
2,990.00 to 2,995.00 (5.00)	**DOLOMITE** light to dark gray, very fine to medium crystalline, siliceous, mainly tight with trace fracture porosity, no shows, minor coarse white Dolomite crystals
2,995.00 to 3,000.00 (5.00)	**DOLOMITE** mainly medium gray, light to dark gray in part, very fine to medium crystalline, siliceous, microsucrosic with scattered pyrobitumen in part, mainly tight with trace intercrystalline and vug porosity, pyrobitumen plugging intercrystalline porosity, trace drusy Dolomite rhombs. trace pyrite, trace Chert, medium gray

Well Stratigraphy Column

Chevron et al Liard K–29

60° 30' , 123° 30'

Grd = 409.6 m KB = 418.8 m



G05913

SURVEY LISTING

BAKER HUGHES

INTEQ

FINAL DIRECTIONAL SURVEY

REVISED

CHEVRON CANADA RESOURCES LTD.
FORT LIARD

K-29
K-29 (60.5degN/123.5degW)
FORT LIARD
N.W.T. Canada

S U R V E Y L I S T I N G

by
Baker Hughes INTEQ

Your ref : CHEVRON FT. LIARD K-29
Our ref : svy9760
License :

Date printed : 6-Apr-99
Date created : 11-Feb-99
Last revised : 6-Apr-99

Field is centred on 467869.990,6704591.610,-123.00000,N
Structure is centred on 467869.990,6704591.610,-123.00000,N

Slot location is n60 28 41.045,w123 35 4.102
Slot Grid coordinates are N 6704591.610, E 467869.990
Slot local coordinates are 0.00 N 0.00 E

Projection type: mercator - UTM, Spheroid: Clarke - 1866

Reference North is True North

APR 13 12 39 PM '99

FILE: W10 1861

N.E.B. COPY

CHEVRON CANADA RESOURCES LTD.
FORT LIARD,K-29
FORT LIARD,N.W.T. Canada

SURVEY LISTING Page 1
Your ref : CHEVRON FT. LIARD K-2
Last revised : 6-Apr-99

Measured Depth	Inclin. Degrees	Azimuth Degrees	True Vert Depth	RECTANGULAR COORDINATES	Dogleg Deg/ 30m	Vert Sect
0.00	0.00	0.00	0.00	0.00 N 0.00 E	0.00	0.00
221.00	0.25	1.70	221.00	0.48 N 0.01 E	0.03	-0.24
306.00	1.25	311.70	305.99	1.28 N 0.67 W	0.39	-1.25
425.00	2.00	296.70	424.94	3.08 N 3.50 W	0.22	-4.60
513.00	3.75	71.70	512.89	4.68 N 2.14 W	1.83	-4.29
538.00	4.35	51.70	537.82	5.52 N 0.62 W	1.83	-3.45
573.00	4.10	47.70	572.73	7.18 N 1.35 E	0.33	-2.66
611.00	4.50	42.70	610.62	9.19 N 3.37 E	0.43	-2.02
642.00	4.00	41.70	641.54	10.90 N 4.91 E	0.49	-1.61
676.00	3.50	30.80	675.47	12.67 N 6.23 E	0.77	-1.43
702.00	3.00	30.70	701.42	13.94 N 6.99 E	0.58	-1.46
742.00	3.25	32.00	741.36	15.80 N 8.12 E	0.19	-1.49
791.00	3.25	37.00	790.29	18.09 N 9.69 E	0.17	-1.36
913.00	4.00	49.00	912.04	23.64 N 14.99 E	0.26	0.18
960.00	3.88	41.00	958.93	25.92 N 17.26 E	0.36	0.91
1027.00	4.00	38.00	1025.77	29.47 N 20.19 E	0.11	1.51
1103.00	4.00	32.00	1101.59	33.80 N 23.23 E	0.17	1.78
1159.00	4.90	35.00	1157.42	37.42 N 25.63 E	0.50	1.91
1219.00	5.00	56.00	1217.20	40.98 N 29.27 E	0.90	3.11
1248.00	5.50	59.00	1246.08	42.40 N 31.51 E	0.59	4.25
1286.00	7.00	57.00	1283.85	44.60 N 35.01 E	1.20	6.06
1324.00	7.75	55.00	1321.54	47.33 N 39.05 E	0.63	8.04
1359.50	7.90	59.60	1356.71	49.94 N 43.12 E	0.54	10.10
1369.00	8.50	60.50	1366.11	50.62 N 44.29 E	1.94	10.74
1388.10	9.80	62.50	1384.97	52.06 N 46.96 E	2.10	12.24

All data is in meters unless otherwise stated.
Coordinates from K-29 (60.5degN/123.5degW) and TVD from rotary table (418.80 M. above mean sea le
Bottom hole distance is 348.88 on azimuth 94.53 degrees from wellhead.
Vertical section is from wellhead on azimuth 122.00 degrees.
Calculation uses the minimum curvature method.
Presented by Baker Hughes INTEQ

Measured Depth	Inclin. Degrees	Azimuth Degrees	True Vert Depth	RECTANGULAR COORDINATES		Dogleg Deg/ 30m	Vert Sect
1397.70	10.50	61.80	1394.42	52.85 N	48.46 E	2.22	13.09
1407.30	11.30	62.20	1403.84	53.70 N	50.06 E	2.51	14.00
1416.90	11.90	62.60	1413.25	54.60 N	51.77 E	1.89	14.97
1436.10	12.00	62.90	1432.03	56.42 N	55.31 E	0.18	17.01
1455.30	10.90	56.70	1450.85	58.32 N	58.60 E	2.58	18.79
1484.00	9.20	50.90	1479.11	61.26 N	62.65 E	2.07	20.67
1502.00	9.00	52.60	1496.88	63.02 N	64.88 E	0.56	21.63
1512.70	8.90	55.00	1507.45	64.01 N	66.23 E	1.08	22.25
1541.40	7.30	59.70	1535.86	66.20 N	69.62 E	1.81	23.96
1570.20	6.30	56.70	1564.46	67.99 N	72.52 E	1.11	25.47
1598.90	5.60	52.20	1593.01	69.71 N	74.94 E	0.88	26.61
1627.60	5.20	60.20	1621.58	71.22 N	77.18 E	0.89	27.71
1656.40	3.90	68.20	1650.29	72.23 N	79.22 E	1.50	28.91
1665.90	3.60	67.20	1659.77	72.47 N	79.80 E	0.97	29.27
1675.50	3.70	64.60	1669.35	72.72 N	80.35 E	0.60	29.61
1685.10	3.70	66.10	1678.93	72.97 N	80.92 E	0.30	29.95
1713.80	3.40	80.70	1707.57	73.49 N	82.60 E	0.99	31.11
1733.00	4.20	74.30	1726.73	73.77 N	83.84 E	1.41	32.01
1752.20	5.10	63.40	1745.87	74.34 N	85.28 E	1.96	32.93
1780.90	4.60	50.90	1774.47	75.64 N	87.32 E	1.22	33.97
1790.40	4.70	49.40	1783.94	76.13 N	87.91 E	0.50	34.21
1819.10	4.80	59.60	1812.54	77.51 N	89.84 E	0.89	35.11
1838.30	4.50	67.60	1831.67	78.20 N	91.22 E	1.12	35.92
1857.50	4.50	69.90	1850.82	78.74 N	92.63 E	0.28	36.82
1886.20	4.40	72.30	1879.43	79.47 N	94.73 E	0.22	38.23

All data is in meters unless otherwise stated.
Coordinates from K-29 (60.5degN/123.5degW) and TVD from rotary table (418.80 M. above mean sea le
Bottom hole distance is 348.88 on azimuth 94.53 degrees from wellhead.
Vertical section is from wellhead on azimuth 122.00 degrees.
Calculation uses the minimum curvature method.
Presented by Baker Hughes INTEQ

Measured Depth	Inclin. Degrees	Azimuth Degrees	True Vert Depth	RECTANGULAR COORDINATES		Dogleg Deg/ 30m	Vert Sect
1915.00	4.20	73.30	1908.15	80.11 N	96.80 E	0.22	39.64
1943.80	3.70	70.90	1936.88	80.71 N	98.69 E	0.55	40.92
1953.30	3.80	70.40	1946.36	80.92 N	99.27 E	0.33	41.31
1972.50	3.80	62.80	1965.52	81.42 N	100.44 E	0.79	42.03
2001.20	3.70	56.10	1994.16	82.37 N	102.05 E	0.47	42.89
2030.00	3.40	63.60	2022.90	83.27 N	103.59 E	0.58	43.72
2049.10	3.40	59.50	2041.97	83.81 N	104.58 E	0.38	44.28
2058.70	3.50	61.70	2051.55	84.09 N	105.09 E	0.52	44.55
2077.80	3.70	75.60	2070.61	84.52 N	106.20 E	1.40	45.27
2087.40	3.90	79.30	2080.19	84.66 N	106.82 E	0.99	45.72
2116.20	3.80	90.30	2108.93	84.84 N	108.73 E	0.78	47.25
2144.50	4.50	85.70	2137.15	84.92 N	110.78 E	0.82	48.95
2173.30	5.30	72.40	2165.85	85.40 N	113.17 E	1.44	50.72
2202.00	6.60	60.60	2194.39	86.61 N	115.87 E	1.86	52.37
2221.20	5.80	60.70	2213.48	87.63 N	117.68 E	1.25	53.36
2230.70	5.60	60.70	2222.93	88.09 N	118.50 E	0.63	53.82
2259.50	4.00	52.10	2251.63	89.40 N	120.52 E	1.82	54.84
2269.00	3.00	40.20	2261.11	89.79 N	120.94 E	3.89	54.98
2288.20	2.80	25.30	2280.29	90.60 N	121.47 E	1.21	55.00
2307.30	3.20	22.90	2299.36	91.51 N	121.88 E	0.66	54.86
2316.90	3.40	27.80	2308.95	92.01 N	122.11 E	1.08	54.80
2326.40	3.90	32.00	2318.43	92.53 N	122.42 E	1.79	54.78
2335.90	4.40	34.80	2327.90	93.11 N	122.79 E	1.70	54.80
2355.10	4.90	49.20	2347.04	94.25 N	123.84 E	1.98	55.08
2374.30	5.40	59.50	2366.16	95.24 N	125.24 E	1.64	55.73

All data is in meters unless otherwise stated.
Coordinates from K-29 (60.5degN/123.5degW) and TVD from rotary table (418.80 M. above mean sea le
Bottom hole distance is 348.88 on azimuth 94.53 degrees from wellhead.
Vertical section is from wellhead on azimuth 122.00 degrees.
Calculation uses the minimum curvature method.
Presented by Baker Hughes INTEQ

Measured Depth	Inclin. Degrees	Azimuth Degrees	True Vert Depth	RECTANGULAR COORDINATES	Dogleg Deg/ 30m	Vert Sect
2384.00	5.70	62.20	2375.82	95.70 N 126.05 E	1.23	56.19
2393.70	5.50	64.20	2385.47	96.13 N 126.90 E	0.86	56.68
2403.30	5.50	68.80	2395.03	96.49 N 127.74 E	1.38	57.20
2413.10	5.30	69.40	2404.79	96.82 N 128.60 E	0.64	57.75
2422.70	5.20	69.50	2414.34	97.13 N 129.43 E	0.31	58.29
2432.40	5.30	68.10	2424.00	97.45 N 130.25 E	0.50	58.82
2442.00	5.20	66.50	2433.56	97.79 N 131.06 E	0.55	59.33
2461.40	4.70	60.00	2452.89	98.54 N 132.56 E	1.16	60.20
2471.00	4.50	62.30	2462.46	98.91 N 133.23 E	0.85	60.57
2484.00	4.40	62.60	2475.42	99.38 N 134.13 E	0.24	61.09
2510.00	4.60	71.00	2501.34	100.17 N 136.00 E	0.79	62.25
2519.60	5.70	91.90	2510.90	100.28 N 136.84 E	6.74	62.90
2529.30	7.20	103.30	2520.54	100.13 N 137.91 E	6.08	63.90
2539.00	9.40	107.90	2530.14	99.74 N 139.26 E	7.10	65.24
2548.60	11.00	112.50	2539.59	99.15 N 140.85 E	5.61	66.90
2558.30	13.50	115.90	2549.07	98.30 N 142.72 E	8.04	68.94
2569.70	15.00	120.40	2560.12	96.98 N 145.19 E	4.90	71.74
2579.30	16.10	122.50	2569.36	95.63 N 147.39 E	3.86	74.31
2588.80	18.20	126.60	2578.44	94.04 N 149.69 E	7.65	77.11
2598.40	20.30	129.00	2587.50	92.10 N 152.19 E	7.01	80.26
2608.00	22.60	128.80	2596.44	89.89 N 154.92 E	7.19	83.74
2617.50	25.30	129.00	2605.12	87.47 N 157.92 E	8.53	87.57
2626.90	27.80	128.60	2613.53	84.84 N 161.20 E	8.00	91.74
2636.40	29.80	126.40	2621.85	82.06 N 164.83 E	7.15	96.30
2646.00	31.90	123.90	2630.10	79.23 N 168.85 E	7.69	101.21

All data is in meters unless otherwise stated.
Coordinates from K-29 (60.5degN/123.5degW) and TVD from rotary table (418.80 M. above mean sea le
Bottom hole distance is 348.88 on azimuth 94.53 degrees from wellhead.
Vertical section is from wellhead on azimuth 122.00 degrees.
Calculation uses the minimum curvature method.
Presented by Baker Hughes INTEQ

CHEVRON CANADA RESOURCES LTD.
FORT LIARD,K-29
FORT LIARD,N.W.T. Canada

SURVEY LISTING Page 5
Your ref : CHEVRON FT. LIARD K-2
Last revised : 6-Apr-99

Measured Depth	Inclin. Degrees	Azimuth Degrees	True Vert Depth	RECTANGULAR COORDINATES		Dogleg Deg/ 30m	Vert Sect
2655.60	33.90	123.20	2638.16	76.34 N	173.20 E	6.36	106.42
2665.20	36.00	122.40	2646.02	73.37 N	177.82 E	6.72	111.92
2674.80	36.80	121.10	2653.75	70.37 N	182.67 E	3.47	117.62
2684.50	37.10	120.60	2661.50	67.38 N	187.67 E	1.31	123.45
2694.20	37.40	121.80	2669.22	64.34 N	192.69 E	2.43	129.32
2703.90	36.70	122.50	2676.97	61.23 N	197.64 E	2.53	135.16
2713.50	35.90	121.40	2684.70	58.22 N	202.46 E	3.22	140.85
2723.20	35.60	120.60	2692.57	55.30 N	207.32 E	1.72	146.51
2732.90	35.70	121.30	2700.46	52.39 N	212.17 E	1.30	152.17
2742.60	36.20	122.70	2708.31	49.38 N	217.00 E	2.98	157.86
2752.20	36.60	123.40	2716.04	46.27 N	221.77 E	1.80	163.56
2761.90	36.20	121.80	2723.84	43.17 N	226.62 E	3.19	169.31
2771.60	36.50	122.70	2731.66	40.10 N	231.48 E	1.89	175.06
2781.20	36.90	122.90	2739.35	36.99 N	236.31 E	1.30	180.80
2790.90	36.30	122.20	2747.14	33.88 N	241.18 E	2.26	186.58
2800.60	36.60	122.40	2754.94	30.80 N	246.05 E	1.00	192.34
2810.20	36.60	121.80	2762.65	27.76 N	250.90 E	1.12	198.07
2819.90	36.00	121.00	2770.47	24.77 N	255.80 E	2.36	203.81
2829.60	35.10	118.90	2778.36	21.95 N	260.69 E	4.69	209.44
2839.30	35.30	119.10	2786.29	19.24 N	265.58 E	0.71	215.03
2848.90	35.60	120.30	2794.11	16.48 N	270.41 E	2.37	220.59
2858.60	36.00	119.40	2801.97	13.66 N	275.34 E	2.04	226.26
2868.30	36.30	120.30	2809.81	10.81 N	280.30 E	1.89	231.98
2877.80	35.80	120.90	2817.49	7.96 N	285.11 E	1.93	237.57
2887.30	35.80	119.50	2825.19	5.17 N	289.91 E	2.59	243.12

All data is in meters unless otherwise stated.
Coordinates from K-29 (60.5degN/123.5degW) and TVD from rotary table (418.80 M. above mean sea le
Bottom hole distance is 348.88 on azimuth 94.53 degrees from wellhead.
Vertical section is from wellhead or azimuth 122.00 degrees.
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CHEVRON CANADA RESOURCES LTD.
FORT LIARD,K-29
FORT LIARD,N.W.T. Canada

SURVEY LISTING Page 6
Your ref : CHEVRON FT. LIARD K-2
Last revised : 6-Apr-99

Measured Depth	Inclin. Degrees	Azimuth Degrees	True Vert Depth	RECTANGULAR COORDINATES		Dogleg Deg/ 30m	Vert Sect	
2896.80	36.30	120.50	2832.87	2.37 N	294.75 E	2.44	248.71	
2906.40	36.90	120.30	2840.58	0.52 S	299.69 E	1.91	254.43	
2915.90	36.50	119.90	2848.20	3.37 S	304.60 E	1.47	260.10	
2925.50	35.80	118.40	2855.95	6.13 S	309.55 E	3.53	265.76	
2935.20	35.70	119.30	2863.82	8.86 S	314.51 E	1.66	271.42	
2944.90	36.00	119.60	2871.68	11.66 S	319.46 E	1.08	277.09	
2954.60	36.60	119.60	2879.50	14.49 S	324.45 E	1.86	282.83	
2964.30	36.00	119.30	2887.32	17.32 S	329.45 E	1.94	288.57	
2974.00	35.90	119.10	2895.17	20.10 S	334.42 E	0.48	294.26	
2983.00	36.10	119.20	2902.45	22.67 S	339.04 E	0.69	299.54	
3000.00	36.10	119.20	2916.19	27.56 S	347.79 E	0.00	309.54	EXTRAPOLATION TO TOTAL DE

All data is in meters unless otherwise stated.
Coordinates from K-29 (60.5degN/123.5degW) and TVD from rotary table (418.80 M. above mean sea le
Bottom hole distance is 348.88 on azimuth 94.53 degrees from wellhead.
Vertical section is from wellhead on azimuth 122.00 degrees.
Calculation uses the minimum curvature method.
Presented by Baker Hughes INTEQ

Comments in wellpath

MD	TVD	Rectangular Coords.	Comment
3000.00	2916.19	27.56 S 347.79 E	EXTRAPOLATION TO TOTAL DEPTH

Casing positions in string 'A'

Top MD	Top TVD	Rectangular Coords.	Bot MD	Bot TVD	Rectangular Coords.	Casing
0.00	0.00	0.00N 0.00E	701.30	700.72	13.91N 6.97E	SURFACE
0.00	0.00	0.00N 0.00E	2500.00	2491.37	99.89N 135.25E	INTERMEDIAT

Targets associated with this wellpath

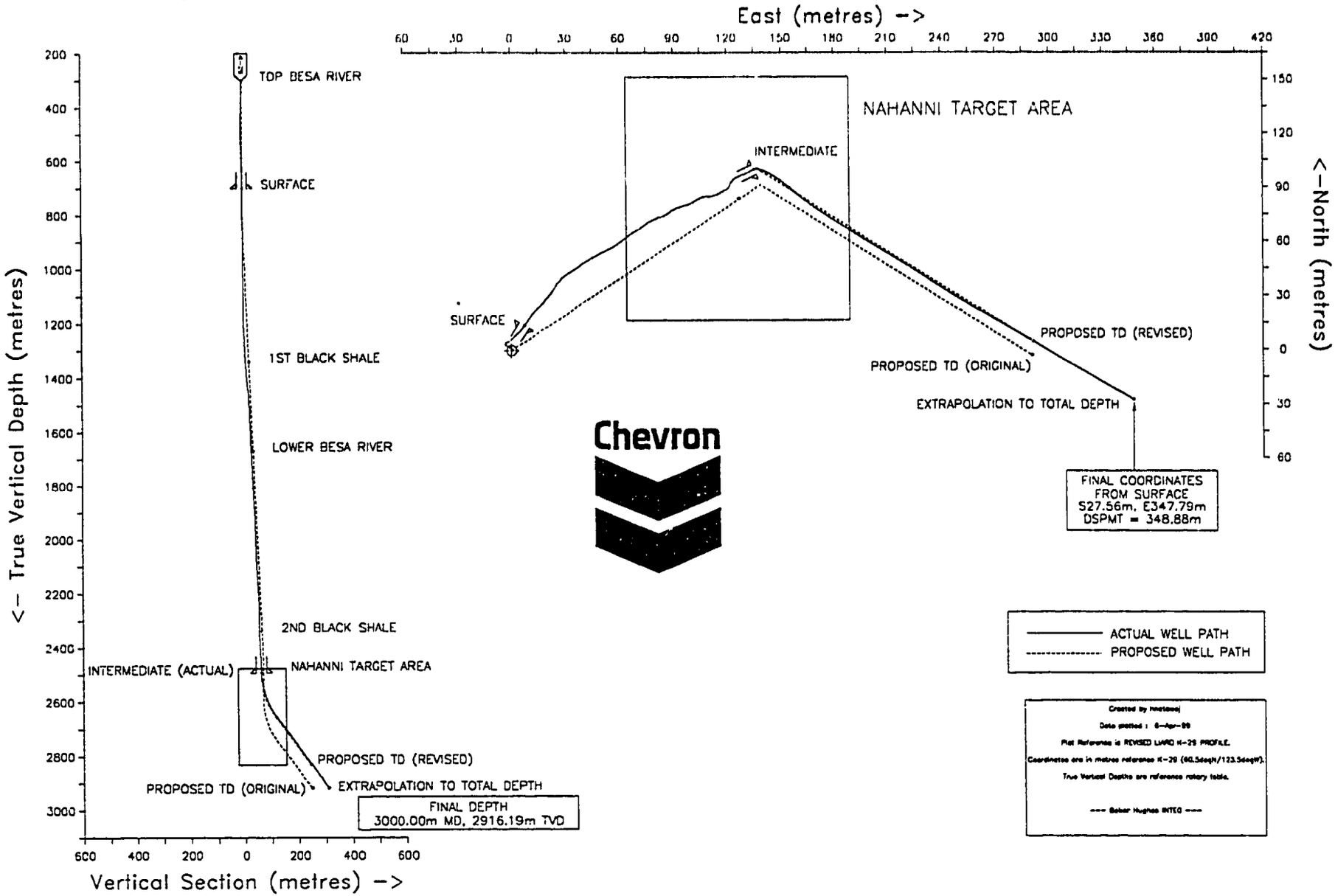
Target name	Geographic Location	T.V.D.	Rectangular Coordinates	Revised
NAHANNI TARGET AREA		2475.42	83.96N 126.54E	9-Nov-98
NAHANNI TARGET	468009.780,6704681.800,-123.0	2562.00	91.46N 139.04E	9-Nov-98

BAKER HUGHES INTEQ

CHEVRON CANADA RESOURCES LTD.

Structure : FORT LIARD Well : K-29
Field : FORT LIARD Location : N.W.T. Canada

BAKER HUGHES INTEQ



Chevron

Azimuth 122.00 with reference 0.00 S, 0.00 W from K-29 (60.5degN/123.5degW)

NORWARD ENERGY CLEAN UP TEST REPORT

N.E.B. COPY

BAKER HUGHES

Baker Atlas

NORWARD

ENERGY SERVICES

Customer: Chevron Canada Resources
Wellname: Chevron et al Fort Liard
Well Location: K - 29
Test Dates: Apr. 03 - 19, 1999
Formation: Nahanni

File Name: GP99-048, CHEV365.FLD
Supervisors: R. Rutherford, M. Russell
Customer Reps: G. McNalley, C. Triomphe, BJ. Kalsi
Test Unit/Tank: TU29, TK25
Test Type: Clean Up, Test

FINAL Copies
edited at
Norward Head Office

GENERAL INFORMATION

Client Information:

Company: Chevron Canada Resources
Contact:
Phone: Fax: e-mail:

Site Information:

Contact: G. McNalley, C. Triomphe, BJ. Kalsi
Phone: Fax: e-mail:

Well Information:

Name: Chevron et al Fort Liard
Operator:
Location-Downhole: K-29
Location-Surface:

Test Information:

Company:	Norward Energy Services		
Representative:	Ron Norgaard/Paul Ringrose -- Northern Operations		
Supervisor:	R. Rutherford, M. Russell		
Test Type:	Clean Up, Test	Job Number:	GP99-48
Test Unit:	TU#29, TK#25		
Start Date:	1999/04/03	Start Time:	07:00:00
End Date:	1999/04/19	End Time:	06:00:00
Report Date:	1999/04/22	Prepared By:	Cindy Brunt
Remarks:		Qualified By:	

FieldNotes

Gas Meter 1

Meter Type:	Orifice Meter	
Meter Size:	147.02	mm
Previous Gas Production:	0.000	10^3m^3
Tap Type:	Flange	
Tap Location:	Downstream	
Gas Gravity (G):	0.740	
CO_2:	17.53	%
H_2S:	0.40	%
N_2:	3.49	%
Critical Temperature (T_c):	208.80	K
Critical Pressure (P_c):	5063.00	kPa

Gas Meter 2

Meter Type:	Orifice Meter	
Meter Size:	97.18	mm
Previous Gas Production:	0.000	10^3m^3
Tap Type:	Flange	
Tap Location:	Downstream	
Gas Gravity (G):	0.740	
CO_2:	17.53	%
H_2S:	0.40	%
N_2:	3.49	%
Critical Temperature (T_c):	208.80	K
Critical Pressure (P_c):	5063.00	kPa

Oil Meter1

Meter Type:	Produced Volume	
Measurement Type:	Incremental	
Previous Oil Production:	0.000	m^3
Previous Water Production:	0.000	m^3

FieldNotes

Water Meter1

Meter Type:	Produced Volume
Measurement type:	Incremental
Previous Water Production:	0.000 m^3

Chevron Canada Resources
O K-29
Start Test Date: 1999/04/03
Final Test Date: 1999/04/19

FieldNotes
Field Measurements

Chevron et al Fort Liard
Formation Nahanni

Job Number GP99-48

	Date	Clock Time	Tbg Pres	Csg Pres	WHT	Orifice	Static Pres	Diff Pres	Meter Temp	Gas Rate	Cum. Gas	Fld Gain	BSW	H2O Gain	H2O Rate	Cum. H2O	Oil Gain	Oil Rate	Cum. Oil	Ph	Salinity	Solid Per.
	yyyy/mm/d	hh:mm:ss	kPa(g)	kPa(g)	°C	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3	m^3	m^3/d	m^3		ppm	%
1	1999/04/05	07:00:00	Arrive on location and rig-up test equipment as per OHS guidlines.																			
2	1999/04/09	09:00:00	Tie in flowline and Emergency Shut Down valve.																			
3		12:00:00	Pressure test surface lines to (35,000) kPa.																			
4		20:30:00	Safety meeting.																			
5		20:55:00	Begin pressure testing Dowell lines.																			
6		23:35:00	Pressure testing complete.																			
7		23:40:00	Start pumping N2 at 15 scm/min.																			
8		23:42:00	Coil running in hole.																			
9		23:55:00	Fluid to surface.																			
10		23:59:59				0.000	0	0.0	0.0	0.00	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00			
11	1999/04/10	00:00:00	Adjust choke accordingly to maintain (2000)kPa back pressure on well.																			
12		00:30:00	Measureable fluid in sight glass.									2.50	100.0	2.50	102.78	2.50	0.00	0.00	0.00			
13		00:35:00	2000									3.20	100.0	3.20	184.32	5.70	0.00	0.00	0.00			
14		01:00:00	2000									8.30	100.0	8.30	398.40	14.00	0.00	0.00	0.00			
15		01:30:00	2300																			
16		01:44:00	Flamable gas to surface. Fluid gain shown is 100% mud.																			
17		01:50:00	Open choke to 44/64".																			
18		02:00:00	16600	12300	30.0							3.00	100.0	3.00	144.00	17.00	0.00	0.00	0.00			
19		02:13:00	Meter in service with a 3.25" (82.55mm) orifice plate.																			
20		02:15:00	14900	12300	30.0	82.550	500	40.0	36.0	207.57	19.46	2.10	100.0	2.10	100.80	19.10	0.00	0.00	0.00			
21		02:30:00	14900	12300	32.0	82.550	500	34.0	33.0	192.03	21.54	0.70	100.0	0.70	33.60	19.80	0.00	0.00	0.00			
22		03:00:00	15450	14500	33.0	82.550	500	33.8	30.0	192.43	25.55	0.40	100.0	0.40	38.40	20.20	0.00	0.00	0.00			
23		03:15:00	15700	14500	30.0	82.550	850	84.0	28.0	387.15	28.57											
24		03:15:00	Total drilling mud recovered (20.20)m3.																			
25		03:16:00	Coil tubing at surface.																			
26		03:16:00	Shut in well and await on acid job.																			
27		03:16:00				0.000	0	0.0	0.0	0.00	28.57	0.00	0.0	0.00	0.00	20.20	0.00	0.00	0.00			
28		11:00:00	Hold pre-job safety meeting.																			
29		12:00:00	Begin to fill coil, (4.0)m3 overdisplace (0.5)m3 to p.tank.																			
30		12:40:00	Pressure test coil to (21,000)kPa.																			
31		12:40:00				0.000	0	0.0	0.0	0.00	28.57	0.00	0.0	0.00	0.00	20.20	0.00	0.00	0.00			
32		12:42:00	Begin to fill wellbore with H20.																			
33		16:15:00	Adjust choke accordingly to return equal amount pumped down coil.																			
34		16:15:00	Flow back at (150) litres / minute.									3.60	100.0	3.60	22.54	23.80	0.00	0.00	0.00	7.000	1000	1.40
35		16:30:00	5000									3.50	100.0	3.50	336.00	27.30	0.00	0.00	0.00			
36		16:45:00	4950									3.80	100.0	3.80	364.80	31.10	0.00	0.00	0.00	7.000	1100	1.60
37		17:00:00	5150																			
38		17:01:00	Flow back at (170) litres / minute.									2.60	100.0	2.60	249.60	33.70	0.00	0.00	0.00			
39		17:15:00	4800																			
40		17:20:00	Acid at nozzle for wash #1.																			
41		17:30:00	4600									2.40	100.0	2.40	230.40	36.10	0.00	0.00	0.00	7.000	1000	1.40
42		17:31:00	Decrease choke to maintain (2,500)kPa.																			
43		17:45:00	Flow back at (120) litres / minute.									2.20	100.0	2.20	105.60	38.30	0.00	0.00	0.00	7.000	1000	4.40
44		18:00:00	700																			
45		19:00:00	H2S reading (0.7)% by Gastec.									2.30	100.0	2.30	55.20	40.60	0.00	0.00	0.00	7.000	12000	3.00
46		19:00:00	7000									0.80	100.0	0.80	38.40	41.40	0.00	0.00	0.00	7.000	12000	4.00
47		19:30:00	7000																			

NORWARD

Chevron Canada Resources
D K 29
Start Test Date: 1999/04/03
Final Test Date: 1999/04/19

FieldNotes
Field Measurements

	Date	Clock Time	Tbg Pres	Csg Pres	WHT	Orifice	Static Pres	Diff Pres	Meter Temp	Gas Rate	Cum. Gas	Fld Gain	BSW	H2O Gain	H2O Rate	Cum. H2O	Oil Gain	Oil Rate	Cum. Oil	Ph	Salinity	Solid Per.
	yyyy/mm/d	hh:mm:ss	kPa(g)	kPa(g)	°C	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3	m^3	m^3/d	m^3		ppm	%
48	1999/04/10	19:31:00	Adjust choke to hold 2.5 MPa.									5.60	100.0	5.60	537.60	47.00	0.00	0.00	0.00	7.000	14000	5.00
49		19:45:00	2500																			
50		19:55:00	Adjust choke to hold 7500 kPa.									11.25	100.0	11.25	1080.00	58.25	0.00	0.00	0.00	7.000	14000	3.00
51		20:00:00	7500																			
52		20:01:00	Pump 1 m3 of acid.									4.40	100.0	4.40	422.40	62.65	0.00	0.00	0.00	7.000	12000	4.00
53		20:15:00	8500									4.80	100.0	4.80	460.80	67.45	0.00	0.00	0.00	7.000	14000	3.00
54		20:30:00	8500									5.30	100.0	5.30	508.80	72.75	0.00	0.00	0.00	7.000	12000	3.00
55		20:45:00	8400									2.60	100.0	2.60	249.60	75.35	0.00	0.00	0.00	7.000	14000	3.00
56		21:00:00	8500									2.90	100.0	2.90	278.40	78.25	0.00	0.00	0.00	7.000	14000	4.00
57		21:15:00	8500									2.80	100.0	2.80	268.80	81.05	0.00	0.00	0.00	7.000	14000	3.00
58		21:30:00	8500									2.90	100.0	2.90	278.40	83.95	0.00	0.00	0.00	7.000	14000	3.00
59		21:45:00	8500									2.80	100.0	2.80	268.80	86.75	0.00	0.00	0.00	7.000	14000	3.00
60		22:00:00	8500																			
61		22:00:00	Start pumping acid, adjust choke to hold 12000 kPa.									3.30	100.0	3.30	316.80	90.05	0.00	0.00	0.00	7.000	10000	3.00
62		22:15:00	12400									3.10	100.0	3.10	297.60	93.15	0.00	0.00	0.00	7.000	10000	2.00
63		22:30:00	12000									4.60	100.0	4.60	441.60	97.75	0.00	0.00	0.00	2.000		1.00
64		22:45:00	12200									2.00	100.0	2.00	192.00	99.75	0.00	0.00	0.00	1.000		0.30
65		23:00:00	12400									4.00	100.0	4.00	384.00	103.75	0.00	0.00	0.00	1.000		0.40
66		23:15:00	12800									1.40	100.0	1.40	134.40	105.15	0.00	0.00	0.00	1.000	270000	0.40
67		23:30:00	12600									1.20	100.0	1.20	115.20	106.35	0.00	0.00	0.00	1.000	270000	0.50
68		23:45:00	11500									1.40	100.0	1.40	134.40	107.75	0.00	0.00	0.00	1.000	270000	0.50
69	1999/04/11	00:00:00	10600																			
70		00:00:00	Shut in at choke unable to hold 12000 kPa.																			
71		00:15:00	Start acid squeeze.																			
72		03:15:00	Obstruction in open hole, open to flow, attempting to draw down to 7000 kPa.																			
73		03:30:00	13000																			
74		03:30:00	Unable to draw down to 7 MPa.									4.00	100.0	4.00	25.60	111.75	0.00	0.00	0.00	1.000	270000	0.10
75		03:45:00	13000																			
76		03:45:00	Shut in, coil run in to try and clear obstruction, resume acid squeeze.																			
77		03:45:01				0.000	0	0.0	0.0	0.00	28.57	0.00	0.0	0.00	0.00	111.75	0.00	0.00	0.00			
78		05:19:58	21400							0.00	28.57											
79		05:20:00				0.000	0	0.0	0.0	0.00	28.57	0.00	0.0	0.00	0.00	111.75	0.00	0.00	0.00			
80		05:20:00	Open to flow on a 16/64" (6.35mm) choke.																			
81		05:25:00	11700	0	20.0																	
82		05:30:00	12100	0	22.0																	
83		05:35:00	Shut in, re-light pilot.																			
84		05:50:00	Open to flow on a 38/64" (15.08mm) choke.																			
85		05:55:00	12000	0	20.0																	
86		06:00:00	12100	0	22.0																	
87		06:05:00	Shut in, repair leak.																			
88		06:20:00	Open to flow on a 38/64" (15.08mm) choke.																			
89		06:20:00	21500	0						0.00	28.57											
90		06:25:00	13500	0	20.0																	
91		06:30:00	13500	0	22.0																	
92		06:30:00	Meter in service with a 3.25" (82.55mm) orifice plate.																			
93		06:45:00	13200	0	22.0	82.550	4000	30.0	18.0	502.45	58.23											
94		06:50:00	Open choke to 45/64" (17.86mm).																			

	Date	Clock Time	Tbg Pres	Csg Pres	WHT	Orifice	Static Pres	Diff Pres	Meter Temp	Gas Rate	Cum. Gas	Fld Gain	BSW	H2O Gain	H2O Rate	Cum. H2O	Oil Gain	Oil Rate	Cum. Oil	Ph	Salinity	Solid Per.
	yyyy/mm/d	hh:mm:ss	kPa(g)	kPa(g)	°C	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3	m^3	m^3/d	m^3		ppm	%
95	1999/04/11	07:00:00	12100	0	22.0	82.55	3600	44.0	16.0	575.69	63.84											
96		07:00:00	Shut in, monitor buildups.																			
97		07:00:01				0.000	0	0.0	0.0	0.00	63.84	0.00	0.0	0.00	0.00	111.75	0.00	0.00	0.00			
98		07:30:00	22000																			
99		08:00:00	22280																			
100		09:00:00	22285																			
101		09:15:00	Shut in well to rig-off coil tubing injector head.																			
102		16:45:00	Open well to obtain pressures.																			
103		17:00:00	23330																			
104		17:00:00	Bleed off wellhead and rig-up slickline to run static gradient.																			
105		19:00:00	Wireline run in to do static gradient.																			
106	1999/04/12	00:00:00	Wireline out, static gradient complete.																			
107		00:30:00	Wireline having trouble running in.																			
108		03:00:00	Wireline running in hole with no-go.																			
109		03:35:00	Wireline out of hole.																			
110		03:45:00	Wireline running in with recorders.(2 runs)																			
111		05:30:00	Wireline out of hole, recorders set. Rig off wellhead.																			
112		08:15:00	Open well and record tubing and casing pressures (vac).																			
113		08:30:00	22370																			
114		08:45:00	Open wing-valve and pressure up to choke.																			
115		08:59:58																				
116		09:00:00	Open choke to flow on a (24/64) (9.53)mm. RATE # 1.																			
117		09:01:00	Dri-flow meter in service with a (3.25)" (82.55)mm orifice plate.																			
118		09:05:00	22120	0	16.0	82.550	1200	26.0	26.0	251.25	64.72											
119		09:10:00	21300	0	18.0	82.550	1190	29.0	26.0	264.40	65.62											
120		09:15:00	21270	0	18.0	82.550	1200	23.0	30.0	234.53	66.48											
121		09:30:00	21380	0	20.0	82.550	1050	20.8	35.0	207.58	68.79											
122		09:38:00	Rock choke to clear debris.																			
123		09:45:00	21400	230	18.0	82.550	1170	21.5	28.0	224.83	71.04											
124	1999/04/12	10:00:00	21520	920	20.0	82.550	1170	21.3	28.0	223.77	73.37											
125		10:00:00	Deadweight on static (1175)kPa adjust dri-flow to match.																			
126		10:00:00	Pump (1.5)m3 into test tank to raise fluid level into sight glass.																			
127		10:30:00	21580	2875	20.0	82.550	1170	21.0	28.0	222.18	78.02											
128		10:55:00	Rock choke to clear debris.																			
129		11:00:00	21560	4750	25.0	82.550	1150	21.0	28.0	220.38	82.63											
130		11:15:00	Supply gas failure. Begin injection methanol across choke.																			
131		11:30:00	21560	5275	28.0	82.550	1150	21.5	26.0	223.81	87.26											
132		11:35:00	Measureable fluid to surface. Sample is milky white in color. Bled off annulus pressure.																			
133		12:00:00	21430	2000	27.0	82.550	1200	21.1	22.0	227.88	91.96	0.15	100.0	0.15	1.20	111.90	0.00	0.00	0.00	5.000	22000	0.20
134		12:30:00	21460	3550	27.0	82.550	1180	21.5	22.0	228.22	96.71											
135		12:45:00	Supply gas back on line. Bled off annulus pressure.																			
136		13:00:00	21510	2400	30.0	82.550	1180	22.2	28.0	229.40	101.48	0.20	100.0	0.20	4.80	112.10	0.00	0.00	0.00	5.000	22000	0.10
137		13:00:00	Samples taken 2 - HP gas cylinders #(20745) #(18603); 2 stock water from high-stage.																			
138		13:30:00	21610	3650	30.0	82.550	1180	22.2	28.0	229.40	106.26											
139	1999/04/12	14:00:00	21650	4650	32.0	82.550	1180	22.2	28.0	229.40	111.04	0.20	100.0	0.20	4.80	112.30	0.00	0.00	0.00	5.000	22000	0.00
140		14:00:00	Deadweight on static is (1180)kPa. H2S = (2000)ppm.																			
141		14:20:00	Hydrations in surface equipment, increased line-heater temperature. Bled off annulus pressure.																			

	Date	Clock Time	Tbg Pres	Csg Pres	WHT	Orifice	Static Pres	Diff Pres	Meter Temp	Gas Rate	Cum. Gas	Fld Gain	BSW	H2O Gain	H2O Rate	Cum. H2O	Oil Gain	Oil Rate	Cum. Oil	Ph	Salinity	Solid Per.
	yyyy/mm/d	hh:mm:ss	kPa(g)	kPa(g)	°C	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3	m^3	m^3/d	m^3		ppm	%
142	1999/04/12	14:30:00	21680	2400	33.0	82.550	1180	22.2	30.0	228.57	115.81											
143		15:00:00	21710	3650	34.0	82.550	1180	22.2	30.0	228.57	120.57	0.15	100.0	0.15	3.60	112.45	0.00	0.00	0.00	5.000	22000	0.10
144		15:00:00	Bleed off annulus as required to hold (2000)kPa - (4000)kPa.																			
145		15:30:00	21715	2000	34.0	82.550	1185	22.2	30.0	229.03	125.34											
146		16:00:00	21720	2750	37.0	82.550	1185	22.2	30.0	229.03	130.11	0.20	100.0	0.20	4.80	112.65	0.00	0.00	0.00	5.000	20000	0.10
147		16:30:00	21740	3450	39.0	82.550	1185	22.2	30.0	229.03	134.88											
148		17:00:00	21760	4000	39.0	82.550	1185	22.2	30.0	229.03	139.65	0.15	100.0	0.15	3.60	112.80	0.00	0.00	0.00	5.000	22000	
149		17:30:00	21770	2600	39.0	82.550	1185	22.2	30.0	229.03	144.42											
150	1999/04/12	18:00:00	21760	3250	41.0	82.550	1185	22.3	30.0	229.55	149.20	0.20	100.0	0.20	4.80	113.00	0.00	0.00	0.00	5.000	22000	
151		18:00:00	H2S by Gastec = (5000)ppm.																			
152		18:30:00	21770	2900	43.0	82.550	1185	22.3	30.0	229.55	153.98											
153		19:00:00	21770	2000	43.0	82.550	1185	22.3	30.0	229.55	158.76	0.15	100.0	0.15	3.60	113.15	0.00	0.00	0.00	5.000	24000	0.10
154		19:00:01	End of rate #1. BEGIN RATE #2.																			
155		19:00:01	Increase choke to 28/64" (11.11)mm. Increase choke to 32/64" (12.700)mm.																			
156		19:05:00	19740	2200	44.0	82.550	1300	60.0	16.0	405.52	159.87											
157		19:10:00	19800	2900	44.0	82.550	1300	60.0	16.0	405.52	161.27											
158		19:15:00	19870	3150	45.0	82.550	1300	60.0	16.0	405.52	162.68											
159		19:30:00	19990	2000	44.0	82.550	1300	60.0	16.0	405.52	168.91											
160		19:45:00	20050	2800	44.0	82.550	1300	60.0	16.0	405.52	171.13											
161		20:00:00	20010	3700	45.0	82.550	1280	60.0	17.0	401.77	175.34	0.45	100.0	0.45	10.80	113.60	0.00	0.00	0.00	5.000	14000	
162		20:30:00	20210	2000	46.0	82.550	1280	60.0	18.0	401.01	183.70											
163		21:00:00	20300	3300	48.0	82.550	1280	59.0	17.0	398.37	192.02	0.45	100.0	0.45	10.80	114.05	0.00	0.00	0.00	5.000	12000	
164		21:30:00	20310	2000	50.0	82.550	1250	58.5	10.0	397.55	200.32											
165		22:00:00	20350	3000	50.0	82.550	1250	58.0	7.0	398.18	208.60	0.35	100.0	0.35	8.40	114.40	0.00	0.00	0.00	5.000	12000	0.10
166		22:30:00	20350	2000	50.0	82.550	1250	58.0	4.0	400.58	216.92											
167		23:00:00	20410	2850	50.0	82.550	1250	58.0	12.0	394.29	225.20	0.40	100.0	0.40	9.60	114.80	0.00	0.00	0.00	5.000	12000	
168		23:30:00	20450	3500	50.0	82.550	1250	57.5	18.0	388.07	233.35											
169	1999/04/13	00:00:00	20480	2000	54.0	82.550	1260	57.5	22.0	386.63	241.42	0.20	100.0	0.20	4.80	115.00	0.00	0.00	0.00	5.000	12000	
170		00:30:00	20510	2300	54.0	82.550	1260	58.0	24.0	386.89	249.48											
171		01:00:00	20540	3000	56.0	82.550	1260	58.0	26.0	385.47	257.53	0.35	100.0	0.35	8.40	115.35	0.00	0.00	0.00	5.000	12000	
172		01:30:00	20560	3500	56.0	82.550	1260	57.8	28.0	383.40	265.54											
173		02:00:00	20580	2000	56.0	82.550	1260	57.8	30.0	382.02	273.51	0.35	100.0	0.35	8.40	115.70	0.00	0.00	0.00	5.000	12000	
174		02:30:00	20600	2350	56.0	82.550	1260	57.8	32.0	380.65	281.45											
175		03:00:00	20600	2700	58.0	82.550	1260	58.0	31.0	382.00	289.40	0.35	100.0	0.35	8.40	116.05	0.00	0.00	0.00	5.000	12000	
176		03:30:00	20600	3050	60.0	82.550	1260	58.0	31.0	382.00	297.36											
177		04:00:00	20600	3400	60.0	82.550	1260	58.0	32.0	381.32	305.31	0.30	100.0	0.30	7.20	116.35	0.00	0.00	0.00	5.000	12000	
178		04:30:00	20610	3700	60.0	82.550	1260	57.8	32.0	380.65	313.24											
179		05:00:00	20610	2000	60.0	82.550	1260	57.8	32.0	380.65	321.18	0.30	100.0	0.30	7.20	116.65	0.00	0.00	0.00	5.000	12000	
180		05:00:01	End of rate #2. BEGIN RATE #3.																			
181		05:00:02	Open choke to 38/64" (15.08mm).																			
182		05:03:00	Open choke to 40/64" (15.88mm).																			
183		05:05:00	18550	2250	60.0																	
184		05:10:00	18500	2400	59.0																	
185		05:15:00	18500	2700	58.0	82.550	2010	70.0	32.0	525.26	325.89											
186		05:30:00	18470	3400	60.0	82.550	2010	70.0	33.0	524.29	331.36											
187		05:45:00	18420	3900	62.0	82.550	2010	70.0	31.0	526.25	336.83											
188	1999/04/13	06:00:00	18400	2000	64.0	82.550	2010	70.0	29.0	528.24	342.32	0.50	100.0	0.50	12.00	117.15	0.00	0.00	0.00	5.000	12000	0.10

Chevron Canada Resources
0 K-29
Start Test Date: 1999/04/03
Final Test Date: 1999/04/19

FieldNotes
Field Measurements

Chevron et al Fort Liard
Formation: Nahanni

Job Number: GP99-48

	Date	Clock Time	Tbg Pres	Csg Pres	WHT	Orifice	Static Pres	Diff Pres	Meter Temp	Gas Rate	Cum. Gas	Fld Gain	BSW	H2O Gain	H2O Rate	Cum. H2O	Oil Gain	Oil Rate	Cum. Oil	Ph	Salinity	Solid Per.
		yyyy/mm/d hh:mm:ss	kPa(g)	kPa(g)	°C	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3	m^3	m^3/d	m^3		ppm	%
189	1999/04/13	06:30:00	18390	2750	58.0	82.550	2010	70.0	30.0	527.24	353.32											
190		07:00:00	Deadweight on static (2050) kPa.																			
191		07:00:00	18370	3100	61.0	82.550	2050	69.4	30.0	530.08	364.33	0.60	100.0	0.60	14.40	117.75	0.00	0.00	0.00	5.000	10000	0.10
192		07:30:00	18370	3400	67.0	82.550	2050	69.4	30.0	530.08	375.38											
193		08:00:00	18380	3550	67.0	82.550	2050	69.0	31.0	527.54	386.39	0.40	100.0	0.40	9.60	118.15	0.00	0.00	0.00	5.000	10000	0.10
194		08:30:00	18380	3750	67.0	82.550	2050	69.0	31.0	527.54	397.38											
195		08:30:00	Samples taken: 2 HP gas cylinders # (22064), (6879).																			
196		09:00:00	18410	2400	67.0	82.550	2050	69.0	31.0	527.54	408.37	0.55	100.0	0.55	13.20	118.70	0.00	0.00	0.00	4.000	10000	
197		09:00:00	Deadweight on static (2070) kPa.																			
198		09:30:00	18440	2800	67.0	82.550	2070	68.8	30.0	530.30	419.39											
199	1999/04/13	10:00:00	18450	3050	70.0	82.550	2070	68.8	30.0	530.30	430.44	0.55	100.0	0.55	13.20	119.25	0.00	0.00	0.00	4.000	6000	0.10
200		10:30:00	18470	3600	70.0	82.550	2070	68.8	30.0	530.30	441.49											
201		11:00:00	18490	3850	70.0	82.550	2070	68.6	30.0	529.52	452.53	0.60	100.0	0.60	14.40	119.85	0.00	0.00	0.00	4.000	6000	
202		11:30:00	18520	3800	75.0	82.550	2075	69.0	32.0	529.71	463.58											
203		12:00:00	18530	4000	74.0	82.550	2075	69.0	32.0	529.71	474.60	0.50	100.0	0.50	12.00	120.35	0.00	0.00	0.00	5.000	6000	
204		12:30:00	18550	2050	73.0	82.550	2075	68.9	33.0	528.33	485.62											
205		13:00:00	18590	2400	72.0	82.550	2075	68.9	33.0	528.33	496.62	0.50	100.0	0.50	12.00	120.85	0.00	0.00	0.00	5.000	6000	
206		13:30:00	18620	2350	72.0	82.550	2075	68.9	34.0	527.35	507.62											
207	1999/04/13	14:00:00	18630	2550	73.0	82.550	2075	69.0	34.0	527.73	518.61	0.45	100.0	0.45	10.80	121.30	0.00	0.00	0.00	5.000	6000	0.10
208		14:30:00	18670	2700	73.0	82.550	2075	69.0	35.0	526.75	529.60											
209		15:00:00	18690	1000	75.0	82.550	2075	69.0	35.0	526.75	540.57	0.45	100.0	0.45	10.80	121.75	0.00	0.00	0.00	5.000	6000	
210		15:00:00	End of rate #3. BEGIN RATE #4.																			
211		15:00:00	Increase choke to 50.800 mm. Dri-flow meter in service with a 107.95 mm orifice plate.																			
212		15:05:00	8100	1550	74.0																	
213		15:10:00	8170	1600	74.0																	
214		15:15:00	8070	1710	79.0	107.950	2700	48.0	40.0	945.36	548.24											
215		15:30:00	8630	2650	75.0	107.950	2070	50.0	60.0	816.15	557.41											
216		15:45:00	8040	3400	76.0	107.950	2050	48.0	64.0	773.84	565.69											
217		16:00:00	7670	3650	76.0	107.950	2050	48.0	64.0	790.56	573.84	5.20	100.0	5.20	124.80	126.95	0.00	0.00	0.00	5.000	168000	0.00
218		16:30:00	8530	2150	77.0	107.950	2100	48.0	63.0	801.28	590.42											
219		17:00:00	7630	2150	76.0	107.950	2100	46.5	62.0	789.89	607.00	4.10	100.0	4.10	98.40	131.05	0.00	0.00	0.00	6.000	142000	0.00
220		17:30:00	7630	2000	76.0	107.950	2100	46.5	62.0	789.89	623.45											
221	1999/04/13	18:00:00	7940	1950	75.0	107.950	2100	48.0	61.0	803.91	640.05	1.20	100.0	1.20	28.80	132.25	0.00	0.00	0.00	6.000	112000	0.10
222		18:30:00	7520	1900	72.0	107.950	2180	47.0	62.0	808.87	656.85											
223		19:00:00	7490	1850	74.0	107.950	2100	46.5	62.0	789.89	673.51	0.45	100.0	0.45	10.80	132.70	0.00	0.00	0.00	7.000	130000	20.00
224		19:30:00	7590	1900	74.0	107.950	2100	45.0	61.0	778.27	689.84											
225		20:00:00	7570	1900	73.0	107.950	2260	44.0	62.0	796.55	706.25	0.20	100.0	0.20	4.80	132.90	0.00	0.00	0.00	6.000	140000	10.00
226		20:30:00	7590	1950	74.0	107.950	2260	44.0	62.0	796.55	722.84											
227		21:00:00	7690	2000	74.0	107.950	2260	44.0	62.0	796.55	739.44	0.10	100.0	0.10	2.40	133.00	0.00	0.00	0.00	6.000	136000	12.00
228		21:30:00	2000	2000	76.0	107.950	2280	44.0	61.0	801.36	756.08											
229		22:00:00	2400	2400	76.0	107.950	2280	44.0	62.0	800.02	772.76	0.00	100.0	0.00	0.00	133.00	0.00	0.00	0.00			
230		22:30:00	7900	2500	71.0	107.950	2270	44.0	62.0	798.29	789.41											
231		23:00:00	8250	2950	68.0	107.950	2370	55.0	68.0	903.15	807.13	1.25	100.0	1.25	30.00	134.25	0.00	0.00	0.00	7.000	44000	10.00
232		23:30:00	8250	3050	56.0	107.950	2310	53.0	65.0	879.68	825.71											
233	1999/04/14	00:00:00	7620	3500	56.0	107.950	2190	52.5	67.0	850.01	843.72	1.40	100.0	1.40	33.60	135.65	0.00	0.00	0.00	7.000	40000	7.00
234		00:00:00	H2S by Gastec = (0.75)%.																			
235		00:30:00	7870	3550	70.0	107.950	2270	54.0	68.0	876.05	861.70											

NORWAR

	Date	Clock Time	Tbg Pres	Csg Pres	WHT	Orifice	Static Pres	Diff Pres	Meter Temp	Gas Rate	Cum. Gas	Fld Gain	BSW	H2O Gain	H2O Rate	Cum. H2O	Oil Gain	Oil Rate	Cum. Oil	Ph	Salinity	Solid Per.
	yyyy/mm/d	hh:mm:ss	kPa(g)	kPa(g)	°C	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3	m^3	m^3/d	m^3		ppm	%
236	1999/04/14	01:00:00	7890	3550	70.0	107.950	2230	54.0	68.0	868.42	879.87	1.20	100.0	1.20	28.80	136.85	0.00	0.00	0.00	6.000	132000	2.00
237		01:30:00	7970	4800	70.0	107.950	2270	54.0	68.0	878.91	898.08											
238		02:00:00	7950	2000	70.0	107.950	2270	55.0	66.0	887.05	918.47	0.70	100.0	0.70	16.80	137.55	0.00	0.00	0.00	6.000	114000	4.00
239		02:30:00	7750	2000	70.0	107.950	2270	54.0	66.0	878.91	934.87											
240		03:00:00	7700	1900	70.0	107.950	2270	48.0	66.0	828.43	952.65	0.60	100.0	0.60	14.40	138.15	0.00	0.00	0.00	6.000	106000	3.00
241		03:30:00	7750	2000	70.0	107.950	2180	49.0	66.0	820.55	969.83											
242		04:00:00	7490	1650	70.0	107.950	2030	48.0	64.0	786.77	986.57	1.20	100.0	1.20	28.80	139.35	0.00	0.00	0.00	6.000	90000	15.00
243		04:30:00	7400	1550	70.0	107.950	2020	47.0	64.0	778.62	1002.86											
244		05:00:00	7450	1500	70.0	107.950	2000	47.0	64.0	772.85	1019.00	1.15	100.0	1.15	27.60	140.50	0.00	0.00	0.00	7.000	110000	8.00
245		05:30:00	7600	1550	70.0	107.950	2100	47.0	64.0	791.53	1035.29											
246	1999/04/14	06:00:00	7620	1700	74.0	107.950	2160	50.0	64.0	827.98	1052.16	0.95	100.0	0.95	22.80	141.45	0.00	0.00	0.00	7.000	112000	6.00
247		06:30:00	7920	2000	72.0	107.950	2300	51.0	64.0	862.42	1069.77											
248		07:00:00	7990	2150	70.0	107.950	2250	52.5	64.0	855.64	1087.77	0.50	100.0	0.50	12.00	141.95	0.00	0.00	0.00	7.000	112000	15.00
249		07:30:00	8040	2350	72.0	107.950	2250	53.0	64.0	859.77	1105.85											
250		08:00:00	8040	2500	74.0	107.950	2250	53.5	65.0	872.44	1123.99	0.50	100.0	0.50	12.00	142.45	0.00	0.00	0.00	6.000	40000	25.00
251		08:30:00	8050	2600	76.0	107.950	2225	55.5	65.0	883.80	1142.29											
252		09:00:00	8080	2700	77.0	107.950	2125	55.0	65.0	860.14	1160.46	0.70	100.0	0.70	16.80	143.15	0.00	0.00	0.00	6.000	44000	5.50
253		09:30:00	8120	2800	69.0	107.950	2150	55.0	65.0	865.09	1178.43											
254	1999/04/14	10:00:00	8020	2850	66.0	107.950	2150	55.0	65.0	865.09	1196.45	0.90	100.0	0.90	21.60	144.05	0.00	0.00	0.00	6.000	58000	17.00
255		10:00:00	H2S by Tutweiler = (0.973)%.																			
256		10:30:00	7945	2850	75.0	107.950	2150	55.0	67.0	862.28	1214.44											
257		11:00:00	8090	3050	76.0	107.950	2250	55.0	67.0	881.75	1232.61	0.70	100.0	0.70	16.80	144.75	0.00	0.00	0.00	6.000	54000	22.00
258		11:30:00	8290	3250	75.0	107.950	2250	58.0	67.0	905.60	1251.23											
259		12:00:00	8070	3400	75.0	107.950	2270	58.0	67.0	909.55	1270.14	0.50	100.0	0.50	12.00	145.25	0.00	0.00	0.00	6.000	54000	20.00
260		12:00:00	Sample #1 taken 1 litre of stock H2O.																			
261		12:30:00	8080	3500	77.0	107.950	2250	58.0	67.0	905.60	1289.04											
262		12:58:00	Pnuematic back pressure valve in service.																			
263		13:00:00	8100	3550	77.0	107.950	2250	56.0	68.0	888.32	1307.73	0.85	100.0	0.85	20.40	146.10	0.00	0.00	0.00	6.000	60000	15.00
264		13:30:00	8045	3650	76.0	107.950	2250	56.0	68.0	888.32	1326.24											
265	1999/04/14	14:00:00	8350	3675	79.0	107.950	2240	53.0	68.0	862.20	1344.47	0.80	100.0	0.80	19.20	146.90	0.00	0.00	0.00	6.000	50000	20.00
266		14:30:00	8120	3700	81.0	107.950	2250	54.0	69.0	870.83	1362.52											
267		15:00:00	8040	3700	78.0	107.950	2240	55.0	69.0	876.97	1380.73	0.75	100.0	0.75	18.00	147.65	0.00	0.00	0.00	6.000	45000	14.00
268		15:30:00	8050	3700	78.0	107.950	2240	55.0	69.0	876.97	1399.00											
269		16:00:00	8170	3700	75.0	107.950	2250	56.0	69.0	886.88	1417.37	0.85	100.0	0.85	20.40	148.50	0.00	0.00	0.00	6.000	40000	17.00
270		16:30:00	8230	3800	80.0	107.950	2320	57.0	69.0	908.40	1436.07											
271		17:00:00	8250	3900	79.0	107.950	2320	58.0	69.0	916.38	1455.08	0.70	100.0	0.70	16.80	149.20	0.00	0.00	0.00	6.000	61000	12.00
272		17:30:00	8250	4000	79.0	107.950	2320	57.5	69.0	912.40	1474.13											
273	1999/04/14	18:00:00	8340	1950	80.0	107.950	2320	57.5	69.0	912.40	1493.14	0.75	100.0	0.75	18.00	149.95	0.00	0.00	0.00	6.000	54000	20.00
274		18:00:00	Sample #2 taken 1 litre H20.																			
275		18:00:00	2 HP gas cylinders taken # (30866), #(779).																			
276		18:30:00	8270	2000	78.0	107.950	2270	57.0	69.0	898.71	1512.01											
277		19:00:00	8200	2070	79.0	107.950	2290	58.0	69.0	910.52	1530.85	0.40	100.0	0.40	9.60	150.35	0.00	0.00	0.00	6.000	42000	18.00
278		19:30:00	8220	2100	79.0	107.950	2300	57.0	69.0	904.54	1549.76											
279		20:00:00	8430	2200	79.0	107.950	2380	58.0	70.0	926.48	1568.83	0.55	100.0	0.55	13.20	150.90	0.00	0.00	0.00	6.000	54000	10.00
280		20:30:00	8470	2225	78.0	107.950	2380	58.0	70.0	926.48	1588.13											
281		21:00:00	7750	2250	78.0	107.950	2320	58.0	70.0	914.89	1607.32	0.50	100.0	0.50	12.00	151.40	0.00	0.00	0.00	6.000	60000	5.00
282		21:30:00	8280	2350	78.0	107.950	2440	62.0	70.0	969.91	1626.95											

FieldNotes
Field Measurements

	Date	Clock Time	Tbg Pres	Csg Pres	WHT	Orifice	Static Pres	Diff Pres	Meter Temp	Gas Rate	Cum. Gas	Fld Gain	BSW	H2O Gain	H2O Rate	Cum. H2O	Oil Gain	Oil Rate	Cum. Oil	Ph	Salinity	Solid Per.
	yyyy/mm/d	hh:mm:ss	kPa(g)	kPa(g)	°C	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3	m^3	m^3/d	m^3		ppm	%
283	1999/04/14	22:00:00	8500	2500	80.0	107.950	2400	62.0	70.0	962.02	1647.07	0.40	100.0	0.40	9.60	151.80	0.00	0.00	0.00	6.000	62000	2.00
284		22:30:00	8410	2580	78.0	107.950	2380	61.0	72.0	947.19	1666.96											
285		23:00:00	8450	2690	78.0	107.950	2400	62.0	72.0	958.92	1686.62	0.70	100.0	0.70	16.80	152.50	0.00	0.00	0.00	6.000	40000	1.50
286		23:30:00	8370	2750	78.0	107.950	2380	62.0	71.0	958.51	1706.77											
287	1999/04/15	00:00:00	8400	2800	78.0	107.950	2380	62.0	71.0	956.51	1726.70	0.70	100.0	0.70	16.80	153.20	0.00	0.00	0.00	6.000	52000	4.00
288		00:00:00	H2S by Tutweiller = (0.795)%.																			
289		00:00:01	Sample #3 1L H2O.																			
290		00:30:00	8450	2900	78.0	107.950	2380	60.0	71.0	940.88	1746.46											
291		01:00:00	8510	2900	78.0	107.950	2400	59.0	70.0	938.34	1766.03	0.75	100.0	0.75	18.00	153.95	0.00	0.00	0.00	6.000	40000	5.00
292		01:30:00	8500	3000	78.0	107.950	2380	58.0	72.0	923.49	1785.43											
293		02:00:00	8490	3000	78.0	107.950	2390	58.0	71.0	926.90	1804.70	0.55	100.0	0.55	13.20	154.50	0.00	0.00	0.00	6.000	62000	5.00
294		02:30:00	8470	3000	78.0	107.950	2500	58.0	73.0	944.69	1824.20											
295		03:00:00	8480	3050	78.0	107.950	2450	59.0	72.0	944.88	1843.88	0.50	100.0	0.50	12.00	155.00	0.00	0.00	0.00	6.000	60000	1.00
296		03:30:00	8450	3100	78.0	107.950	2350	59.0	72.0	925.65	1863.37											
297		04:00:00	8410	3100	78.0	107.950	2400	59.0	72.0	935.31	1882.75	0.80	100.0	0.80	19.20	155.80	0.00	0.00	0.00	6.000	12000	1.00
298		04:30:00	8270	3100	78.0	107.950	2370	57.0	72.0	913.56	1902.01											
299		05:00:00	8540	3200	78.0	107.950	2440	59.0	72.0	942.98	1921.35	0.75	100.0	0.75	18.00	156.55	0.00	0.00	0.00	6.000	120000	1.00
300		05:30:00	8450	3200	80.0	107.950	2420	57.0	72.0	923.02	1940.79											
301	1999/04/15	06:00:00	8300	3200	80.0	107.950	2430	56.0	71.0	918.20	1959.97	0.65	100.0	0.65	15.60	157.20	0.00	0.00	0.00	6.000	20000	1.00
302		06:00:00	Sample #4 taken 1 litre of H2O.																			
303		06:30:00	8540	3200	78.0	107.950	2450	60.0	72.0	952.90	1979.46											
304		07:00:00	8200	3250	80.0	107.950	2470	59.0	72.0	948.69	1999.27	0.60	100.0	0.60	14.40	157.80	0.00	0.00	0.00	6.000	22000	1.00
305		07:30:00	8250	3300	75.0	107.950	2470	59.0	72.0	948.69	2019.03											
306		08:00:00	8470	3350	78.0	107.950	2470	60.0	72.0	956.73	2038.88	0.55	100.0	0.55	13.20	158.35	0.00	0.00	0.00	6.000	28000	1.00
307		08:30:00	8470	3400	78.0	107.950	2470	59.0	72.0	948.69	2058.73											
308		09:00:00	8480	3425	80.0	107.950	2470	60.0	72.0	956.73	2078.57	0.75	100.0	0.75	18.00	159.10	0.00	0.00	0.00	6.000	58000	1.00
309		09:30:00	8470	3450	80.0	107.950	2470	59.0	72.0	948.69	2098.42											
310	1999/04/15	10:00:00	8300	3500	80.0	107.950	2470	59.0	72.0	948.69	2118.19	0.45	100.0	0.45	10.80	159.55	0.00	0.00	0.00	6.000	62000	1.30
311		10:30:00	8470	3500	80.0	107.950	2470	58.5	73.0	943.12	2137.89											
312		11:00:00	8480	3550	80.0	107.950	2480	57.0	73.0	932.76	2157.43	0.65	100.0	0.65	15.60	160.20	0.00	0.00	0.00	6.000	62000	1.40
313		11:30:00	8470	3575	79.0	107.950	2480	57.5	73.0	936.86	2176.91											
314		12:00:00	8470	3600	79.0	107.950	2480	57.0	74.0	931.26	2196.37	0.60	100.0	0.60	14.40	160.80	0.00	0.00	0.00	6.000	72000	1.10
315		12:00:00	H2S by Tutweiller = (0.931)%.																			
316		12:00:00	Sample # 5 taken.																			
317		12:30:00	8500	3625	79.0	107.950	2470	56.0	73.0	922.66	2215.68											
318		13:00:00	8410	3650	79.0	107.950	2510	57.0	73.0	938.32	2235.07	0.60	100.0	0.60	14.40	161.40	0.00	0.00	0.00	6.000	60000	1.00
319		13:30:00	8470	3700	79.0	107.950	2590	58.0	73.0	961.38	2254.85											
320	1999/04/15	14:00:00	8450	3725	79.0	107.950	2560	56.6	72.0	945.72	2274.72	0.55	100.0	0.55	13.20	161.95	0.00	0.00	0.00	6.000	58000	1.30
321		14:30:00	8500	3650	80.0	107.950	2540	55.8	73.0	933.83	2294.30											
322		15:00:00	8440	3700	78.0	107.950	2550	56.6	73.0	942.36	2313.84	0.60	100.0	0.60	14.40	162.55	0.00	0.00	0.00	6.000	60000	1.00
323		15:30:00	8440	3750	78.0	107.950	2450	59.0	73.0	943.36	2333.48											
324		16:00:00	8460	3750	82.0	107.950	2450	59.5	73.0	947.37	2353.18	0.60	100.0	0.60	14.40	163.15	0.00	0.00	0.00	6.000	42000	0.80
325		16:30:00	8340	3800	73.0	107.950	2420	59.0	73.0	937.64	2372.82											
326		17:00:00	8440	3800	74.0	107.950	2420	58.2	73.0	931.23	2392.28	0.30	100.0	0.30	7.20	163.45	0.00	0.00	0.00	6.000	32000	0.60
327		17:30:00	8420	3800	75.0	107.950	2420	59.0	73.0	937.64	2411.75											
328	1999/04/15	18:00:00	8500	3950	77.0	107.950	2420	58.5	73.0	933.64	2431.24	0.30	100.0	0.30	7.20	163.75	0.00	0.00	0.00	6.000	28000	1.00
329		18:00:00	Sample #6 taken 1 Litre H20.																			

	Date	Clock Time	Tbg Pres	Csg Pres	WHT	Orifice	Static Pres	Diff Pres	Meter Temp	Gas Rate	Cum. Gas	Fld Gain	BSW	H2O Gain	H2O Rate	Cum. H2O	Oil Gain	Oil Rate	Cum. Oil	Ph	Salinity	Solid Per.
	yyyy/mm/d	hh:mm:ss	kPa(g)	kPa(g)	°C	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3	m^3	m^3/d	m^3		ppm	%
330	1999/04/15	18:30:00	8470	3850	76.0	107.950	2400	59.0	73.0	933.81	2450.70											
331		19:00:00	8450	3900	76.0	107.950	2430	59.0	74.0	938.05	2470.19	0.35	100.0	0.35	8.40	164.10	0.00	0.00	0.00	6.000	30000	0.50
332		19:30:00	8460	3900	82.0	107.950	2440	59.0	74.0	939.95	2489.76											
333		20:00:00	8440	3900	78.0	107.950	2460	59.0	74.0	943.75	2509.38	0.50	100.0	0.50	12.00	164.60	0.00	0.00	0.00	6.000	32000	1.00
334		20:30:00	8430	2000	76.0	107.950	2450	59.0	74.0	941.85	2529.02											
335		21:00:00	8450	2000	76.0	107.950	2450	60.0	74.0	949.84	2548.73	0.35	100.0	0.35	8.40	164.95	0.00	0.00	0.00	6.000	22000	1.00
336		21:30:00	8420	2100	76.0	107.950	2450	59.5	74.0	945.85	2568.47											
337		22:00:00	8410	2190	76.0	107.950	2480	59.0	74.0	947.53	2588.19	0.35	100.0	0.35	8.40	165.30	0.00	0.00	0.00	6.000	24000	0.50
338		22:30:00	8400	2200	77.0	107.950	2420	59.0	73.0	937.64	2607.83											
339		23:00:00	8450	2250	80.0	107.950	2450	59.0	72.0	944.88	2627.44	0.40	100.0	0.40	9.60	165.70	0.00	0.00	0.00	6.000	32000	0.10
340		23:30:00	8470	2250	76.0	107.950	2390	59.0	72.0	933.39	2647.01											
341	1999/04/16	00:00:00	8400	2300	72.0	107.950	2440	59.0	73.0	941.46	2666.54	0.35	100.0	0.35	8.40	166.05	0.00	0.00	0.00	6.000	24000	0.10
342		00:00:00	Sample # 7 taken.																			
343		00:30:00	8450	2350	73.0	107.950	2430	59.0	73.0	939.55	2686.13											
344		01:00:00	8400	2350	82.0	107.950	2450	59.5	73.0	947.37	2705.79	0.45	100.0	0.45	10.80	166.50	0.00	0.00	0.00	6.000	22000	0.10
345		01:30:00	8460	2350	79.0	107.950	2450	56.0	73.0	918.95	2725.23											
346		02:00:00	8400	2400	80.0	107.950	2440	60.0	73.0	949.44	2744.69	0.40	100.0	0.40	9.60	166.90	0.00	0.00	0.00	6.000	20000	0.50
347		02:30:00	8470	2400	78.0	107.950	2450	59.0	73.0	943.36	2764.41											
348		03:00:00	8460	2425	76.0	107.950	2450	59.0	73.0	943.36	2784.06	0.40	100.0	0.40	9.60	167.30	0.00	0.00	0.00	6.000	22000	0.10
349		03:30:00	8400	2450	72.0	107.950	2490	59.0	74.0	949.42	2803.78											
350		04:00:00	8450	2480	76.0	107.950	2460	59.0	73.0	945.26	2823.51	0.30	100.0	0.30	7.20	167.60	0.00	0.00	0.00	6.000	22000	0.10
351		04:30:00	8370	2500	74.0	107.950	2460	59.0	73.0	945.26	2843.21											
352		05:00:00	8460	2550	74.0	107.950	2400	59.0	73.0	933.81	2862.78	0.60	100.0	0.60	14.40	168.20	0.00	0.00	0.00	6.000	22000	0.10
353		05:30:00	8440	2500	74.0	107.950	2440	60.0	73.0	949.44	2882.40											
354	1999/04/16	06:00:00	8450	2550	74.0	107.950	2450	60.0	73.0	951.36	2902.20	0.40	100.0	0.40	9.60	168.60	0.00	0.00	0.00	6.000	20000	0.10
355		06:00:00	Sample #8 taken.																			
356		06:30:00	8450	2550	70.0	107.950	2450	60.0	73.0	951.36	2922.02											
357		07:00:00	8460	2550	70.0	107.950	2450	60.0	73.0	951.36	2941.84	0.40	100.0	0.40	9.60	169.00	0.00	0.00	0.00	6.000	20000	0.10
358		07:30:00	8400	2600	70.0	107.950	2450	59.0	74.0	941.85	2961.56											
359		08:00:00	8490	2600	74.0	107.950	2450	59.0	74.0	941.85	2981.18	0.30	100.0	0.30	7.20	169.30	0.00	0.00	0.00	6.000	22000	0.40
360		08:30:00	8440	2600	76.0	107.950	2450	59.0	74.0	941.85	3000.80											
361		09:00:00	8480	2600	74.0	107.950	2450	59.5	73.0	947.37	3020.48	0.60	100.0	0.60	14.40	169.90	0.00	0.00	0.00	6.000	40000	0.40
362		09:30:00	8460	2650	74.0	107.950	2450	60.0	73.0	951.36	3040.26											
363	1999/04/16	10:00:00	8470	2650	74.0	107.950	2450	59.5	73.0	947.37	3060.04	0.45	100.0	0.45	10.80	170.35	0.00	0.00	0.00	6.000	14000	0.40
364		10:30:00	8450	2650	83.0	107.950	2500	59.0	73.0	952.83	3079.83											
365		11:00:00	8400	2650	84.0	107.950	2500	59.0	73.0	952.83	3099.68	0.35	100.0	0.35	8.40	170.70	0.00	0.00	0.00	6.000	14000	0.20
366		11:30:00	8450	2700	75.0	107.950	2450	59.0	73.0	943.36	3119.43											
367		12:00:00	8420	2700	76.0	107.950	2450	59.0	72.0	944.88	3139.10	0.30	100.0	0.30	7.20	171.00	0.00	0.00	0.00	6.000	16000	0.30
368		12:00:00	Sample #9 taken.																			
369		12:00:00	H2S by Draegar is (0.316)%.																			
370		12:00:00	H2S by Tutweiler is (0.381)%.																			
371		12:30:00	8430	2700	74.0	107.950	2470	60.0	70.0	959.84	3158.94											
372		13:00:00	8410	2700	74.0	107.950	2470	59.6	72.0	953.52	3178.67	0.40	100.0	0.40	9.60	171.40	0.00	0.00	0.00	6.000	4000	0.20
373		13:30:00	8380	2700	75.0	107.950	2450	59.5	71.0	950.43	3198.71											
374	1999/04/16	14:00:00	8460	2725	75.0	107.950	2470	61.0	72.0	964.71	3218.66	0.35	100.0	0.35	8.40	171.75	0.00	0.00	0.00	6.000	11000	0.20
375		14:30:00	8470	2800	79.0	107.950	2450	61.0	72.0	960.84	3238.72											
376		15:00:00	8300	2800	70.0	107.950	2450	61.0	72.0	960.84	3258.73	0.30	100.0	0.30	7.20	172.05	0.00	0.00	0.00	6.000	800	0.00

Chevron Canada Resources
0 K-29
Start Test Date: 1999/04/03
Final Test Date: 1999/04/19

FieldNotes
Field Measurements

Chevron et al Fort Liard
Formation: Nahanni

Job Number: GP99-48

	Date	Clock Time	Tbg Pres	Csg Pres	WHT	Orifice	Static Pres	Diff Pres	Meter Temp	Gas Rate	Cum. Gas	Fld Gain	BSW	H2O Gain	H2O Rate	Cum. H2O	Oil Gain	Oil Rate	Cum. Oil	Ph	Salinity	Solid Per.
	yyyy/mm/d	hh:mm:ss	kPa(g)	kPa(g)	°C	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3	m^3	m^3/d	m^3		ppm	%
377	1999/04/16	15:30:00	8470	2800	73.0	107.950	2450	61.5	72.0	964.79	3278.79											
378		16:00:00	8440	2850	76.0	107.950	2450	62.0	72.0	968.73	3298.93	0.60	100.0	0.60	14.40	172.65	0.00	0.00	0.00	6.000	0	0.00
379		16:30:00	8450	2850	74.0	107.950	2400	62.5	72.0	962.80	3319.05											
380		17:00:00	8550	2900	74.0	107.950	2460	63.0	72.0	978.52	3339.27	0.55	100.0	0.55	13.20	173.20	0.00	0.00	0.00	6.000	10000	0.00
381		17:30:00	8490	2950	76.0	107.950	2460	63.0	72.0	978.52	3359.66											
382	1999/04/16	18:00:00	8200	2900	82.0	107.950	2460	63.0	72.0	978.52	3380.09	0.75	100.0	0.75	18.00	173.95	0.00	0.00	0.00	6.000	14000	0.00
383		18:00:00	Sample #10 taken.																			
384		18:30:00	8490	2900	77.0	107.950	2450	63.0	72.0	976.55	3400.41											
385		19:00:00	8500	2900	75.0	107.950	2440	63.0	72.0	974.58	3420.74	0.30	100.0	0.30	7.20	174.25	0.00	0.00	0.00	6.000	14000	0.00
386		19:30:00	8470	2950	78.0	107.950	2440	62.0	72.0	966.77	3440.96											
387		20:00:00	8470	2980	80.0	107.950	2440	60.0	72.0	950.97	3460.93	0.30	100.0	0.30	7.20	174.55	0.00	0.00	0.00	6.000	12000	0.00
388		20:30:00	8480	2980	80.0	107.950	2450	59.5	72.0	946.90	3480.72											
389		21:00:00	8400	3000	80.0	107.950	2490	63.0	72.0	984.40	3500.86	0.30	100.0	0.30	7.20	174.85	0.00	0.00	0.00	6.000	12000	0.00
390		21:30:00	8450	3000	80.0	107.950	2460	62.0	72.0	970.68	3521.23											
391		22:00:00	8460	3000	78.0	107.950	2420	61.0	72.0	955.02	3541.29	0.60	100.0	0.60	14.40	175.45	0.00	0.00	0.00	6.000	16000	0.00
392		22:30:00	8490	3025	78.0	107.950	2440	61.0	72.0	958.90	3561.22											
393		23:00:00	8400	3025	78.0	107.950	2450	61.0	72.0	960.84	3581.22	0.40	100.0	0.40	9.60	175.85	0.00	0.00	0.00	6.000	32000	0.00
394		23:30:00	8440	3025	79.0	107.950	2470	61.0	72.0	964.71	3601.28											
395	1999/04/17	00:00:00	8500	3050	78.0	107.950	2480	61.0	72.0	966.64	3621.40	0.30	100.0	0.30	7.20	176.15	0.00	0.00	0.00	6.000	24000	0.00
396		00:00:00	Sample #11 taken.																			
397		00:30:00	8130	3030	79.0	107.950	2480	60.0	72.0	958.65	3641.45											
398		01:00:00	8400	3050	77.0	107.950	2480	61.0	72.0	966.64	3661.51	0.20	100.0	0.20	4.80	176.35	0.00	0.00	0.00	6.000	22000	0.00
399		01:30:00	8400	3090	76.0	107.950	2460	61.0	72.0	962.78	3681.61											
400		02:00:00	8470	3100	78.0	107.950	2470	61.0	72.0	964.71	3701.68	0.20	100.0	0.20	4.80	176.55	0.00	0.00	0.00	6.000	22000	0.00
401		02:30:00	8470	3100	78.0	107.950	2490	60.0	72.0	960.56	3721.74											
402		03:00:00	8450	3100	78.0	107.950	2470	61.0	72.0	964.71	3741.79	0.35	100.0	0.35	8.40	176.90	0.00	0.00	0.00	6.000	20000	0.00
403		03:30:00	8400	3125	76.0	107.950	2470	61.0	72.0	964.71	3761.89											
404		04:00:00	8390	3150	74.0	107.950	2450	61.0	72.0	960.84	3781.95	0.35	100.0	0.35	8.40	177.25	0.00	0.00	0.00	6.000	10000	0.00
405		04:30:00	8490	3175	76.0	107.950	2490	61.0	72.0	968.57	3802.05											
406		05:00:00	8470	3175	78.0	107.950	2450	60.0	71.0	954.44	3822.08	0.30	100.0	0.30	7.20	177.55	0.00	0.00	0.00	6.000	14000	0.00
407		05:30:00	8380	3200	78.0	107.950	2450	61.0	71.0	962.40	3842.05											
408		06:00:00	8480	3200	76.0	107.950	2450	61.0	71.0	962.40	3862.10	0.25	100.0	0.25	6.00	177.80	0.00	0.00	0.00	6.000	12000	0.00
409		06:00:00	Sample #12 taken.																			
410		06:30:00	8510	3200	75.0	107.950	2450	59.9	74.0	949.04	3882.01											
411		07:00:00	8460	3200	76.0	107.950	2450	60.0	74.0	949.84	3901.79	0.30	100.0	0.30	7.20	178.10	0.00	0.00	0.00	6.000	22000	0.00
412		07:30:00	8370	3200	76.0	107.950	2450	60.0	73.0	951.36	3921.59											
413		08:00:00	8460	3200	73.0	107.950	2450	60.0	72.0	952.90	3941.43	0.40	100.0	0.40	9.60	178.50	0.00	0.00	0.00	6.000	18000	0.00
414		08:30:00	8460	3250	74.0	107.950	2450	60.5	73.0	955.34	3961.31											
415		09:00:00	8460	3250	78.0	107.950	2450	61.0	73.0	959.30	3981.25	0.30	100.0	0.30	7.20	178.80	0.00	0.00	0.00	6.000	14000	0.00
416		09:30:00	8480	3300	78.0	107.950	2450	61.5	74.0	961.70	4001.26											
417	1999/04/17	10:00:00	8350	3300	74.0	107.950	2450	61.0	74.0	957.76	4021.25	0.35	100.0	0.35	8.40	179.15	0.00	0.00	0.00	6.000	18000	0.00
418		10:30:00	8390	3300	78.0	107.950	2450	61.0	74.0	957.76	4041.21											
419		11:00:00	8470	3300	77.0	107.950	2460	61.0	74.0	959.69	4061.18	0.30	100.0	0.30	7.20	179.45	0.00	0.00	0.00	6.000	16000	0.10
420		11:30:00	8500	3300	78.0	107.950	2460	61.5	74.0	963.63	4081.22											
421		12:00:00	8490	3250	79.0	107.950	2450	61.0	74.0	957.76	4101.23	0.35	100.0	0.35	8.40	179.80	0.00	0.00	0.00	6.000	18000	0.10
422		12:00:00	Sample #13 taken.																			
423		12:00:00	H2S by Tutweiler (0.394)%.																			

NORWAR

	Date	Clock Time	Tbg Pres	Csg Pres	WHT	Orifice	Static Pres	Diff Pres	Meter Temp	Gas Rate	Cum. Gas	Fld Gain	BSW	H2O Gain	H2O Rate	Cum. H2O	Oil Gain	Oil Rate	Cum. Oil	Ph	Salinity	Solid Per.
	yyyy/mm/d	hh:mm:ss	kPa(g)	kPa(g)	°C	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3	m^3	m^3/d	m^3		ppm	%
424	1999/04/17	12:30:00	8510	3490	80.0	107.950	2450	61.0	74.0	957.76	4121.18											
425		13:00:00	8470	3400	77.0	107.950	2450	61.0	74.0	957.76	4141.14	0.30	100.0	0.30	7.20	180.10	0.00	0.00	0.00	6.000	38000	1.00
426		13:30:00	8370	3400	76.0	107.950	2450	61.0	74.0	957.76	4161.09											
427	1999/04/17	14:00:00	8150	3350	75.0	107.950	2320	59.0	74.0	916.88	4180.62	0.45	100.0	0.45	10.80	180.55	0.00	0.00	0.00	6.000	22000	2.00
428		14:30:00	8290	3150	75.0	107.950	2300	58.5	74.0	909.09	4199.64											
429		15:00:00	7950	3175	78.0	107.950	2220	58.5	74.0	893.42	4218.41	0.55	100.0	0.55	13.20	181.10	0.00	0.00	0.00	6.000	42000	10.00
430		15:30:00	8070	2900	78.0	107.950	2300	59.0	72.0	915.91	4237.26											
431		16:00:00	7720	2850	74.0	107.950	2100	56.0	72.0	853.27	4255.69	0.40	100.0	0.40	9.60	181.50	0.00	0.00	0.00	6.000	22000	15.00
432		16:30:00	7840	2800	74.0	107.950	2200	57.0	72.0	880.73	4273.75											
433		17:00:00	8110	2800	74.0	107.950	2320	60.0	72.0	927.62	4292.59	0.55	100.0	0.55	13.20	182.05	0.00	0.00	0.00	6.000	12000	5.50
434		17:30:00	7900	2750	74.0	107.950	2250	58.0	72.0	898.31	4311.61											
435	1999/04/17	18:00:00	8090	2750	76.0	107.950	2250	59.0	72.0	906.06	4330.40	0.55	100.0	0.55	13.20	182.60	0.00	0.00	0.00	7.000	20000	3.50
436		18:00:00	Sample #14 taken.																			
437		18:30:00	7980	2800	77.0	107.950	2250	58.0	72.0	898.31	4349.20											
438		19:00:00	8180	2825	76.0	107.950	2350	60.0	72.0	933.50	4368.28	0.45	100.0	0.45	10.80	183.05	0.00	0.00	0.00	7.000	8000	5.00
439		19:30:00	8050	2850	76.0	107.950	2270	59.0	72.0	910.01	4387.49											
440		20:00:00	8250	2900	70.0	107.950	2350	60.0	73.0	932.01	4406.67	0.30	100.0	0.30	7.20	183.35	0.00	0.00	0.00	7.000	22000	15.00
441		20:30:00	7800	2950	77.0	107.950	2350	59.0	73.0	924.17	4426.01											
442		21:00:00	8320	2950	78.0	107.950	2350	59.0	74.0	922.69	4445.25	0.30	100.0	0.30	7.20	183.65	0.00	0.00	0.00	7.000	10000	6.00
443		21:30:00	8130	2950	76.0	107.950	2380	58.0	72.0	923.49	4464.48											
444		22:00:00	8370	3150	75.0	107.950	2370	59.0	73.0	928.04	4483.76	0.20	100.0	0.20	4.80	183.85	0.00	0.00	0.00	6.000	10000	0.00
445		22:30:00	8330	3100	74.0	107.950	2380	60.0	73.0	937.85	4503.20											
446		23:00:00	8030	3100	75.0	107.950	2400	59.0	73.0	933.81	4522.70	0.45	100.0	0.45	10.80	184.30	0.00	0.00	0.00	6.000	20000	10.00
447		23:30:00	8400	3150	74.0	107.950	2430	59.0	73.0	939.55	4542.21											
448	1999/04/18	00:00:00	8400	3150	76.0	107.950	2420	59.0	73.0	937.64	4561.77	0.35	100.0	0.35	8.40	184.65	0.00	0.00	0.00	7.000	10000	5.00
449		00:00:00	Sample # 15 taken																			
450		00:30:00	8400	3150	74.0	107.950	2400	59.0	73.0	933.81	4581.26											
451		01:00:00	8330	3150	74.0	107.950	2450	59.0	73.0	943.36	4600.81	0.30	100.0	0.30	7.20	184.95	0.00	0.00	0.00	7.000	12000	5.00
452		01:30:00	8300	3150	74.0	107.950	2420	59.0	73.0	937.64	4620.41											
453		02:00:00	8100	3150	74.0	107.950	2440	58.0	73.0	933.41	4639.90	0.25	100.0	0.25	6.00	185.20	0.00	0.00	0.00	7.000	12000	2.00
454		02:30:00	8430	3150	74.0	107.950	2450	56.0	73.0	918.95	4659.19											
455		03:00:00	8450	3200	73.0	107.950	2430	56.0	73.0	915.24	4678.30	0.40	100.0	0.40	9.60	185.60	0.00	0.00	0.00	7.000	10000	5.00
456		03:30:00	8310	3250	72.0	107.950	2330	58.0	73.0	912.42	4697.34											
457		04:00:00	8450	3300	74.0	107.950	2470	59.0	73.0	947.16	4716.71	0.35	100.0	0.35	8.40	185.95	0.00	0.00	0.00	7.000	14000	1.00
458		04:30:00	8580	3400	74.0	107.950	2480	59.0	73.0	949.05	4736.46											
459		05:00:00	8330	3450	72.0	107.950	2450	59.0	73.0	943.36	4756.17	0.30	100.0	0.30	7.20	186.25	0.00	0.00	0.00	7.000	20000	4.00
460		05:30:00	8550	3450	73.0	107.950	2450	59.0	73.0	943.36	4775.83											
461		06:00:00	8550	3550	76.0	107.950	2500	59.0	73.0	952.83	4795.58	0.30	100.0	0.30	7.20	186.55	0.00	0.00	0.00	7.000	22000	2.00
462		06:00:00	Sample # 16 taken.																			
463		06:30:00	8550	2100	74.0	107.950	2500	58.0	73.0	944.69	4815.34											
464		07:00:00	8590	2200	73.0	107.950	2510	58.0	73.0	946.55	4835.04	0.50	100.0	0.50	12.00	187.05	0.00	0.00	0.00	7.000	12000	2.00
465		07:30:00	8580	2250	73.0	107.950	2450	61.0	73.0	959.30	4854.90											
466		08:00:00	8450	2300	74.0	107.950	2370	60.0	71.0	938.92	4874.67	0.40	100.0	0.40	9.60	187.45	0.00	0.00	0.00	6.000	8000	2.20
467		08:30:00	8550	2300	73.0	107.950	2450	60.0	71.0	954.44	4894.39											
468		09:00:00	8520	2350	74.0	107.950	2450	61.0	72.0	960.84	4914.34	0.60	100.0	0.60	14.40	188.05	0.00	0.00	0.00	6.000	110000	10.50
469		09:30:00	8350	2250	75.0	107.950	2450	61.0	72.0	960.84	4934.36											
470	1999/04/18	10:00:00	8390	2200	74.0	107.950	2440	62.5	72.0	970.68	4954.48	0.80	100.0	0.80	19.20	188.85	0.00	0.00	0.00	6.000	180000	4.00

Chevron Canada Resources
0 K-29
Start Test Date: 1999/04/03
Final Test Date: 1999/04/19

FieldNotes
Field Measurements

Chevron et al Fort Liard
Formation: Nahanni

Job Number GP99-48

	Date	Clock Time	Tbg Pres	Csg Pres	WHT	Orifice	Static Pres	Diff Pres	Meter Temp	Gas Rate	Cum. Gas	Fld Gain	BSW	H2O Gain	H2O Rate	Cum. H2O	Oil Gain	Oil Rate	Cum. Oil	Ph	Salinity	Solid Per.
	yyyy/mm/d	hh:mm:ss	kPa(g)	kPa(g)	°C	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3	m^3	m^3/d	m^3		ppm	%
471	1999/04/18	10:30:00	8470	2300	74.0	107.950	2470	63.0	72.0	980.48	4974.81											
472		11:00:00	8410	2300	75.0	107.950	2450	61.5	72.0	964.79	4995.07	0.40	100.0	0.40	9.60	189.25	0.00	0.00	0.00	6.000	8000	0.20
473		11:30:00	8380	2200	75.0	107.950	2450	61.0	72.0	960.84	5015.13											
474		12:00:00	8370	2200	76.0	107.950	2450	61.0	72.0	960.84	5035.15	0.40	100.0	0.40	9.60	189.65	0.00	0.00	0.00	6.000	6000	0.10
475		12:00:00	Sample #17 taken.																			
476		12:00:00	H2S by Tutweiler = (0.403)%.																			
477		12:30:00	8080	2150	74.0	107.950	2430	60.5	72.0	953.01	5055.08											
478		13:00:00	8480	2125	76.0	107.950	2450	61.6	72.0	965.58	5075.07	0.70	100.0	0.70	16.80	190.35	0.00	0.00	0.00	6.000	6000	2.40
479		13:30:00	8450	2150	73.0	107.950	2450	63.0	72.0	976.55	5095.30											
480		14:00:00	8400	2400	72.0	107.950	2450	63.0	72.0	976.55	5115.64	0.40	100.0	0.40	9.60	190.75	0.00	0.00	0.00	6.000	4000	0.10
481		14:30:00	8450	2250	75.0	107.950	2450	60.5	72.0	956.88	5135.78											
482	1200	15:00:00	8410	2250	73.0	107.950	2450	61.5	72.0	964.79	5155.80	0.35	100.0	0.35	8.40	191.10	0.00	0.00	0.00	6.000	6000	1.30
483		15:00:00	4-HP gas samples taken #11119, #17457, #17113, #12575.																			
484		15:30:00	8420	2300	71.0	107.950	2450	62.0	72.0	968.73	5175.94											
485		16:00:00	8450	2300	75.0	107.950	2450	62.0	72.0	968.73	5196.12	0.35	100.0	0.35	8.40	191.45	0.00	0.00	0.00	6.000	2000	0.20
486		16:30:00	8440	2300	74.0	107.950	2450	62.0	72.0	968.73	5216.30											
487		17:00:00	8390	2300	74.0	107.950	2450	61.5	72.0	964.79	5236.44	0.40	100.0	0.40	9.60	191.85	0.00	0.00	0.00	6.000	16000	15.00
488		17:30:00	8540	2300	75.0	107.950	2450	61.0	72.0	960.84	5256.50											
489	1999/04/18	18:00:00	8515	2300	76.0	107.950	2450	61.0	72.0	960.84	5276.52	0.30	100.0	0.30	7.20	192.15	0.00	0.00	0.00	7.000	6000	7.50
490		18:00:00	Sample #18 taken.																			
491		18:30:00	8480	2300	76.0	107.950	2450	62.0	72.0	968.73	5296.62											
492		19:00:00	8480	2300	76.0	107.950	2450	62.0	73.0	967.17	5316.79	0.30	100.0	0.30	7.20	192.45	0.00	0.00	0.00	7.000	4000	0.00
493		19:30:00	8500	2390	76.0	107.950	2450	62.0	73.0	967.17	5336.94											
494		20:00:00	8480	2400	76.0	107.950	2480	62.0	75.0	969.89	5357.11	0.20	100.0	0.20	4.80	192.65	0.00	0.00	0.00	7.000	4000	0.00
495		20:30:00	8470	2400	76.0	107.950	2450	62.0	75.0	964.07	5377.26											
496		21:00:00	8450	2400	76.0	107.950	2480	62.0	74.0	971.44	5397.42	0.20	100.0	0.20	4.80	192.85	0.00	0.00	0.00	7.000	4000	0.00
497		21:30:00	8450	2400	76.0	107.950	2450	62.0	74.0	965.62	5417.60											
498		22:00:00	8350	2400	76.0	107.950	2430	62.0	74.0	961.72	5437.67	0.30	100.0	0.30	7.20	193.15	0.00	0.00	0.00	7.000	0	0.00
499		22:30:00	8450	2350	76.0	107.950	2420	62.0	74.0	959.76	5457.69											
500		23:00:00	8380	2350	76.0	107.950	2450	62.0	75.0	964.07	5477.73	0.20	100.0	0.20	4.80	193.35	0.00	0.00	0.00	7.000	0	0.00
501		23:30:00	8320	2300	76.0	107.950	2450	62.0	75.0	964.07	5497.81											
502	1999/04/19	00:00:00	8300	2250	76.0	107.950	2400	62.0	75.0	954.32	5517.80	0.40	100.0	0.40	9.60	193.75	0.00	0.00	0.00	7.000	0	0.00
503		00:30:00	8330	2250	76.0	107.950	2400	62.0	75.0	954.32	5537.68											
504		01:00:00	8520	2250	76.0	107.950	2380	61.0	75.0	942.66	5557.44	0.30	100.0	0.30	7.20	194.05	0.00	0.00	0.00	6.000	2000	0.00
505		01:30:00	8480	2300	76.0	107.950	2350	62.0	75.0	944.48	5577.10											
506		02:00:00	8350	2350	76.0	107.950	2470	62.0	75.0	967.95	5597.02	0.50	100.0	0.50	12.00	194.55	0.00	0.00	0.00	6.000	8000	0.00
507		02:30:00	8460	2400	76.0	107.950	2450	56.0	75.0	916.02	5616.64											
508		03:00:00	8450	2400	76.0	107.950	2400	59.0	75.0	930.83	5635.88	0.55	100.0	0.55	13.20	195.10	0.00	0.00	0.00	6.000	4000	0.00
509		03:30:00	8350	2400	76.0	107.950	2360	62.0	75.0	946.45	5655.44											
510		04:00:00	8130	2400	76.0	107.950	2300	61.0	74.0	928.41	5674.97	0.55	100.0	0.55	13.20	195.65	0.00	0.00	0.00	6.000	4000	0.00
511		04:30:00	8330	2300	76.0	107.950	2380	59.0	74.0	928.48	5694.31											
512		05:00:00	8330	2350	76.0	107.950	2400	61.0	74.0	948.06	5713.86	0.45	100.0	0.45	10.80	196.10	0.00	0.00	0.00	6.000	6000	0.00
513		05:00:00	Shut in well and record buildups.																			
514		05:00:01				0.000	0	0.0	0.0	0.00	5713.86	0.00	0.0	0.00	0.00	196.10	0.00	0.00	0.00			
515		05:05:00	23200																			
516		05:10:00	23220																			
517		05:15:00	23270																			

NORWAR

	Date	Clock Time	Tbg Pres	Csg Pres	WHT	Orifice	Static Pres	Diff Pres	Meter Temp	Gas Rate	Cum. Gas	Fld Gain	BSW	H2O Gain	H2O Rate	Cum. H2O	Oil Gain	Oil Rate	Cum. Oil	Ph	Salinity	Solid Per.
	yyyy/mm/d	hh:mm:ss	kPa(g)	kPa(g)	°C	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3	m^3	m^3/d	m^3		ppm	%
518	1999/04/19	05:30:00	23270																			
519		05:45:00	23270																			
520	1999/04/19	06:00:00	23270																			
521		06:00:01				0.000	0	0.0	0.0	0.00	5713.86	0.00	0.0	0.00	0.00	196.10	0.00	0.00	0.00			
522		06:00:01	End test.																			

AGAT Laboratories

GAS ANALYSIS

CONTAINER IDENTIFICATION: AGAT 16979

LABORATORY NUMBER: GF37918A

OPERATOR NAME: CHEVRON CANADA RESOURCES LIMITED

UNIQUE WELL IDENTIFIER:

WELL NAME: CHEVRON et al FORT LIARD H-[illegible]

ELEVATIONS: KB: GRD m

FIELD OR AREA: FORT LIARD

POOL OR ZONE: MAINBODY

NAME OF SAMPLER:

FORMATION: NORWARD

TEST TYPE: NIL

TEST INTERVAL OR PERFS:

SAMPLING POINT:

	SEPARATOR	TREATER	RESERVOIR	SOURCE	SAMPLED	RECEIVED
GAUGE PRESSURE kPa				1980	1980	2500
TEMPERATURE °C				28	28	21

DATE SAMPLED (Y-M-D):

DATE RECEIVED (Y-M-D): 99-04-15

DATE REPORTED (Y-M-D): 99-04-15

ANALYST: GMC KCD

OTHER INFORMATION: HIGH STAGE GAS RUN

COMP.	MOLE FRACTION: AIR FREE AS RECEIVED	MOLE FRACTION: AIR FREE ACID GAS FREE	PETROLEUM LIQUID CONTENT mL/m³
H_2	0.0001	0.0001	
He	0.0011	0.0013	
N_2	0.0349	0.0425	
CO_2	0.1753	0.0000	
H_2S	0.0040	0.0000	
C_1	0.7840	0.9554	
C_2	0.0006	0.0007	
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
C_8			
C_9			
$C_{10}+$			
TOTAL	1.0000	1.0000	0.0

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

MOISTURE FREE ACID GAS FREE: 36.14

AIR FREE AS RECEIVED: 29.77

VAPOUR PRESSURE PENTANES PLUS: 0.0 kPa

RELATIVE DENSITY

MOISTURE FREE AS SAMPLED — MEASURED: | CALCULATED: 0.740

MOISTURE AND ACID GAS FREE — MEASURED: | CALCULATED: 0.571

PSEUDO CRITICAL PROPERTIES (CALCULATED)

AS SAMPLED — PPC (MOD): 5063 kPa; PTC: 208.8 K

ACID GAS FREE — PPC (MOD): 4547 kPa; PTC: 187.6 K

RELATIVE MOLECULAR MASS

TOTAL GAS: 21.4; C_7+: 0.0

H_2S (gr/...): 5.74

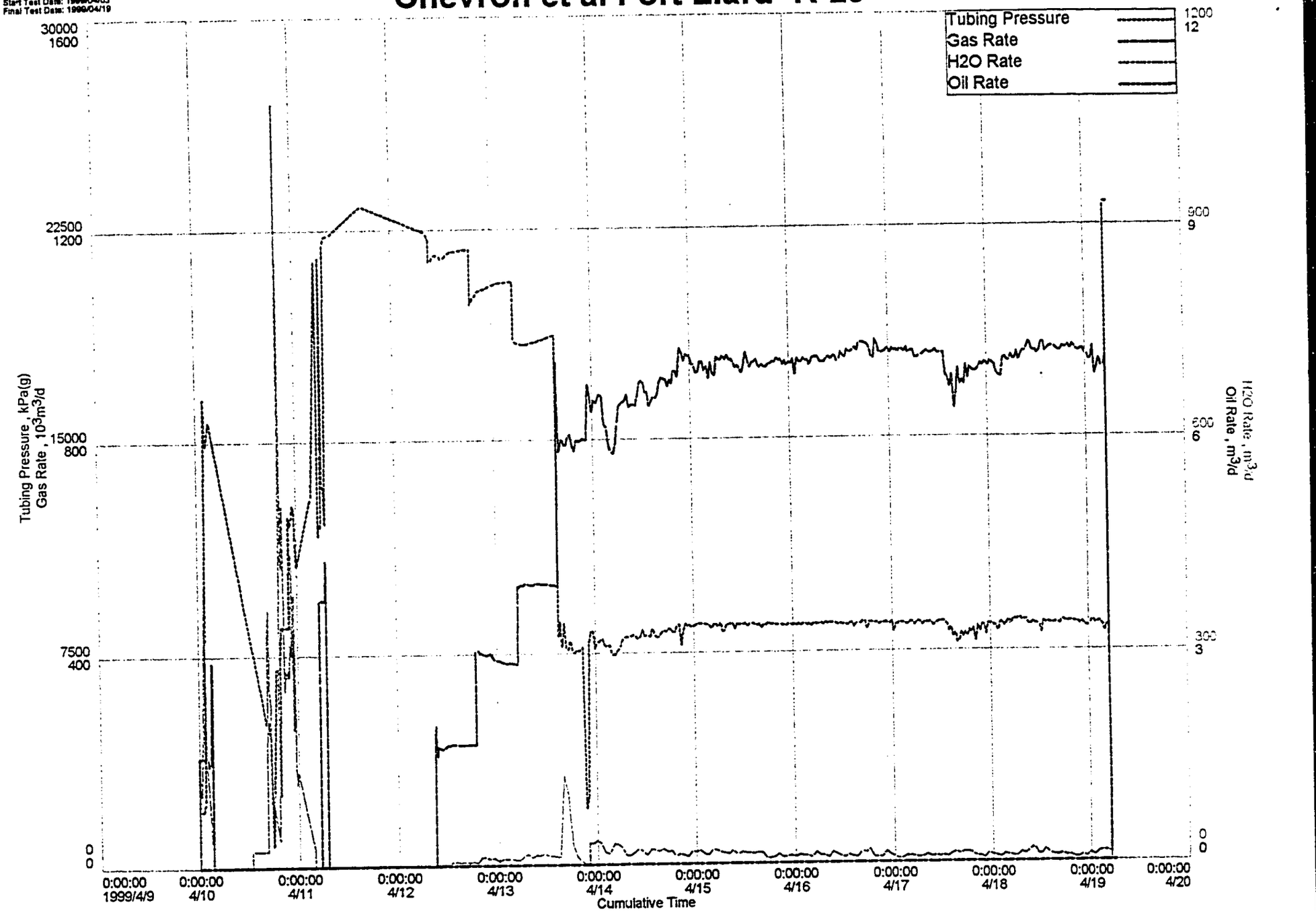
REMARKS:

EXCEED NORMAL LIMITS : CO2
H2S:FIELD=0.4% LAB=0.25%

Chevron Canada Resources
D K-29
Start Test Date: 1999/04/03
Final Test Date: 1999/04/19

Chevron et al Fort Liard K-29

Chevron et al Fort Liard
Formation: Nahanni
Job Number: GP99-48



NORWARD

Fast C:\Cindy\FAST32\Chevron\Chev365.FLD 22-Apr-99 Ver 1.596

NORWAD ENERGY PRODUCTION LOG REPORT

N.E.B. COPY

BAKER HUGHES

Baker Atlas

NORWARD

ENERGY SERVICES

Customer: Chevron Canada Resources
Wellname: Chevron et al Fort Liard
Well Location: K - 29
Test Dates: May 04 - 07, 1999
Formation: Nahanni Dolomite

File Name: GP99-048, CHEV368.FLD
Supervisors: R. Rutherford
Customer Reps: C. Triomphe, BJ Kalsi
Test Unit/Tank: TU#29, TK#25
Test Type: Production Log

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Norward Head Office

GENERAL INFORMATION

Client Information:

Company: Chevron Canada Resources
Contact:
Phone: Fax: e-mail:

Site Information:

Contact: Curtis Triomphe, B.J Kalsi
Phone: Fax: e-mail:

Well Information:

Name: Chevron et al Fort Liard
Operator:
Location-Downhole: 29
Location-Surface:

Test Information:

Company: Norward Energy Services
Representative: Ron Norgaard, Paul Ringrose
Supervisor: R. Rutherford
Test Type: Production Log
Test Unit: TK #25 T.U #29
Start Date: 1999/05/04
End Date: 1999/04/07
Report Date: 1999/05/14

Job Number: GP99-048

Start Time: 17:00:00
End Time: 20:00:00
Prepared By: Cindy Brunt
Qualified By:

Remarks:

Flow well at several rates for Lee Tool production log.

No samples taken at customer's request.

FieldNotes

Gas Meter 1

Meter Type:	Orifice Meter	
Meter Size:	147.02	mm
Previous Gas Production:	0.000	10^3m^3
Tap Type:	Flange	
Tap Location:	Downstream	
Gas Gravity (G):	0.740	
CO_2:	17.53	%
H_2S:	0.40	%
N_2:	3.49	%
Critical Temperature (T_c):	209.49	K
Critical Pressure (P_c):	5099.74	kPa

Oil Meter1

Meter Type:	Produced Volume	
Measurement Type:	Cumulative	
Previous Oil Production:	0.000	m^3
Previous Water Production:	0.000	m^3

Oil Meter2

Meter Type:	Produced Volume	
Measurement Type:	Incremental	
Previous Oil Production:	0.000	m^3
Previous Water Production:	0.000	m^3

FieldNotes

Water Meter1

Meter Type:	Produced Volume
Measurement type:	Incremental
Previous Water Production:	0.000 m^3

Chevron Canada Resources
K - 29
Start Date: 1999/05/04
Final Test Date: 1999/04/07

FieldNotes
Field Measurements

Chevron et al Fort Liard
Formation: Nahanni Dolomite
Job Number: GP99-048

	Date	Clk Tim	Tbg Pres	Csg Pres	WHT	Orif1	Static1	Diff1	Temp1	Gas Rate	Cum. Gas	Fld Gain	BSW	H2O Gain	H2O Rate	Cum. H2O	Oil Gain	Oil Rate	Cum. Oil	pH	Salinity
	yyyy/mm/d	hh:mm:ss	kPa(g)	kPa(g)	°C	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3	m^3	m^3/d	m^3		ppm
1	1999/05/04	17:00:00	Arrive on location and ready test equipment.																		
2	1999/05/05	07:00:00	Pre-heat line heater.																		
3		09:00:00	Hold pre-job saftey meeting.																		
4		10:30:00	Start in hole with E line for production log.																		
5		13:45:00	Record tubing pressures. Annulus on vacuum.																		
6		13:45:00	22550	0																	
7		13:45:00				0.000	0	0.0	0.0	0.00	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00		
8		14:00:00	Open choke to flow on 10.32mm.																		
9		14:02:00	Dri-flow meter in service with a 107.95mm orifice plate.																		
10		14:05:00	21410	0	10.0	107.950	1150	15.0	18.0	361.69	5.02										
11		14:10:00	20300	0	12.0	107.950	1100	14.6	18.0	349.40	6.26										
12		14:15:00	20290	0	18.0	107.950	1080	13.0	14.0	329.29	7.43										
13		14:30:00	20430	0	19.0	107.950	1070	13.2	13.0	330.99	10.87	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00		
14		14:45:00	20630	0	20.0	107.950	1070	13.3	11.0	333.52	14.33										
15		15:00:00	20730	0	21.0	107.950	1070	13.5	8.0	337.98	17.83										
16		15:00:00	No fluid produced.																		
17		15:10:00	Shut in well to clear obstruction in wireline lubricator. Record buildups.																		
18		15:10:00				0.000	0	0.0	0.0	0.00	17.83	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00		
19		15:20:00	22375																		
20		15:25:00	22380																		
21		15:30:00	22385																		
22		16:00:00	22385																		
23		16:00:00	Begin injecting methanol down tubing.																		
24	1999/05/05	18:00:00	22385																		
25		20:00:00	22385																		
26		20:30:00	Wireline able to pull out of hole.																		
27		21:15:00	Shut down methanol, (150) litres injected.																		
28		21:30:00	Wireline at surface, shut in master valve and bleed off lubricator.																		
29		22:00:00	Secure well and shut down for night.																		
30		22:00:01				0.000	0	0.0	0.0	0.00	17.83	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00		
31	1999/05/06	07:00:00	Rig up wireline to run in and do production log.																		
32		07:00:00	Pre-heat line heater.																		
33		14:29:58				0.000	0	0.0	0.0	0.00	17.83	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00		
34		14:30:00	Open well and start in hole.																		
35		15:00:00	Record tubing pressure. Annulus on vacuum. Begin injecting methanol down tubing.																		
36		15:00:00	22400	0																	
37		17:00:00	Pull out of hole, problems with line truck.																		
38	1999/05/06	18:00:00	Shut down methanol injection, (40) litres injected.																		
39		18:00:01				0.000	0	0.0	0.0	0.00	17.83	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00		
40	1999/05/07	06:00:00	Ready test equipment, for production log.																		
41		09:59:58				0.000	0	0.0	0.0	0.00	17.83	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00		
42		10:00:00	Open well and start in hole.																		
43		10:30:00	Record tubing pressures, annulus on vacuum.																		
44		10:30:00	22330	0																	
45		14:20:00	22250	0																	
46		14:24:29				0.000	0	0.0	6.7e-15	0.00	17.83	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00		
47		14:25:00	Open choke to flow on a 22.22mm.																		

Fast

Chevron Canada Resources
K - 29
Start Date: 1999/05/04
Final Test Date: 1999/04/07

FieldNotes
Field Measurements

Chevron et al Fort Liard
Formation: Nahanni Dolomite
Job Number: GP99-048

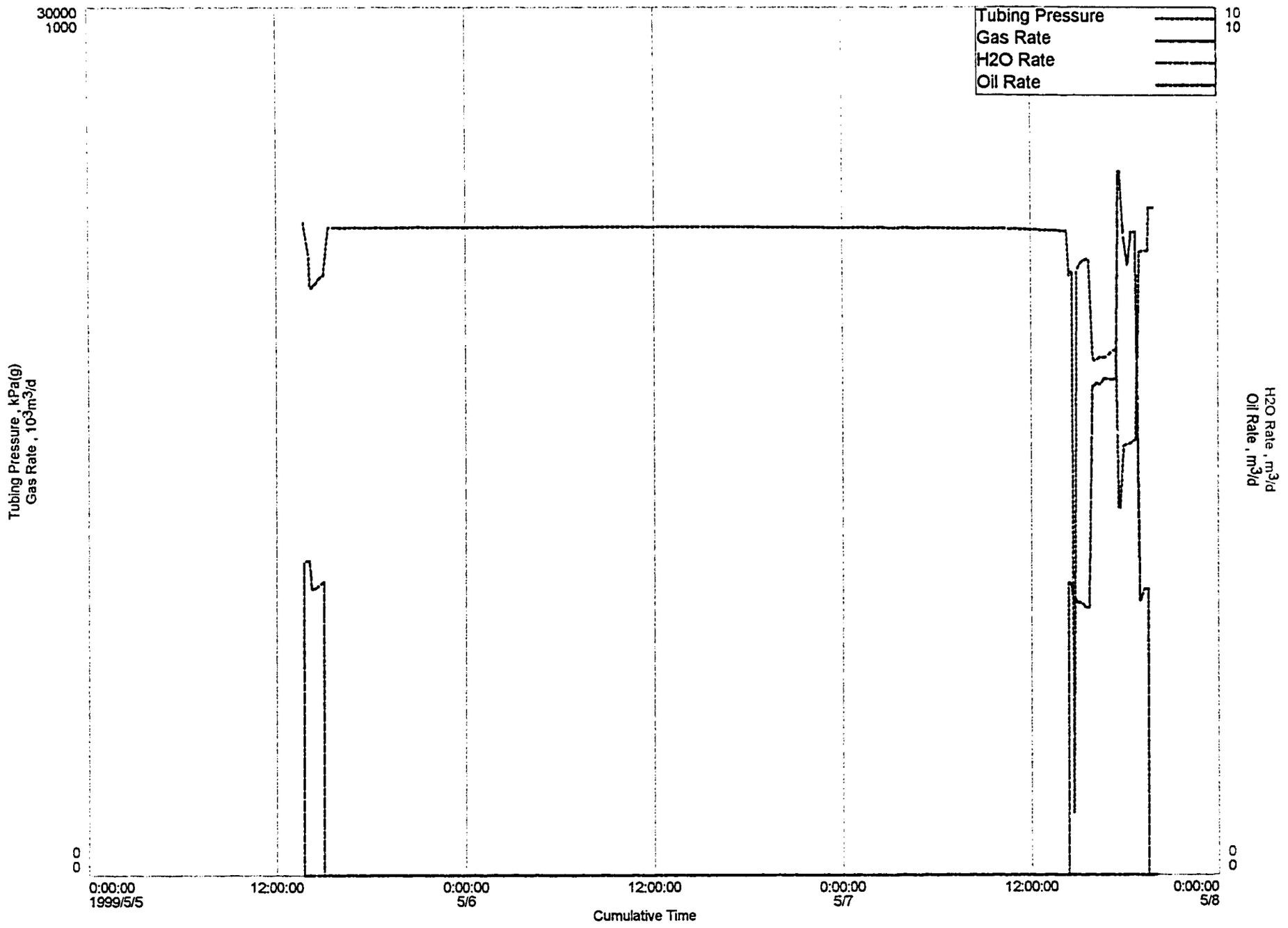
	Date	Clk Tim	Tbg Pres	Csg Pres	WHT	Orif1	Static1	Diff1	Temp1	Gas Rate	Cum. Gas	Fld Gain	BSW	H2O Gain	H2O Rate	Cum. H2O	Oil Gain	Oil Rate	Cum. Oil	pH	Salinity
	yyyy/mm/d	hh:mm:ss	kPa(g)	kPa(g)	°C	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3	m^3	m^3/d	m^3		ppm
48	1999/05/07	14:30:00	20700	0	9.0	107.950	1000	15.0	22.0	336.17	19.12										
49		14:35:00	20770	0	15.0	107.950	1000	14.8	22.0	333.92	20.28										
50		14:40:00	20870	0	18.0	107.950	920	14.8	22.0	321.23	21.42										
51		14:45:00	2075	0	18.0	107.950	920	14.8	22.0	321.23	22.54										
52		15:00:00	20860	0	19.0	107.950	920	14.0	20.0	313.55	25.84									5	30000
53		15:15:00	21150	0	19.0	107.950	920	14.0	20.0	313.55	29.11										
54		15:30:00	21230	0	20.0	107.950	920	13.5	20.0	307.89	32.35										
55		15:45:00	21300	0	20.0	107.950	920	13.5	20.0	307.89	35.55										
56		15:58:00	Increase choke to 39.69mm.																		
57		16:00:00	18000	0	22.0	107.950	1450	29.0	18.0	562.54	40.09									5	6000
58		16:05:00	17770	0	23.0	107.950	1500	28.0	17.0	562.98	42.04										
59		16:10:00	17770	0	22.0	107.950	1500	28.0	16.0	564.07	44.00										
60		16:15:00	17770	0	26.0	107.950	1500	28.0	14.0	566.28	45.96										
61		16:30:00	17870	0	28.0	107.950	1500	28.0	16.0	564.07	51.85										
62		16:45:00	17870	0	30.0	107.950	1480	29.0	15.0	571.47	57.76										
63		17:00:00	17900	0	30.0	107.950	1480	29.0	16.0	570.36	63.71									5	8000
64		17:15:00	18080	0	32.0	107.950	1480	29.0	16.0	570.36	69.65										
65		17:30:00	18130	0	32.0	107.950	1480	29.0	15.0	571.47	75.60										
66		17:35:00	Increase choke to 47.63mm.																		
67		17:40:00	12700	0	34.0	107.950	2070	42.0	16.0	810.56	80.40										
68		17:45:00	12660	0	34.0	107.950	2070	42.0	16.0	810.56	83.21										
69		17:50:00	Decrease choke to 41.23mm.																		
70	1999/05/07	18:00:00	14818	0	36.0	107.950	1880	38.5	18.0	736.60	91.27									5	12000
71		18:00:00	Traces of drilling mud in sample.																		
72		18:15:00	14850	0	38.0	105.950	1880	38.5	18.0	700.86	98.76										
73		18:30:00	14920	0	40.0	107.950	1900	38.5	18.0	740.47	106.26										
74		18:45:00	15020	0	41.0	107.950	1900	38.5	18.0	740.47	113.98										
75		18:45:00	Decrease choke to 22.22mm.																		
76		19:00:00	21520	0	40.0	107.950	940	13.8	18.0	315.57	119.48									5	18000
77		19:15:00	21560	0	39.0	107.950	940	15.0	18.0	329.04	122.83										
78		19:30:00	21560	0	40.0	107.950	940	15.0	18.0	329.04	126.26										
79		19:30:00	Shut in choke and record buildups.																		
80		19:30:01				0.000	0	0.0	0.0	0.00	126.26	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00		
81		19:35:00	23060																		
82		19:40:00	23060																		
83		19:45:00	23060																		
84		20:00:00	23060																		
85		20:00:01				0.000	0	0.0	0.0	0.00	126.26	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00		
86		20:00:01	End of test.																		

Fast

Chevron Canada Resources
K - 29
Start Date: 1999/05/04
Final Test Date: 1999/04/07

Chevron et al Fort Liard K-29

Chevron et al Fort Liard
Formation: Nahanni Dolomite
Job Number: GP99-048



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Fast

STRIP LOG

PowerLog V1.9 developed by TriVision Geosystems Ltd. (403) 777-9454

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Well Information

Operator:	CHEVRON CANADA RESOURCES
Well Name:	LIARDK29
Location:	
UWI:	300K296030123300
Pool:	NFW
Field:	NFW
Province / State:	NWT
Country:	CANADA

Elevations

Reference:		Ground:	409.6m
Cut(-) / Fill(+):		Kelly Bushing:	418.8m
K.B. to Ground:	m	Casing Flange:	m

Total Depth

Measurement Type	Measured Depth	True Vertical Depth
Drillers TD (Tally)	3000m	2916.19m
Drillers TD (Strap or SLM)	m	m
Loggers TD	m	m

Well Node - Surface Node

Well Type:	Deviated		
Longitude:	123.5	N / S Co - Ordinates:	
Latitude:	60.5	E / W Co - Ordinates:	

Well Node - Bottom Hole Node

Longitude:		N / S Co - Ordinates:	27.63 meters South
Latitude:		E / W Co - Ordinates:	347.75 meters East

Well Summary

Spud Date:	Feb 3, 1999 @ 08:00hrs
TD Date:	Mar 27, 1999 @ 07:15hrs
Rig Release Date:	
Contractor:	AKITA DRILLING LTD

Drilling Fluid Summary

Fluid Type	From	To
Gel Chem Spud Mud	0m	711m
Oil based Invert	771m	2500m
Gel Chem	2500m	3000m

Casing Summary

Type	Hole Size	Casing Size	Landed At
Surface	444mm	340mm	701.3m
Intermediate	311mm	244mm	2500m

Work Schedule

Contractor	Geologist	Log Interval	Dates Logged
Lillico Petroleum Consultants	Brock Lillico	700m - 3000m	Feb 16, 1999 - Mar 28, 1999
Lillico Petroleum Consultants	Cathy Lillico	2427m - 3000m	Mar 12, 1999 - Mar 28, 1999

Remarks

Legend

Rock Types and Thin Beds

Whole Bed	Stringer	Nodule	Breccia	Clast	Pebble	Grain	Rock Type
							Anhydrite - primary
							Anhydrite - secondary
							Argillite
							Barite
							Bentonite
							Breccia
							Calcareous
							Cement
							Conglomerate - mixed
							Conglomerate - dark chert
							Conglomerate - light chert
							Conglomerate - varicolored chert
							Chert - dark
							Chert - fossiliferous
							Chert - light
							Chert - tripolitic
							Chert - varicolored
							Claystone - colored
							Claystone - gray
							Coal
							Dolomite
							Ferruginous
							Feldspar
							Gypsum
							Igneous - acidic

Whole Bed	Stringer	Nodule	Breccia	Clast	Pebble	Grain	Rock Type
							Igneous - basic
							Igneous - metamorphic
							Limestone - grain supported
							Limestone - mud supported
							Manganese
							Marlstone - calcareous
							Marlstone - dolomitic
							Phosphate
							Pyrite
							Quartz
							Salt
							Shale - black
							Shale - medium gray
							Shale - dark gray
							Shale - medium to dark gray
							Shale - dark colored
							Shale - light to medium colored
							Shale - medium to dark colored
							Shale - medium colored
							Siderite
							Sandstone
							Siltstone
							Till - glacial
							Volcanic (Tuff)
							Welded Volcanic (Tuff)

Shale - light gray
Shale - light to medium gray
Shale - light to dark gray
Shale - light colored
Shale - light to dark colored

Accessories

//	Anhydritic		Cherty - tripolitic	I	Illitic	•	Sandy
–	Argillaceous		Cherty - varicolored	K	Kaolinitic		Sideritic
	Baritic	C	Chloritic	π	Marly - calcareous	∧	Siliceous
	Bentonitic	⁙	Clayey	//	Marly - dolomitic	••	Silty
	Bituminous	∠	Dolomitic		Micromicaceous		Stylolitic
⊥	Calcareous	Fe	Ferruginous staining		Mixed layer clayey	V	Tuffaceous
	Carbonaceous	\	Fractures	M	Montmorillonitic	Z	Zeolitic
	Cherty - dark	~	Glauconitic	●●	Phosphate pellets		
	Cherty - fossiliferous	\\	Gypsiferous	P	Pyritic		
	Cherty - light	G	Gibbsitic		Salt casts		

Matrix

	Argillaceous		Marl - dolomitic
B	Bentonite		Micrite
	Bituminous		Mixed Clay
	Clay		Montmorillonite
C	Chlorite		Sand
G	Gibbsite		Silt
I	Illite		Sparry Calcite
K	Kaolinite	Z	Zeolite
	Marl - calcareous		

Cement

	Anhydritic		Gypsiferous
	Baritic		Hematitic
	Bituminous		Limonitic
	Calcareous	P	Pyritic
	Chert - dark		Salt
	Chert - light		Sideritic
	Dolomitic		Siliceous
	Ferruginous		

Miscellaneous Grains

	Biotite	*	Mineral crystal		Orthoclase
	Glauconite		Mineral - dark		Plagioclase
	Mica flakes		Muscovite	o	Sand grain

Textures

C	Chalky	L	Lithographic
CX	Cryptocrystalline	mx	Microcrystalline
e	Earthy		

Core Track

Indicates Cored Interval

Indicates Lost Core

Test Track

Indicates Tested Interval

Fossils (Rock Builders)

	Aggregate grains		Coral - head		Oncolite
	Algae - laminations		Coral - colonial		Oolite
	Algae - non descript		Coral - solitary		Ostracod
	Algae - ootoid		Crinoid		Pelecypod
	Algae - skeletal		Diatom		Pellet
	Amphipora		Echnoid		Pisolite
	Belemnite		Echnoid - spine		Plant Remains
	Bioclastic		Fish Remains		Scaphopod
	Brachiopod		Euryamphipora		Spicule
	Bryozoa		Foraminifera		Sponge
	Calciphaera	F	Fossil		Stromatoporoid
	Cephalopod		Fragmental		Stromatoporoid - bulbous
	Chaetetes		Gastropod		Stromatoporoid - massive
	Coated grain		Graptolite		Stromatoporoid - tabular
	Conodont		Hydrozoa		Tentaculites
	Coral		Intraclast		Trilobite
	Coral - branching		Mollusc		

Wentworth Grain / Cyrstal Size Scale Chart

Clastic Rocks Common Name	Crystalline Rocks Common Name	Lower Size Limit (mm)	Upper Size Limit (mm)	Size Grades Phi (Ø)
Clay	Cryptocrystalline	0.00098	0.004	+10 to +9
Very Fine Silt	Very Finely Microcrystalline	0.004	0.008	+8
Fine Silt	Finely Microcrystalline	0.008	0.016	+7
Medium Silt	Medium Microcrystalline	0.016	0.031	+6
Coarse Silt	Coarsely Microcrystalline	0.031	0.0625	+5
Very Fine Sand	Very Finely Crystalline	0.0625	0.125	+4
Fine Sand	Finely Crystalline	0.125	0.25	+3
Medium Sand	Medium Crystalline	0.25	0.5	+2
Coarse Sand	Coarsely Crystalline	0.5	1.0	+1
Very Coarse Sand	Finely Megacrystalline	1.0	2.0	0
Granules	Coarsely Megacrystalline	2.0	4.0	-1
Fine Pebbles		4.0	8.0	-2
Medium pebbles		8.0	16.0	-3
Coarse Pebbles		16.0	32.0	-4
Very Coarse pebbles		32.0	64.0	-5
Cobbles		64.0	256.0	-6 to -7
Boulders		256.0	Infinity	-8 to -9

The size measure Phi is equal to the negative logarithm to the base 2 of the size in millimeters.
Thus 1 mm = 0 Phi and 1/2 mm = +1 Phi and 1/4 mm = +2 Phi etc.

Porosity Type Track

e	Earthy - low permeability - crystals / grains less than 1 / 16 mm
⊡	Fenestral - voids from gas bubbles - shrinkage cracks - birdseye texture
F	Fracture
X	Intercrystalline - Interfragmental - Intergranular
ϕ	Interoolitic - Interpelletoidal
ᔑ	Moldic
O	Organic - Bridged - Intrafossil
P	Pinpoint - voids less than 1/ 16 mm
V	Vuggy - voids greater than 1 / 16 mm

Diagenesis Track

⊥	Calcification - Calichified
∠	Dolomitization
	Diagenetically mottled
⟍	Fracturing
	Leaching
◇	Metasomatism - Replacement - Allotropic recrystallization - Inversion - Transformation
Pd	Pressure Deformation
Rx	Recrystallization - Strain recrystallization - Grain growth
∧	Silicification
	Solution cavity filled - Geopetal structure
∿	Stylolitic
W	Weathering

Degree of Diagenesis is in (%) percent. ? Indicates questionable interpretation.

Oil Show Track

●	Even staining (75 - 100% of the rock is stained) - fluoresces in solvent
◕	Spotted staining (50 - 75% of the rock is stained) - fluoresces in solvent
◉	Spotted staining (25 - 50% of the rock is stained) - fluoresces in solvent
⊙	Spotted staining (1 - 25% of the rock is stained) - fluoresces in solvent
O	Questionable oil staining - No fluorescents in solvent
D	Dead oil staining - asphaltic - bitumen - pyrobitumen etc.

Sorting Track

vP	Very poorly sorted - > 10 phi size grade classes
P	Poorly sorted - 6-10 phi size grade classes
M	Moderately sorted - 3-6 phi size grade classes
mW	Moderately well sorted - 2-3 phi size grade class
W	Well sorted - < 2 phi size grade classes

Rounding Track

vA	Very Angular	r	Subrounded
A	Angular	R	Rounded
a	Subangular	wR	Well Rounded

Framework Track

Framework is a ratio between clastic material greater than 1/16 mm and primary void filler less th 1/16 mm. ? Indicates questionable interpretation

STATIC GRADIENT REPORT APR.11 – APR. 12/99

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Chevron Canada Resources

Static Gradient
Chevron et al Ft. Liard K-29
K-29
Apr 11, 99 to Apr 12, 99

Service Company Contact Info		
Report Writer: Vio Tandara, 1-403-347-2524(309-7913)	Service Company: Lee Tool, Div. of Schlumberger	
Operator: Doan Hunt, 1-780-778-2361	Job ID: k-29sg	Test Date: Apr 11, 99 to Apr 12, 99

Gauge: Lee Memory Recorder Model 3000s (Quartz)
Manufacturer: Lee Tool, Division of Schlumberger Canada Limited

Static Gradient

Chevron Canada Resources
Alberta, Canada

Apr 11, 99 to Apr 12, 99

Chevron et al Ft. Liard K-29 | **K-29** | **Liard, Undefined**

Well

Client		Province	Country
Chevron Canada Resources		Alberta	Canada
Well Name		**Deviated Well**	**Well Status**
Chevron et al Ft. Liard K-29		Yes	Gas
Well No		**KB Elevation**	**CF Elevation**
K-29		417.40 m	409.60 m
Field	**Pool**	**Pool Datum**	
Liard	Undefined	2500.00 mSS	

Test

Test Type				Atmospheric		
Static Gradient				101.30 KPa A		
Test Start (mm/dd/yy)		**Test Finish**		**Casing ID**		**Tubing ID**
04/11/99	06:15 PM	04/12/99	12:11 AM			88.90 mm
On Bottom		**Off Bottom**		**C. Pres. Before**		**T. Pres. Before**
04/11/99	11:30 PM	04/11/99	11:40 PM	0.00 KPa G		22330.00 KPa G
Shut In		**ETO**		**C. Pres. After**		**T. Pres. After**
04/11/99		04/11/99	06:15 PM			

	Meas. Depth [mCF]	TVD [mCF]	Est. Pressure [KPa G]	Est. Gradient [KPa/m]	Est. Temperature [DegC]	Grad. Threshold
Well Datum		2909.60	28541.63	2.98		2.00 KPa/m
Run Depth	2880.00	2817.80	28268.27	2.98		Grad. Recorder: 9112q-16e
Avg. MPP Depth	2842.20	2787.20	28183.38	2.00		

Operator	Service Company
Doan Hunt, 1-780-778-2361	Lee Tool, Div. of Schlumberger

Remarks: 9112q-16e bot. rec. & 9102q-16e top rec. One tool had a real time clock problem.

Depth References

Depth Reference	Offset [m]	Elevation [mMSL]
Casing Flange (CF)		409.60
Kelly Bushing (KB)	CF + 7.80	417.40

Perforations

Perf Top MD, [mKB]	Perf Bottom MD, [mKB]	Perf Top MD, [mCF]	Perf Bottom MD, [mCF]	MPP TVD, [mCF]	Pressure [KPa G]	Gradient [KPa/m]
2700.00	3000.00	2692.20	2992.20	2787.20	28183.38	2.00

Top Recorder

Model	Serial	Latest Calibration	
	9102q-16e	01/01/70	
Max. Rated Press.	Max. Rated Temp.		

Gradient Stops

Depth						
Tool String MD, [mCF]	Recorder MD, [mCF]	Recorder TVD, [mCF]	Sample R/T [mmm dd, 24hr]	Pressure [KPa G]	Gradient [KPa/m]	Temperature [DegC]
0.00	-1.50	-1.50	Apr 11, 99 18:49:10	22300.36		19.04
500.00	498.50	498.34	19:04:40	23590.01	2.58	33.00
1000.00	998.50	997.32	19:19:30	24720.66	2.27	59.42
1500.00	1498.50	1493.33	19:36:50	25734.10	2.04	86.22
2000.00	1998.50	1991.45	19:57:20	26699.79	1.94	112.02
2500.00	2498.50	2489.85	20:14:10	27573.55	1.75	136.22
2550.00	2548.50	2539.32	20:24:50	27713.72	2.83	141.10
2650.00	2648.50	2630.83	20:40:10	27886.02	1.88	144.42
2700.00	2698.50	2671.10	20:59:00	27969.75	2.08	146.92
2750.00	2748.50	2711.54	21:12:10	28039.16	1.72	148.68
2800.00	2798.50	2751.72	21:23:30	28111.54	1.80	150.19
2850.00	2848.50	2792.31	23:24:20	28195.72	2.07	151.80
2880.00	2878.50	2816.58	23:38:40	28257.30	2.54	152.73

Bottom Recorder

Model	Serial	Latest Calibration	
	9112q-16e	01/01/70	
Max. Rated Press.	Max. Rated Temp.		

Gradient Stops

Depth						
Tool String MD, [mCF]	Recorder MD, [mCF]	Recorder TVD, [mCF]	Sample R/T [mmm dd, 24hr]	Pressure [KPa G]	Gradient [KPa/m]	Temperature [DegC]
0.00	0.00	-0.00	Apr 11, 99 18:50:00	22300.51		19.69
500.00	500.00	499.84	19:07:20	23591.23	2.58	35.21
1000.00	1000.00	998.82	19:21:30	24726.48	2.28	61.97
1500.00	1500.00	1494.82	19:39:30	25746.38	2.06	88.18
2000.00	2000.00	1992.95	19:58:10	26710.74	1.94	112.61
2500.00	2500.00	2491.35	20:18:10	27611.20	1.81	138.57
2550.00	2550.00	2540.78	20:23:00	27710.60	2.01	140.58
2650.00	2650.00	2632.04	20:40:30	27888.91	1.95	144.54
2700.00	2700.00	2672.30	20:57:53	27973.76	2.11	147.09
2750.00	2750.00	2712.74	21:08:44	28042.76	1.71	148.73
2800.00	2800.00	2752.92	21:18:55	28114.95	1.80	150.24
2850.00	2850.00	2793.53	23:18:16	28196.01	2.00	151.78
2880.00	2880.00	2817.80	23:28:50	28268.27	2.98	152.87

Deviated Well Survey

Meas. Depth [mKB]	Inclination [Degrees]	TVD [mKB]	Meas. Depth [mCF]	TVD [mCF]
0.00		0.00	-7.80	-7.80
425.00	2.00	424.94	417.20	417.14
513.00	3.75	512.83	505.20	505.03

Deviated Wall Survey

Meas. Depth [mKB]	Inclination [Degrees]	TVD [mKB]	Meas. Depth [mCF]	TVD [mCF]
960.00	3.88	958.93	952.20	951.13
1027.00	4.00	1025.77	1019.20	1017.97
1502.00	9.00	1496.88	1494.20	1489.08
1512.70	7.30	1507.47	1504.90	1499.67
2001.20	3.70	1994.16	1993.40	1986.36
2030.00	3.40	2022.90	2022.20	2015.10
2484.00	4.40	2475.42	2476.20	2467.62
2510.00	4.60	2501.34	2502.20	2493.54
2519.60	5.70	2510.90	2511.80	2503.10
2548.60	11.00	2539.59	2540.80	2531.79
2558.30	13.50	2549.07	2550.50	2541.27
2598.40	20.30	2587.41	2590.60	2579.61
2608.00	22.60	2596.35	2600.20	2588.55
2646.00	31.90	2630.10	2638.20	2622.30
2655.60	36.00	2638.06	2647.80	2630.26
2665.20	36.00	2645.83	2657.40	2638.03
2703.90	36.70	2676.97	2696.10	2669.17
2713.50	35.90	2684.71	2705.70	2676.91
2752.20	36.60	2716.04	2744.40	2708.24
2761.90	36.20	2723.85	2754.10	2716.05
2800.60	36.60	2754.94	2792.80	2747.14
2810.20	36.60	2762.65	2802.40	2754.85
2848.90	35.60	2794.11	2841.10	2786.31
2850.00	35.60	2795.00	2842.20	2787.20
2858.60	36.00	2801.98	2850.80	2794.18
2868.30	36.30	2809.81	2860.50	2802.01
2877.80	35.80	2817.49	2870.00	2809.69
2887.30	35.80	2825.19	2879.50	2817.39
2896.80	36.30	2832.87	2889.00	2825.07
2915.90	36.50	2848.24	2908.10	2840.44
2925.50	35.80	2856.00	2917.70	2848.20
2983.00	36.10	2902.45	2975.20	2894.65
3000.00	36.10	2916.19	2992.20	2908.39
3002.00	36.10	2917.80	2994.20	2910.00

Tool Summary

Alberta, Canada

Top Recorder

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9102Q-16E	03/10/99	165 c
Landed Depth	**Depth Offset**	**Min. Battery**	
	-1.50 m	17.86 V	

Program: Program for S.Q. with 2 meg memory

	Intervals				*Expected Samples*			*Actual Samples*				
Mode	Interval [d hh:mm:ss]	Rate [hh:mm:ss]	Delta [KPa]	Periodic [hh:mm:ss]	Regular Samples	Percent Storage	Energy [Ahr]	Regular Samples	Delta Samples	Percent Storage	Energy [Ahr]	Duration [d hh:mm:ss]
HB	10:00	1			600	0.2%	0.0022	600		0.2%	0.0022	10:00
HB	30	10			259200	74.2%	5.4747	2067		0.6%	0.0437	5:44:30
Totals:	30 10:00				259800	74.3%	5.4769	2667		0.8%	0.0458	5:54:30

Bottom Recorder

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9112Q-16E	03/10/99	165
Landed Depth	**Depth Offset**	**Min. Battery**	
	0.00 m	14.75 V	

Program: Program for S.Q. with 2 meg memory

	Intervals				*Expected Samples*			*Actual Samples*				
Mode	Interval [d hh:mm:ss]	Rate [hh:mm:ss]	Delta [KPa]	Periodic [hh:mm:ss]	Regular Samples	Percent Storage	Energy [Ahr]	Regular Samples	Delta Samples	Percent Storage	Energy [Ahr]	Duration [d hh:mm:ss]
HB	10:00	1			600	0.2%	0.0022	600		0.2%	0.0022	10:00
HB	30	10			259200	74.2%	5.4747	2000		0.6%	0.0422	5:33:20
Totals:	30 10:00				259800	74.3%	5.4769	2600		0.7%	0.0444	5:43:20

Calibration Summary

Alberta, Canada

Top Recorder

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9102Q-16E	03/10/99	165 c
Landed Depth	**Depth Offset**	**Min. Battery**	
	-1.50 m	17.86 V	

Equations

FP = Pres Freq (Hz)
FT = Temp Freq (Hz)

XP = 2.20810Ue+004 + (1.000000e-002) FP
XT = 5.176900e+004 + (1.000000e-002) FT

P_0 = 1.990071e+001+ (-1.555979e+000) XT + (-2.287482e-002) XT^2 + (1.677079e-007) XT^3 + (-1.476436e-008) XT^4
P_1 = 4.457698e+001+ (-2.151670e-002) XT + (3.862171e-005) XT^2 + (3.738375e-008) XT^3 + (1.886815e-010) XT^4
P_2 = -1.755544e-003+ (5.948385e-006) XT + (-1.661327e-007) XT^2 + (-8.524640e-010) XT^3 + (-1.742323e-012) XT^4
P_3 = 4.985877e-007+ (2.455509e-008) XT + (6.352675e-010) XT^2 + (3.710346e-012) XT^3 + (6.732222e-015) XT^4
P_4 = 1.150052e-010+ (-4.275052e-011) XT + (-8.475401e-013) XT^2 + (-4.956157e-015) XT^3 + (-6.706455e-018) XT^4
Pressure (psiA) = $P_0 + P_1 XP + P_2 XP^2 + P_3 XP^3 + P_4 XP^4$

T_0 = 2.575670e+001
T_1 = -7.315464e-001
T_2 = -8.249659e-004
T_3 = -5.865845e-007
Temperature (degC) = $T_0 + T_1 XT + T_2 XT^2 + T_3 XT^3$

Bottom Recorder

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9112Q-16E	03/10/99	165
Landed Depth	**Depth Offset**	**Min. Battery**	
	0.00 m	14.75 V	

Equations

FP = Pres Freq (Hz)
FT = Temp Freq (Hz)

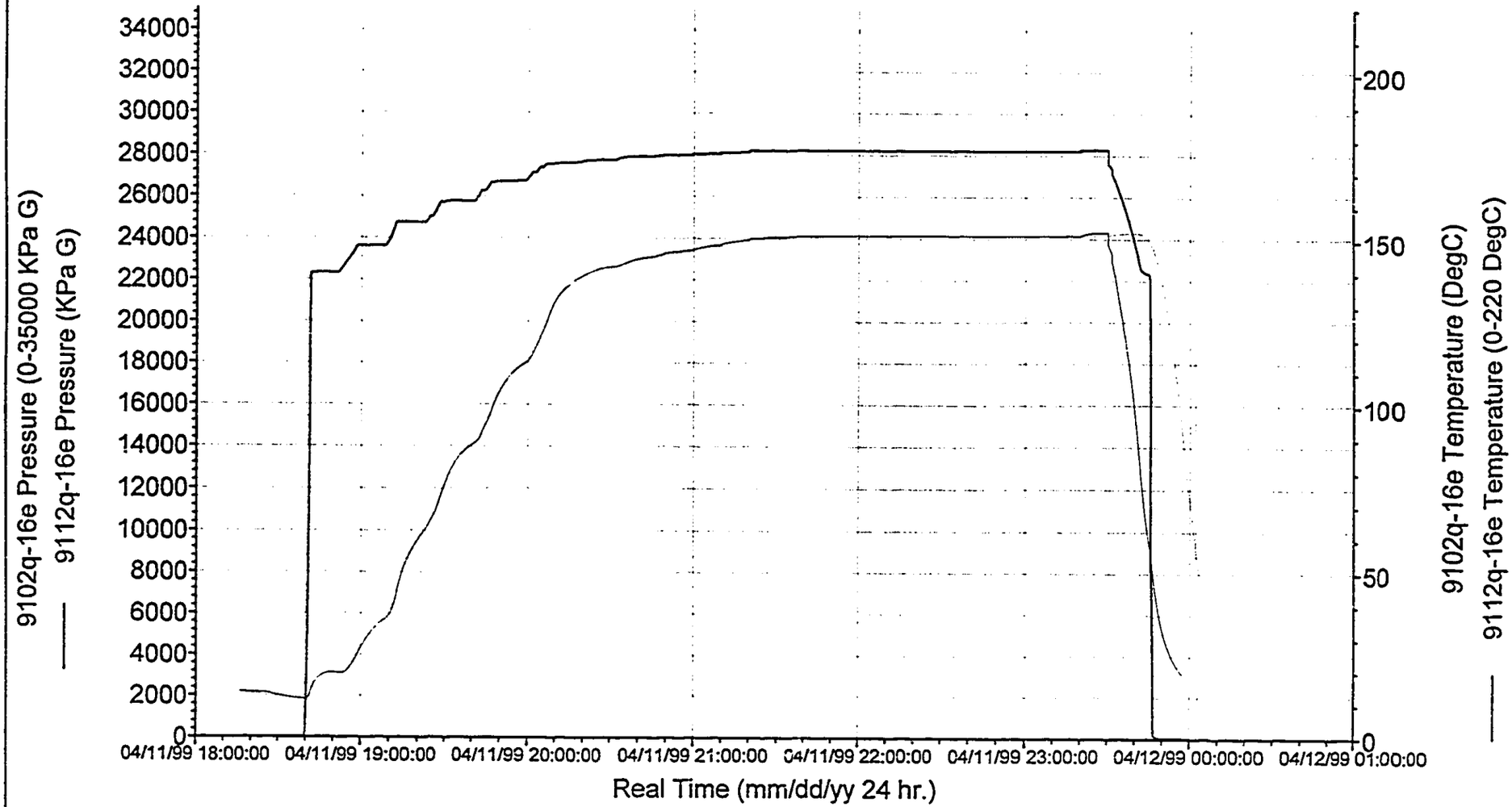
XP = 2.524500e+004 + (1.000000e-002) FP
XT = 4.404400e+004 + (1.000000e-002) FT

P_0 = 2.059346e+001+ (-1.248274e+000) XT + (-2.033423e-002) XT^2 + (1.170075e-006) XT^3 + (-1.235264e-008) XT^4
P_1 = 3.963056e+001+ (-1.891355e-002) XT + (4.895316e-005) XT^2 + (9.463500e-008) XT^3 + (2.698000e-010) XT^4
P_2 = -1.975134e-003+ (-3.969299e-006) XT + (-2.592481e-007) XT^2 + (-1.271178e-009) XT^3 + (-2.368644e-012) XT^4
P_3 = 1.340248e-006+ (5.199956e-008) XT + (9.074406e-010) XT^2 + (4.902146e-012) XT^3 + (8.577975e-015) XT^4
P_4 = -9.123857e-010+ (-6.740327e-011) XT + (-1.081794e-012) XT^2 + (-5.924722e-015) XT^3 + (-1.024025e-017) XT^4
Pressure (psiA) = $P_0 + P_1 XP + P_2 XP^2 + P_3 XP^3 + P_4 XP^4$

T_0 = 2.575680e+001
T_1 = -7.340471e-001
T_2 = -8.306071e-004
T_3 = -5.911701e-007
Temperature (degC) = $T_0 + T_1 XT + T_2 XT^2 + T_3 XT^3$

Pressure & Temperature vs. Real Time(Static gradient)

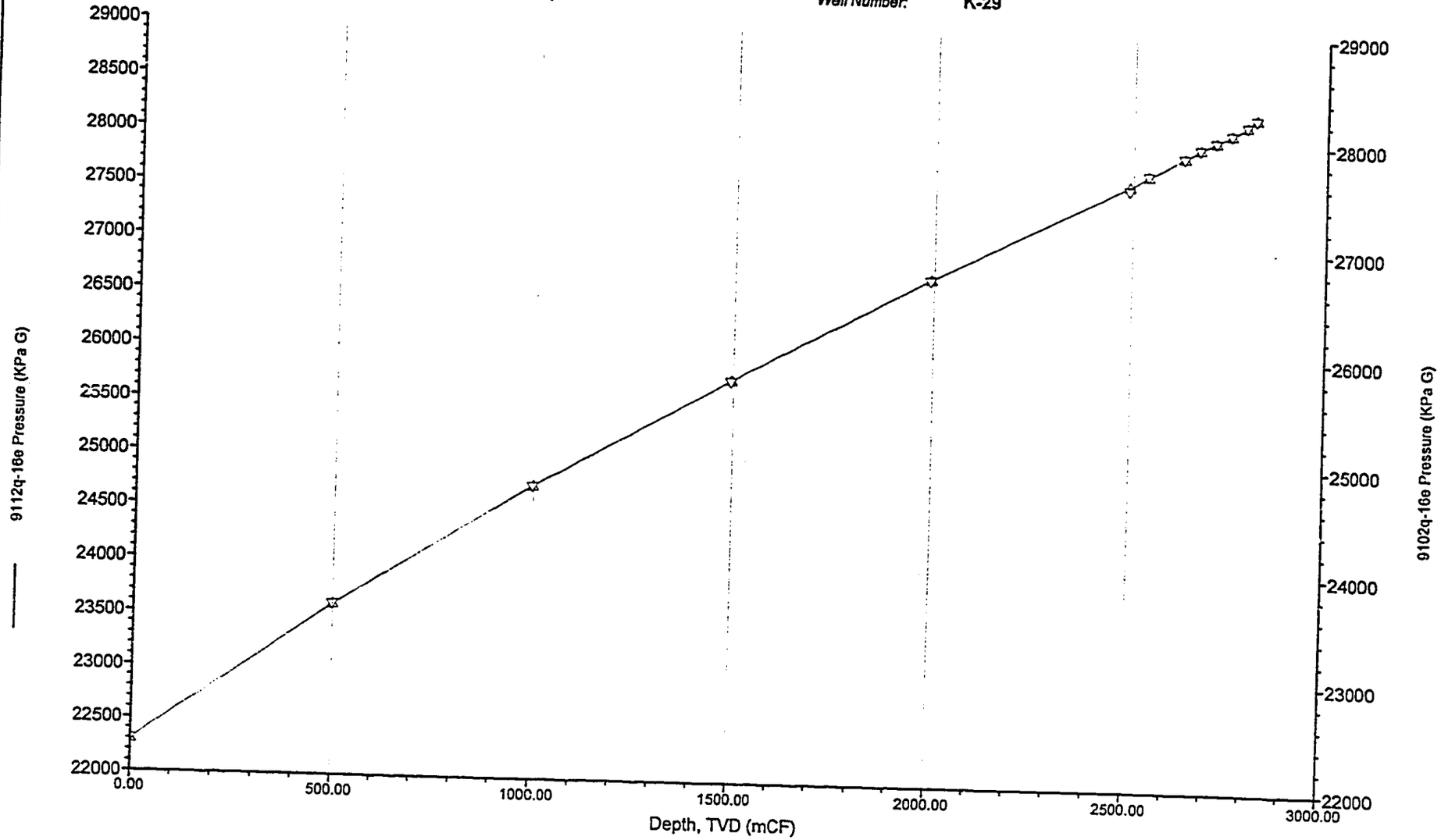
Company:	**Lee Tool, Div. of Schlumberger**	*Field:*	**Liard**
Client:	**Chevron Canada Resources**	*Well Name:*	**Chevron et al Ft. Liard K-29**
Remarks:	**9112q-16e bot. rec. & 9102q-16e top rec.**	*Well Number:*	**K-29**



Pressure vs. Depth

Company: Lee Tool, Div. of Schlumberger
Client: Chevron Canada Resources
Remarks: 9112q-16e bot. rec. & 9102q-16e top rec.

Field: [illegible]ard
Well Name: C[illegible]vron et al Ft. Liard K-29
Well Number: K-29



STATIC GRADIENT REPORT APR. 12 – APR. 26/99

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Chevron Canada Resources

Flow /Build-Up/Gradient Out
Chevron et al Ft. Liard k-29
k-29
Apr 12, 99 to Apr 26, 99

Service Company Contact Info		
Report Writer: Vio Tandara, 1-403-309-7913(347-2524)	Service Company: Lee Tool, Div. of Schlumberger	
Operator: Dale Sallstrom, 1-780-778-2361	Job ID: k-29ext	Test Date: Apr 12, 99 to Apr 26, 99

Gauge: Lee Memory Recorder Model 3000s (Quartz)
Manufacturer: Lee Tool, Division of Schlumberger Canada Limited

Flow /Build-Up/Gradient Out

Chevron Canada Resources

Alberta, Canada — **Apr 12, 99 to Apr 26, 99**

Chevron et al Ft. Liard k-29 — **k-29** — **Liard, Nahanni**

Well

Client: Chevron Canada Resources		Province: Alberta	Country: Canada
Well Name: Chevron et al Ft. Liard k-29		Deviated Well: Yes	Well Status: Gas
Well No: k-29		KB Elevation: 418.80 m	CF Elevation: 409.60 m
Field: Liard	Pool: Nahanni	Pool Datum: 2500.00 mSS	

Test

Test Type: Flow /Build-Up/Gradient Out				Atmospheric: 101.30 KPa A	
Test Start (mm/dd/yy): 04/12/99	04:15 AM	Test Finish: 04/26/99	06:43 PM	Casing ID	Tubing ID: 88.90 mm
On Bottom: 04/12/99	05:07 AM	Off Bottom: 04/26/99	04:12 PM	C. Pres. Before: 0.00 KPa G	T. Pres. Before: 22200.00 KPa G
Shut In: 04/19/99	05:00 AM	ETD: 04/12/99	04:15 AM	C. Pres. After	T. Pres. After

	Meas. Depth [mCF]	TVD [mCF]	Est. Pressure [KPa G]	Est. Gradient [KPa/m]	Est. Temperature [DegC]	Grad. Threshold
Well Datum		2909.60				Grad. Recorder
Landed Depth	2645.00	2627.80				
Avg. MPP Depth	2840.80	2785.74				

Operator: Dale Sallstrom, 1-780-778-2361 — Service Company: Lee Tool, Div. of Schlumberger

Remarks: 9427q-16e bot. rec. & 9431q-16e top rec.

Depth References

Depth Reference	Offset [m]	Elevation [mMSL]
Casing Flange (CF)		409.60
Kelly Bushing (KB)	CF + 9.20	418.80

Perforations

Perf Top MD, [mKB]	Perf Bottom MD, [mKB]	Perf Top MD, [mCF]	Perf Bottom MD, [mCF]	MPP TVD, [mCF]	Pressure	Gradient
2700.00	3000.00	2690.80	2990.80	2785.74		

Top Recorder

Model	Serial	Latest Calibration	
LMR-3000S	9431Q-16E	03/10/99	
Max. Rated Press.: 110213.27 KPa G	Max. Rated Temp.: 174.36 DegC		

Bottom Hole Pressure

	Tool String MD, [mCF]	Sample R/T [mmm dd, yy 24 hr.]	Pressure [KPa G]	
Sample 1		Apr 26, 99 09:00:00	27841.39	
Sample 2		15:00:00	27842.19	
Difference:		06:00:00	0.81	Build Up Rate: 0.13 KPa/Hr.

Tool Summary

Chevron Canada Resources
Alberta, Canada

Apr 12, 99 to Apr 26, 99

Chevron et al Ft. Liard k-29 | **k-29** | **Liard, Nahanni**

Top Recorder

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9431Q-16E	03/10/99	165
Landed Depth	**Depth Offset**	**Min. Battery**	
2643.50 mCF	-1.50 m	11.94 V	

Program: 30 day test for nelson

Intervals					Expected Samples			Actual Samples				
Mode	Interval [d hh:mm:ss]	Rate [hh:mm:ss]	Delta [KPa]	Periodic [hh:mm:ss]	Regular Samples	Percent Storage	Energy [Ahr]	Regular Samples	Delta Samples	Percent Storage	Energy [Ahr]	Duration [d hh:mm:ss]
HB	6	10			51840	14.8%	1.0949	51840		14.8%	1.0949	6
HB	10	5			172800	49.4%	1.9698	148311		42.4%	1.6907	8 13:59:15
HB	14	10			120960	34.6%	2.5549					
HB	30	15:00			2880	0.8%	5.0448					
Totals:	60				348480	99.7%	10.6645	200151		57.3%	2.7856	14 13:59:15

Bottom Recorder

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9427Q-16E	03/10/99	165 c
Landed Depth	**Depth Offset**	**Min. Battery**	
2645.00 mCF	0.00 m	12.42 V	

Program: 30 day test for nelson

Intervals					Expected Samples			Actual Samples				
Mode	Interval [d hh:mm:ss]	Rate [hh:mm:ss]	Delta [KPa]	Periodic [hh:mm:ss]	Regular Samples	Percent Storage	Energy [Ahr]	Regular Samples	Delta Samples	Percent Storage	Energy [Ahr]	Duration [d hh:mm:ss]
HB	6	10			51840	14.8%	1.0949	51840		14.8%	1.0949	6
HB	10	5			172800	49.4%	1.9698	121030		34.6%	1.3797	7 5:50
HB	14	10			120960	34.6%	2.5549					
HB	30	15:00			2880	0.8%	5.0448					
Totals:	60				348480	99.7%	10.6645	172870		49.5%	2.4746	13 5:50

Calibration Summary

Chevron Canada Resources
Alberta, Canada

Apr 12, 99 to Apr 26, 99

Chevron et al Ft. Liard k-29 | **k-29** | **Liard, Nahanni**

Top Recorder

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9431Q-16E	03/10/99	165
Landed Depth	**Depth Offset**	**Min. Battery**	
2043.50 mCF	-1.50 m	11.94 V	

Equations

FP = Pres Freq (Hz)
FT = Temp Freq (Hz)

XP = 2.747100e+004 + (1.000000e-002) FP
XT = 4.165900e+004 + (1.000000e-002) FT

P_0 = 1.969811e+001+ (-1.905926e+000) XT + (-2.204650e-002) XT^2 + (5.969970e-007) XT^3 + (-1.199156e-008) XT^4
P_1 = 4.175652e+001+ (-2.090861e-002) XT + (3.950641e-005) XT^2 + (3.892917e-008) XT^3 + (1.680186e-010) XT^4
P_2 = -1.753347e-003+ (6.452854e-006) XT + (-1.495265e-007) XT^2 + (-6.967713e-010) XT^3 + (-1.314358e-012) XT^4
P_3 = 2.401419e-007+ (1.776446e-008) XT + (5.031246e-010) XT^2 + (2.763359e-012) XT^3 + (4.645005e-015) XT^4
P_4 = 6.002160e-010+ (-2.415368e-011) XT + (-5.531387e-013) XT^2 + (-3.138960e-015) XT^3 + (-5.151525e-018) XT^4
Pressure (psiA) = $P_0 + P_1 XP + P_2 XP^2 + P_3 XP^3 + P_4 XP^4$

T_0 = 2.574944e+001
T_1 = -7.444312e-001
T_2 = -8.630388e-004
T_3 = -6.347411e-007
Temperature (degC) = $T_0 + T_1 XT + T_2 XT^2 + T_3 XT^3$

Bottom Recorder

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9427Q-16E	03/10/99	165 c
Landed Depth	**Depth Offset**	**Min. Battery**	
		12.42 V	

Equations

FP = Pres Freq (Hz)
FT = Temp Freq (Hz)

XP = 2.300600e+004 + (1.000000e-002) FP
XT = 5.085900e+004 + (1.000000e-002) FT

P_0 = 1.963511e+001+ (-1.752376e+000) XT + (-1.932087e-002) XT^2 + (2.291743e-007) XT^3 + (-1.290329e-008) XT^4
P_1 = 3.775857e+001+ (-1.869573e-002) XT + (3.497554e-005) XT^2 + (3.605610e-008) XT^3 + (1.716453e-010) XT^4
P_2 = -1.608866e-003+ (5.364127e-006) XT + (-1.309903e-007) XT^2 + (-6.368218e-010) XT^3 + (-1.352842e-012) XT^4
P_3 = 2.013672e-007+ (1.600257e-008) XT + (4.470356e-010) XT^2 + (2.602563e-012) XT^3 + (4.916752e-015) XT^4
P_4 = 5.699558e-010+ (-2.065591e-011) XT + (-5.045669e-013) XT^2 + (-3.110876e-015) XT^3 + (-5.830296e-018) XT^4
Pressure (psiA) = $P_0 + P_1 XP + P_2 XP^2 + P_3 XP^3 + P_4 XP^4$

T_0 = 2.575128e+001
T_1 = -7.329239e-001
T_2 = -8.313673e-004
T_3 = -5.983105e-007
Temperature (degC) = $T_0 + T_1 XT + T_2 XT^2 + T_3 XT^3$

Recorded Data

Chevron Canada Resources
Alberta, Canada

Apr 12, 99 to Apr 26, 99

Chevron et al Ft. Liard k-29 | **k-29** | **Liard, Nahanni**

Data

9431Q-16E Real Time (mmm dd,yy 24 hr)	Elapsed Time (DDD:HH:MM:SS)	9431Q-16E Pressure (KPa G)	9427q-16e Pressure (KPa G)	9427q-16e vs 9431Q-16E Press. Diff. (KPa)	9431Q-16E Temperature (DegC)	9427q-16e Temperature (DegC)	Comments
Apr 12, 99 04:15:00	0:00:00:00	-25.0850			4.7386		
04:20:00	0:00:05:00	-23.9691			4.8219		9427q-16e bot. rec.
04:21:00	0:00:06:00	-23.6369			4.7624		9431q-16e top rec.
04:51:00	0:00:36:00	23287.7137	23344.3000	56.5863	15.2795	15.3314	
05:07:00	0:00:52:00	27683.3504	27751.3500	67.9996	109.1468	108.0494	on bottom
05:37:00	0:01:22:00	27884.1596	27892.5300	8.3704	145.0363	145.2508	
06:07:00	0:01:52:00	27894.9870	27900.4100	5.4230	145.6919	145.9527	
06:37:00	0:02:22:00	27895.8353	27900.8200	4.9847	145.7642	146.0170	
07:07:00	0:02:52:00	27896.1978	27900.9200	4.7222	145.8010	146.0545	
07:37:00	0:03:22:00	27896.3227	27901.0200	4.6973	145.8306	146.0931	
08:07:00	0:03:52:00	27896.3966	27901.1600	4.7634	145.8602	146.1270	
08:37:00	0:04:22:00	27897.3370	27901.2900	3.9530	146.2592	146.4530	
09:07:00	0:04:52:00	27605.5539	27608.3600	2.8061	146.6848	146.7645	
09:37:00	0:05:22:00	27569.2407	27575.9300	6.6893	148.6322	148.6540	
10:07:00	0:05:52:00	27561.5768	27567.8600	6.2832	149.1411	149.1624	
10:37:00	0:06:22:00	27565.9766	27572.0200	6.0434	149.4203	149.4427	
11:07:00	0:06:52:00	27560.7050	27567.0600	6.3550	149.6116	149.6340	
11:37:00	0:07:22:00	27532.3254	27539.7400	7.4146	149.7783	149.7987	
12:07:00	0:07:52:00	27497.2973	27504.1700	6.8727	149.9612	149.9805	
12:37:00	0:08:22:00	27498.6032	27504.9800	6.3768	150.0939	150.1151	
13:07:00	0:08:52:00	27503.7038	27510.3100	6.6062	150.2022	150.2219	
13:37:00	0:09:22:00	27511.7515	27518.3300	6.5785	150.2859	150.3058	
14:07:00	0:09:52:00	27516.4660	27522.7600	6.2940	150.3650	150.3850	
14:37:00	0:10:22:00	27518.7574	27525.1900	6.4326	150.4347	150.4539	
15:07:00	0:10:52:00	27521.2741	27527.8200	6.5459	150.4986	150.5182	
15:37:00	0:11:22:00	27526.9396	27532.3600	5.4204	150.5637	150.5825	
16:07:00	0:11:52:00	27517.4443	27523.9600	6.5157	150.6182	150.6364	
16:37:00	0:12:22:00	27518.9460	27525.2800	6.3340	150.6728	150.6926	
17:07:00	0:12:52:00	27519.4910	27526.1900	6.6990	150.7204	150.7396	
17:37:00	0:13:22:00	27524.4491	27530.6800	6.2309	150.7692	150.7877	
18:07:00	0:13:52:00	27518.4053	27524.9600	6.5547	150.8133	150.8324	
18:37:00	0:14:22:00	27524.3971	27530.8200	6.4229	150.8585	150.8771	
19:07:00	0:14:52:00	27164.3319	27172.6400	8.3081	150.7425	150.7637	
19:37:00	0:15:22:00	27122.3207	27131.2000	8.8793	150.9942	151.0077	
20:07:00	0:15:52:00	27108.3111	27117.9500	9.6389	151.0637	151.0787	
20:37:00	0:16:22:00	27106.5745	27116.1000	9.5255	151.1437	151.1588	
21:07:00	0:16:52:00	27101.3939	27111.1000	9.7061	151.1982	151.2126	
21:37:00	0:17:22:00	27103.6916	27113.1400	9.4484	151.2503	151.2653	
22:07:00	0:17:52:00	27102.4866	27111.9100	9.4234	151.2966	151.3110	
22:37:00	0:18:22:00	27105.1979	27114.8300	9.6321	151.3418	151.3568	
23:07:00	0:18:52:00	27115.8006	27125.1000	9.2994	151.3823	151.3968	
23:37:00	0:19:22:00	27122.4658	27131.8300	9.3642	151.4205	151.4357	
Apr 13, 99 00:07:00	0:19:52:00	27129.5672	27138.9100	9.3428	151.4552	151.4699	
00:37:00	0:20:22:00	27133.2084	27142.3900	9.1816	151.4887	151.5031	
01:07:00	0:20:52:00	27135.1859	27144.2500	9.0641	151.5200	151.5351	
01:37:00	0:21:22:00	27139.3866	27148.4100	9.0234	151.5512	151.5659	
02:07:00	0:21:52:00	27142.3787	27151.7900	9.4113	151.5801	151.5945	
02:37:00	0:22:22:00	27145.4992	27154.7200	9.2208	151.6079	151.6219	
03:07:00	0:22:52:00	27144.1253	27153.1700	9.0447	151.6333	151.6470	

Data

9431Q-16E Real Time (mmm dd,yy 24 hr)	Elapsed Time (DDD:HH:MM:SS)	9431Q-16E Pressure (KPa G)	9427q-16e Pressure (KPa G)	9427q-16e vs 9431Q-16E Press. Diff. (KPa)	9431Q-16E Temperature (DegC)	9427q-16e Temperature (DegC)	Comments
03:37:00	0:23:22:00	27146.6884	27155.8600	9.1716	151.6611	151.6756	
04:07:00	0:23:52:00	27147.4644	27156.6100	9.1456	151.6853	151.6996	
04:37:00	1:00:22:00	27148.5151	27157.6400	9.1249	151.7108	151.7236	
05:07:00	1:00:52:00	26802.0850	26812.8400	10.7550	151.5454	151.5625	
05:37:00	1:01:22:00	26758.9820	26770.4700	11.4880	151.6587	151.6722	
06:07:00	1:01:52:00	26736.5527	26748.6400	12.0873	151.6761	151.6904	
06:37:00	1:02:22:00	26725.7397	26737.2900	11.5503	151.7061	151.7190	
07:07:00	1:02:52:00	26719.6642	26731.7500	12.0858	151.7327	151.7464	
07:37:00	1:03:22:00	26715.9357	26727.9000	11.9643	151.7605	151.7738	
08:07:00	1:03:52:00	26713.2609	26725.1400	11.8791	151.7905	151.8046	
08:37:00	1:04:22:00	26712.0086	26724.4100	12.4014	151.8182	151.8309	
09:07:00	1:04:52:00	26711.4355	26723.5400	12.1045	151.8390	151.8525	
09:37:00	1:05:22:00	26710.9781	26722.7200	11.7419	151.8552	151.8685	
10:07:00	1:05:52:00	26711.2349	26723.3500	12.1151	151.8771	151.8902	
10:37:00	1:06:22:00	26708.8100	26720.8800	12.0700	151.8991	151.9119	
11:07:00	1:06:52:00	26707.4331	26718.9000	11.4669	151.9176	151.9313	
11:37:00	1:07:22:00	26707.3342	26719.3500	12.0158	151.9395	151.9529	
12:07:00	1:07:52:00	26707.5227	26719.4000	11.8773	151.9661	151.9792	
12:37:00	1:08:22:00	26706.8019	26718.4200	11.6181	151.9845	151.9986	
13:07:00	1:08:52:00	26706.4216	26718.3700	11.9484	151.9996	152.0122	
13:37:00	1:09:22:00	26705.3832	26717.7000	12.3168	152.0146	152.0271	
14:07:00	1:09:52:00	26704.3233	26716.5000	12.1767	152.0284	152.0408	
14:37:00	1:10:22:00	26703.1244	26715.1300	12.0056	152.0457	152.0590	
15:07:00	1:10:52:00	25953.8314	25974.2400	20.4086	151.8275	151.8731	
15:37:00	1:11:22:00	25990.0414	25981.1400	-8.9014	152.2845	152.3051	
16:07:00	1:11:52:00	26335.4064	26354.9300	19.5236	152.6451	152.6807	
16:37:00	1:12:22:00	26250.5364	26286.4200	35.8836	152.6682	152.6921	
17:07:00	1:12:52:00	26203.8075	26229.9300	26.1225	152.6762	152.6989	
17:37:00	1:13:22:00	26125.9011	26156.0500	30.1489	152.6118	152.6352	
18:07:00	1:13:52:00	26144.5526	26171.8100	27.2574	152.6002	152.6250	
18:37:00	1:14:22:00	26158.0063	26178.8900	20.8837	152.6555	152.6796	
19:07:00	1:14:52:00	26198.2959	26225.8100	27.5141	152.7395	152.7648	
19:37:00	1:15:22:00	26209.9511	26232.8900	22.9389	152.7844	152.8092	
20:07:00	1:15:52:00	26189.4610	26217.5100	28.0490	152.8074	152.8330	
20:37:00	1:16:22:00	26172.3419	26203.1900	30.8481	152.8201	152.8444	
21:07:00	1:16:52:00	26217.1243	26240.1000	22.9757	152.8580	152.8830	
21:37:00	1:17:22:00	26115.5011	26147.9100	32.4089	152.8396	152.8614	
22:07:00	1:17:52:00	26289.0158	26324.9600	35.9442	153.0006	153.0250	
22:37:00	1:18:22:00	26251.5262	26264.9400	13.4138	153.0110	153.0307	
23:07:00	1:18:52:00	26146.9663	26172.2300	25.2637	152.8845	152.9114	
23:37:00	1:19:22:00	26307.4521	26349.6500	42.1979	152.9247	152.9693	
Apr 14, 99 00:07:00	1:19:52:00	26442.4804	26480.4500	37.9696	153.1879	153.2236	
00:37:00	1:20:22:00	26592.0246	26614.1400	22.1154	153.4714	153.5003	
01:07:00	1:20:52:00	26581.7278	26605.2900	23.5622	153.4141	153.4357	
01:37:00	1:21:22:00	26578.9491	26603.0300	24.0809	153.1994	153.2191	
02:07:00	1:21:52:00	26570.4687	26593.5100	23.0413	153.0271	153.0477	
02:37:00	1:22:22:00	26619.2098	26651.2400	32.0302	152.9328	152.9546	
03:07:00	1:22:52:00	26668.5407	26696.1400	27.5993	152.8764	152.8978	
03:37:00	1:23:22:00	26723.1279	26745.1800	22.0521	152.8661	152.8898	
04:07:00	1:23:52:00	26783.2985	26802.8800	19.5815	152.9109	152.9341	
04:37:00	2:00:22:00	26824.0584	26848.9700	24.9116	152.9868	153.0102	
05:07:00	2:00:52:00	26846.4352	26867.7900	21.3548	153.0719	153.0954	
05:37:00	2:01:22:00	26820.9294	26844.4200	23.4906	153.1259	153.1487	
06:07:00	2:01:52:00	26770.7251	26792.8200	22.0949	153.1213	153.1431	
06:37:00	2:02:22:00	26744.7142	26770.7800	26.0658	153.1236	153.1465	
07:07:00	2:02:52:00	26716.5340	26739.3100	22.7760	153.1236	153.1442	
07:37:00	2:03:22:00	26705.7165	26728.7900	23.0735	153.1282	153.1510	
08:07:00	2:03:52:00	26715.5493	26736.9100	21.3607	153.1603	153.1850	

Data

9431Q-16E Real Time (mmm dd,yy 24 hr)	Elapsed Time (DDD:HH:MM:SS)	9431Q-16E Pressure (KPa G)	9427q-16e Pressure (KPa G)	9427q-16e vs 9431Q-16E Press. Diff. (KPa)	9431Q-16E Temperature (DegC)	9427q-16e Temperature (DegC)	Comments
13:37:00	3:09:22:00	26701.6080	26727.8300	26.2220	153.5517	153.5751	
14:07:00	3:09:52:00	26707.0045	26732.1700	25.1655	153.5770	153.6000	
14:37:00	3:10:22:00	26701.2972	26723.0400	21.7428	153.5724	153.5932	
15:07:00	3:10:52:00	26699.9350	26727.8800	27.9450	153.5758	153.5988	
15:37:00	3:11:22:00	26696.9112	26718.4200	21.5088	153.5770	153.5977	
16:07:00	3:11:52:00	26706.9611	26732.2800	25.3189	153.5804	153.6011	
16:37:00	3:12:22:00	26695.4983	26720.9400	25.4417	153.5804	153.6022	
17:07:00	3:12:52:00	26699.7661	26722.2100	22.4439	153.5838	153.6057	
17:37:00	3:13:22:00	26702.6064	26724.5700	21.9636	153.5838	153.6045	
18:07:00	3:13:52:00	26702.0606	26729.3100	27.2494	153.5816	153.6057	
18:37:00	3:14:22:00	26715.6443	26740.6900	25.0457	153.5930	153.6147	
19:07:00	3:14:52:00	26697.4957	26727.3400	29.8443	153.5816	153.6079	
19:37:00	3:15:22:00	26717.8400	26733.5400	15.7000	153.6240	153.6385	
20:07:00	3:15:52:00	26697.7469	26725.2200	27.4731	153.5965	153.6181	
20:37:00	3:16:22:00	26707.5120	26735.1100	27.5980	153.6010	153.6238	
21:07:00	3:16:52:00	26696.3774	26720.8700	24.4926	153.5965	153.6158	
21:37:00	3:17:22:00	26700.3409	26721.3500	21.0091	153.5999	153.6192	
22:07:00	3:17:52:00	26700.3916	26723.6200	23.2284	153.5999	153.6204	
22:37:00	3:18:22:00	26690.5371	26713.8800	23.3429	153.5930	153.6147	
23:07:00	3:18:52:00	26694.3436	26717.0700	22.7264	153.6022	153.6204	
23:37:00	3:19:22:00	26698.3892	26719.1600	20.7708	153.6045	153.6238	
Apr 16, 99 00:07:00	3:19:52:00	26692.9862	26716.4500	23.4638	153.5999	153.6215	
00:37:00	3:20:22:00	26698.9665	26720.4400	21.4735	153.6056	153.6238	
01:07:00	3:20:52:00	26696.7033	26722.4600	25.7567	153.6068	153.6306	
01:37:00	3:21:22:00	26698.8408	26721.4600	22.6192	153.6102	153.6306	
02:07:00	3:21:52:00	26693.0584	26718.1800	25.1216	153.6102	153.6317	
02:37:00	3:22:22:00	26692.6840	26719.8800	27.1960	153.6091	153.6340	
03:07:00	3:22:52:00	26690.1864	26715.2200	25.0336	153.6114	153.6328	
03:37:00	3:23:22:00	26693.7056	26717.8400	24.1344	153.6125	153.6328	
04:07:00	3:23:52:00	26696.8140	26721.7000	24.8860	153.6194	153.6396	
04:37:00	4:00:22:00	26686.8052	26722.3000	35.4948	153.6033	153.6317	
05:07:00	4:00:52:00	26688.0175	26714.7400	26.7225	153.6091	153.6294	
05:37:00	4:01:22:00	26694.9758	26716.4000	21.4242	153.6217	153.6408	
06:07:00	4:01:52:00	26694.2950	26724.0600	29.7650	153.6114	153.6385	
06:37:00	4:02:22:00	26695.1736	26725.2600	30.0864	153.6274	153.6498	
07:07:00	4:02:52:00	26689.0076	26720.1200	31.1124	153.6137	153.6408	
07:37:00	4:03:22:00	26704.7940	26727.0300	22.2360	153.6354	153.6555	
08:07:00	4:03:52:00	26696.8211	26730.6200	33.7989	153.6228	153.6521	
08:37:00	4:04:22:00	26695.5043	26722.2400	26.7357	153.6320	153.6543	
09:07:00	4:04:52:00	26700.7167	26728.4500	27.7333	153.6343	153.6577	
09:37:00	4:05:22:00	26700.4894	26729.4400	28.9506	153.6389	153.6589	
10:07:00	4:05:52:00	26698.1328	26733.6000	35.4672	153.6194	153.6521	
10:37:00	4:06:22:00	26696.5521	26720.1800	23.6279	153.6400	153.6611	
11:07:00	4:06:52:00	26692.5815	26715.8400	23.2585	153.6331	153.6532	
11:37:00	4:07:22:00	26696.2566	26720.5600	24.3034	153.6526	153.6679	
12:07:00	4:07:52:00	26688.7526	26723.5800	34.8274	153.6377	153.6634	
12:37:00	4:08:22:00	26700.6609	26723.6300	22.9691	153.6733	153.6872	
13:07:00	4:08:52:00	26704.5961	26729.5500	24.9539	153.6297	153.6555	
13:37:00	4:09:22:00	26701.2015	26723.1000	21.8985	153.6481	153.6668	
14:07:00	4:09:52:00	26698.6215	26722.4600	23.8385	153.6515	153.6691	
14:37:00	4:10:22:00	26700.3128	26726.3100	25.9972	153.6435	153.6668	
15:07:00	4:10:52:00	26714.5725	26730.6400	16.0675	153.6710	153.6872	
15:37:00	4:11:22:00	26723.6222	26737.0900	13.4678	153.7569	153.7664	
16:07:00	4:11:52:00	26738.0142	26761.0000	22.9858	153.6985	153.7268	
16:37:00	4:12:22:00	26702.1827	26728.2100	26.0273	153.6733	153.6917	
17:07:00	4:12:52:00	26705.0740	26728.5300	23.4560	153.6400	153.6611	
17:37:00	4:13:22:00	26724.2237	26740.3100	16.0863	153.6446	153.6657	
18:07:00	4:13:52:00	26703.1027	26727.9200	24.8173	153.6767	153.6951	

Data

9431Q-16E Real Time (mmm dd,yy 24 hr)	Elapsed Time (DDD:HH:MM:SS)	9431Q-16E Pressure (KPa G)	9427q-16e Pressure (KPa G)	9427q-16e vs 9431Q-16E Press. Diff. (KPa)	9431Q-16E Temperature (DegC)	9427q-16e Temperature (DegC)	Comments
18:37:00	4:14:22:00	26702.2878	26727.7400	25.4522	153.6584	153.6804	
19:07:00	4:14:52:00	26698.8314	26729.8800	31.0486	153.6549	153.6815	
19:37:00	4:15:22:00	26703.2131	26725.6500	22.4369	153.6561	153.6747	
20:07:00	4:15:52:00	26698.9573	26721.4000	22.4427	153.6503	153.6668	
20:37:00	4:16:22:00	26704.6316	26731.7900	27.1584	153.6469	153.6725	
21:07:00	4:16:52:00	26695.3328	26722.1200	26.7872	153.6309	153.6510	
21:37:00	4:17:22:00	26691.2189	26721.0300	29.8111	153.6366	153.6600	
22:07:00	4:17:52:00	26711.7159	26736.4000	24.6841	153.6549	153.6759	
22:37:00	4:18:22:00	26695.4957	26727.3100	31.8143	153.6526	153.6770	
23:07:00	4:18:52:00	26697.5526	26720.9800	23.4274	153.6664	153.6815	
23:37:00	4:19:22:00	26694.6788	26718.3700	23.6912	153.6584	153.6770	
Apr 17, 99 00:07:00	4:19:52:00	26699.8453	26722.0800	22.2347	153.6882	153.7008	
00:37:00	4:20:22:00	26708.6636	26739.0200	30.3564	153.6756	153.6996	
01:07:00	4:20:52:00	26701.5494	26725.2000	24.6506	153.6779	153.6962	
01:37:00	4:21:22:00	26693.8041	26718.6200	24.8159	153.6607	153.6804	
02:07:00	4:21:52:00	26704.6438	26722.6700	18.0262	153.6779	153.6962	
02:37:00	4:22:22:00	26704.4616	26732.8000	28.3384	153.6882	153.7110	
03:07:00	4:22:52:00	26706.5484	26737.9100	31.3616	153.6916	153.7166	
03:37:00	4:23:22:00	26702.0074	26721.1900	19.1826	153.6870	153.7042	
04:07:00	4:23:52:00	26697.4226	26718.4900	21.0674	153.6859	153.7042	
04:37:00	5:00:22:00	26700.7077	26727.5000	26.7923	153.6882	153.7098	
05:07:00	5:00:52:00	26694.5365	26723.0200	28.4835	153.6801	153.7019	
05:37:00	5:01:22:00	26700.4883	26721.8300	21.3417	153.7054	153.7189	
06:07:00	5:01:52:00	26692.8391	26724.2500	31.4109	153.6939	153.7166	
06:37:00	5:02:22:00	26694.8423	26717.5700	22.7277	153.6893	153.7064	
07:07:00	5:02:52:00	26694.7148	26718.6500	23.9352	153.6847	153.7053	
07:37:00	5:03:22:00	26713.5574	26739.0000	25.4426	153.7042	153.7245	
08:07:00	5:03:52:00	26709.2522	26728.8700	19.6178	153.7077	153.7245	
08:37:00	5:04:22:00	26708.9423	26734.5800	25.6377	153.7134	153.7325	
09:07:00	5:04:52:00	26697.1963	26723.2700	26.0737	153.6996	153.7178	
09:37:00	5:05:22:00	26692.1165	26727.1900	35.0735	153.6962	153.7234	
10:07:00	5:05:52:00	26710.7289	26739.9000	29.1711	153.7019	153.7302	
10:37:00	5:06:22:00	26711.1745	26742.6600	31.4855	153.7134	153.7370	
11:07:00	5:06:52:00	26698.4083	26733.2300	34.8217	153.7054	153.7313	
11:37:00	5:07:22:00	26694.1030	26734.4300	40.3270	153.7088	153.7359	
12:07:00	5:07:52:00	26709.6922	26733.7100	24.0178	153.7248	153.7472	
12:37:00	5:08:22:00	26702.1883	26727.6400	25.4517	153.7099	153.7313	
13:07:00	5:08:52:00	26714.3527	26741.8400	27.4873	153.7214	153.7461	
13:37:00	5:09:22:00	26684.8000	26706.4500	21.6500	153.7077	153.7245	
14:07:00	5:09:52:00	26810.8940	26833.5900	22.6960	153.8543	153.8785	
14:37:00	5:10:22:00	26828.2876	26848.7400	20.4524	153.8749	153.8943	
15:07:00	5:10:52:00	26786.2464	26814.7800	28.5336	153.8429	153.8581	
15:37:00	5:11:22:00	26862.5080	26881.3200	18.8120	153.8612	153.8807	
16:07:00	5:11:52:00	26820.3948	26834.1600	13.7652	153.8188	153.8298	
16:37:00	5:12:22:00	26786.3032	26801.0000	14.6968	153.7615	153.7755	
17:07:00	5:12:52:00	26855.8462	26872.0300	16.1838	153.7970	153.8151	
17:37:00	5:13:22:00	26804.4243	26824.7800	20.3557	153.7501	153.7642	
18:07:00	5:13:52:00	26835.0456	26855.5200	20.4744	153.7489	153.7698	
18:37:00	5:14:22:00	26794.1288	26820.4800	26.3512	153.7111	153.7302	
19:07:00	5:14:52:00	26820.1712	26840.5800	20.4088	153.7122	153.7336	
19:37:00	5:15:22:00	26766.0477	26785.6200	19.5723	153.6733	153.6883	
20:07:00	5:15:52:00	26825.0867	26837.1800	12.0933	153.6790	153.7053	
20:37:00	5:16:22:00	26812.6562	26829.7800	17.1238	153.7088	153.7257	
21:07:00	5:16:52:00	26822.6698	26841.4300	18.7602	153.7340	153.7517	
21:37:00	5:17:22:00	26767.9487	26789.8600	21.9113	153.6928	153.7087	
22:07:00	5:17:52:00	26797.2860	26811.7700	14.4840	153.7088	153.7257	
22:37:00	5:18:22:00	26780.5191	26827.5800	47.0609	153.6801	153.7087	
23:07:00	5:18:52:00	26773.2846	26800.6700	27.3854	153.6813	153.7019	

Data

9431Q-16E Real Time (mmm dd,yy 24 hr)	Elapsed Time (DDD:HH:MM:SS)	9431Q-16E Pressure (KPa G)	9427q-16e Pressure (KPa G)	9427q-16e vs 9431Q-16E Press. Diff. (KPa)	9431Q-16E Temperature (DegC)	9427q-16e Temperature (DegC)	Comments
23:37:00	5:19:22:00	26795.6820	26816.1900	20.5080	153.7099	153.7268	
Apr 18, 99 00:07:00	5:19:52:00	26785.4471			153.7077		
00:37:00	5:20:22:00	26788.4159			153.7122		
01:07:00	5:20:52:00	26764.7887			153.7099		
01:37:00	5:21:22:00	26751.7758			153.7054		
02:07:00	5:21:52:00	26825.4331			153.7294		
02:37:00	5:22:22:00	26794.2366			153.7627		
03:07:00	5:22:52:00	26734.4490			153.7248		
03:37:00	5:23:22:00	26788.0947			153.7776		
04:07:00	5:23:52:00	26748.6622			153.7375		
04:37:00	6:00:22:00	26744.5379			153.7638		
05:07:00	6:00:52:00	26779.7973			153.7638		
05:37:00	6:01:22:00	26756.1090			153.7489		
06:07:00	6:01:52:00	26735.6886			153.7443		
06:37:00	6:02:22:00	26720.5827			153.7420		
07:07:00	6:02:52:00	26719.0923			153.7409		
07:37:00	6:03:22:00	26724.1532			153.7432		
08:07:00	6:03:52:00	26725.7642			153.7455		
08:37:00	6:04:22:00	26738.0552			153.7523		
09:07:00	6:04:52:00	26578.2709			153.7913		
09:37:00	6:05:22:00	26602.8098			153.6859		
10:07:00	6:05:52:00	26538.5660			153.5930		
10:37:00	6:06:22:00	26566.7057			153.5770		
11:07:00	6:06:52:00	26574.8821			153.5472		
11:37:00	6:07:22:00	26580.0710			153.5208		
12:07:00	6:07:52:00	26612.0018			153.5345		
12:37:00	6:08:22:00	26575.7481			153.5357		
13:07:00	6:08:52:00	26564.4648			153.5460		
13:37:00	6:09:22:00	26550.2539			153.5242		
14:07:00	6:09:52:00	26548.0087			153.5173		
14:37:00	6:10:22:00	26547.0843			153.5288		
15:07:00	6:10:52:00	26549.1074			153.5345		
15:37:00	6:11:22:00	26544.2762			153.5368		
16:07:00	6:11:52:00	26537.6308			153.5277		
16:37:00	6:12:22:00	26536.6512			153.5334		
17:07:00	6:12:52:00	26534.5492			153.5254		
17:37:00	6:13:22:00	26567.1779			153.5414		
18:07:00	6:13:52:00	26527.6128			153.5231		
18:37:00	6:14:22:00	26522.9016			153.5173		
19:07:00	6:14:52:00	26539.5267			153.5288		
19:37:00	6:15:22:00	26530.9682			153.5449		
20:07:00	6:15:52:00	26520.5187			153.5357		
20:37:00	6:16:22:00	26518.2487			153.5334		
21:07:00	6:16:52:00	26508.6112			153.5334		
21:37:00	6:17:22:00	26530.4288			153.5368		
22:07:00	6:17:52:00	26539.4576			153.5368		
22:37:00	6:18:22:00	26500.4067			153.5403		
23:07:00	6:18:52:00	26524.5068			153.5345		
23:37:00	6:19:22:00	26533.0664			153.5368		
Apr 19, 99 00:07:00	6:19:52:00	26538.8871			153.5391		
00:37:00	6:20:22:00	26508.6876			153.5472		
01:07:00	6:20:52:00	26458.2160			153.5380		
01:37:00	6:21:22:00	26467.9684			153.5265		
02:07:00	6:21:52:00	26444.6328			153.5540		
02:37:00	6:22:22:00	26469.0961			153.5517		
03:07:00	6:22:52:00	26545.5602			153.6171		
03:37:00	6:23:22:00	26526.6381			153.6171		
04:07:00	6:23:52:00	26474.9362			153.5460		

Data

9431Q-16E Real Time (mmm dd,yy 24 hr)	Elapsed Time (DDD:HH:MM:SS)	9431Q-16E Pressure (KPa G)	9427q-16e Pressure (KPa G)	9427q-16e vs 9431Q-16E Press. Diff. (KPa)	9431Q-16E Temperature (DegC)	9427q-16e Temperature (DegC)	Comments
04:37:00	7:00:22:00	26532.0979			153.5701		
05:00:00	7:00:45:00	27600.6536			154.1553		shut in well
05:30:00	7:01:15:00	27696.7454			153.1833		
06:00:00	7:01:45:00	27728.4540			152.4712		
06:30:00	7:02:15:00	27743.1620			152.2188		
07:00:00	7:02:45:00	27752.4100			152.0711		
07:30:00	7:03:15:00	27758.9734			151.9245		
08:00:00	7:03:45:00	27763.1270			151.8298		
08:30:00	7:04:15:00	27766.8509			151.7443		
09:00:00	7:04:45:00	27769.8181			151.6691		
09:30:00	7:05:15:00	27772.4152			151.6009		
10:00:00	7:05:45:00	27774.5905			151.5419		
10:30:00	7:06:15:00	27776.4527			151.4876		
11:00:00	7:06:45:00	27778.0773			151.4390		
11:30:00	7:07:15:00	27779.4917			151.3950		
12:00:00	7:07:45:00	27781.0264			151.3545		
12:30:00	7:08:15:00	27782.3523			151.3186		
13:00:00	7:08:45:00	27783.4240			151.2827		
13:30:00	7:09:15:00	27784.3888			151.2514		
14:00:00	7:09:45:00	27785.5018			151.2225		
14:30:00	7:10:15:00	27786.4623			151.1935		
15:00:00	7:10:45:00	27787.2926			151.1680		
15:30:00	7:11:15:00	27788.1220			151.1425		
16:00:00	7:11:45:00	27788.8984			151.1194		
16:30:00	7:12:15:00	27789.6984			151.0974		
17:00:00	7:12:45:00	27790.4734			151.0742		
17:30:00	7:13:15:00	27791.1452			151.0533		
18:00:00	7:13:45:00	27791.9418			151.0336		
18:30:00	7:14:15:00	27792.5100			151.0151		
19:00:00	7:14:45:00	27793.1038			150.9954		
19:30:00	7:15:15:00	27793.7461			150.9780		
20:00:00	7:15:45:00	27794.2352			150.9629		
20:30:00	7:16:15:00	27794.6995			150.9467		
21:00:00	7:16:45:00	27795.2139			150.9304		
21:30:00	7:17:15:00	27795.6503			150.9177		
22:00:00	7:17:45:00	27796.1629			150.9037		
22:30:00	7:18:15:00	27796.7516			150.8887		
23:00:00	7:18:45:00	27797.2637			150.8747		
23:30:00	7:19:15:00	27797.7497			150.8620		
Apr 20, 99 00:00:00	7:19:45:00	27798.1346			150.8492		
00:30:00	7:20:15:00	27798.6954			150.8376		
01:00:00	7:20:45:00	27799.3817			150.8272		
01:30:00	7:21:15:00	27799.7660			150.8144		
02:00:00	7:21:45:00	27800.1996			150.8040		
02:30:00	7:22:15:00	27800.4055			150.7947		
03:00:00	7:22:45:00	27800.6618			150.7854		
03:30:00	7:23:15:00	27801.1455			150.7750		
04:00:00	7:23:45:00	27801.4015			150.7657		
04:30:00	8:00:15:00	27801.7583			150.7564		
05:00:00	8:00:45:00	27802.1904			150.7483		
05:30:00	8:01:15:00	27802.6479			150.7390		
06:00:00	8:01:45:00	27802.9284			150.7309		
06:30:00	8:02:15:00	27803.4106			150.7227		
07:00:00	8:02:45:00	27803.7157			150.7158		
07:30:00	8:03:15:00	27803.9959			150.7076		
08:00:00	8:03:45:00	27804.4275			150.6995		
08:30:00	8:04:15:00	27804.7331			150.6902		
09:00:00	8:04:45:00	27805.0372			150.6856		

Data

9431Q-16E Real Time (mmm dd,yy 24 hr)	Elapsed Time (DDD:HH:MM:SS)	9431Q-16E Pressure (KPa G)	9427q-16e Pressure (KPa G)	9427q-16e vs 9431Q-16E Press. Diff. (KPa)	9431Q-16E Temperature (DegC)	9427q-16e Temperature (DegC)	Comments
09:30:00	8:05:15:00	27805.4181			150.6775		
10:00:00	8:05:45:00	27805.7228			150.6705		
10:30:00	8:06:15:00	27805.9508			150.6670		
11:00:00	8:06:45:00	27806.1297			150.6589		
11:30:00	8:07:15:00	27806.5601			150.6531		
12:00:00	8:07:45:00	27806.9151			150.6461		
12:30:00	8:08:15:00	27807.1436			150.6403		
13:00:00	8:08:45:00	27807.4729			150.6345		
13:30:00	8:09:15:00	27807.6758			150.6299		
14:00:00	8:09:45:00	27808.0051			150.6241		
14:30:00	8:10:15:00	27808.1825			150.6206		
15:00:00	8:10:45:00	27808.3858			150.6136		
15:30:00	8:11:15:00	27808.7150			150.6078		
16:00:00	8:11:45:00	27808.8673			150.6032		
16:30:00	8:12:15:00	27809.1455			150.5997		
17:00:00	8:12:45:00	27809.4746			150.5939		
17:30:00	8:13:15:00	27809.8286			150.5892		
18:00:00	8:13:45:00	27810.0313			150.5846		
18:30:00	8:14:15:00	27810.2589			150.5811		
19:00:00	8:14:45:00	27810.3857			150.5776		
19:30:00	8:15:15:00	27810.7646			150.5741		
20:00:00	8:15:45:00	27810.9672			150.5695		
20:30:00	8:16:15:00	27811.2957			150.5660		
21:00:00	8:16:45:00	27811.6241			150.5625		
21:30:00	8:17:15:00	27811.8012			150.5590		
22:00:00	8:17:45:00	27811.9279			150.5555		
22:30:00	8:18:15:00	27812.1804			150.5532		
23:00:00	8:18:45:00	27812.5847			150.5486		
23:30:00	8:19:15:00	27812.6608			150.5451		
Apr 21, 99 00:00:00	8:19:45:00	27812.7874			150.5416		
00:30:00	8:20:15:00	27813.0653			150.5381		
01:00:00	8:20:45:00	27813.2169			150.5358		
01:30:00	8:21:15:00	27813.4190			150.5335		
02:00:00	8:21:45:00	27813.6969			150.5300		
02:30:00	8:22:15:00	27813.9747			150.5265		
03:00:00	8:22:45:00	27814.2021			150.5230		
03:30:00	8:23:15:00	27814.3537			150.5207		
04:00:00	8:23:45:00	27814.5303			150.5195		
04:30:00	9:00:15:00	27814.7073			150.5160		
05:00:00	9:00:45:00	27814.9344			150.5149		
05:30:00	9:01:15:00	27815.0608			150.5114		
06:00:00	9:01:45:00	27815.2626			150.5114		
06:30:00	9:02:15:00	27815.5404			150.5079		
07:00:00	9:02:45:00	27815.7677			150.5044		
07:30:00	9:03:15:00	27815.8183			150.5021		
08:00:00	9:03:45:00	27816.1969			150.4986		
08:30:00	9:04:15:00	27816.4493			150.4963		
09:00:00	9:04:45:00	27816.5755			150.4951		
09:30:00	9:05:15:00	27816.7774			150.4928		
10:00:00	9:05:45:00	27817.0298			150.4905		
10:30:00	9:06:15:00	27817.0046			150.4893		
11:00:00	9:06:45:00	27817.2319			150.4858		
11:30:00	9:07:15:00	27817.3832			150.4858		
12:00:00	9:07:45:00	27817.5860			150.4835		
12:30:00	9:08:15:00	27817.9130			150.4823		
13:00:00	9:08:45:00	27817.8627			150.4800		
13:30:00	9:09:15:00	27818.0646			150.4777		
14:00:00	9:09:45:00	27818.3421			150.4765		

Data

9431Q-16E Real Time (mmm dd,yy 24 hr)	Elapsed Time (DDD:HH:MM:SS)	9431Q-16E Pressure (KPa G)	9427q-16e Pressure (KPa G)	9427q-16e vs 9431Q-16E Press. Diff. (KPa)	9431Q-16E Temperature (DegC)	9427q-16e Temperature (DegC)	Comments
14:30:00	9:10:15:00	27818.4173			150.4754		
15:00:00	9:10:45:00	27818.5944			150.4742		
15:30:00	9:11:15:00	27818.6450			150.4719		
16:00:00	9:11:45:00	27819.0233			150.4707		
16:30:00	9:12:15:00	27819.1242			150.4707		
17:00:00	9:12:45:00	27819.2756			150.4684		
17:30:00	9:13:15:00	27819.4522			150.4672		
18:00:00	9:13:45:00	27819.7549			150.4672		
18:30:00	9:14:15:00	27819.8811			150.4638		
19:00:00	9:14:45:00	27820.0324			150.4638		
19:30:00	9:15:15:00	27820.2090			150.4626		
20:00:00	9:15:45:00	27820.3351			150.4614		
20:30:00	9:16:15:00	27820.5621			150.4603		
21:00:00	9:16:45:00	27820.6883			150.4591		
21:30:00	9:17:15:00	27820.7892			150.4568		
22:00:00	9:17:45:00	27820.9910			150.4568		
22:30:00	9:18:15:00	27821.0667			150.4556		
23:00:00	9:18:45:00	27821.2432			150.4545		
23:30:00	9:19:15:00	27821.4450			150.4545		
Apr 22, 99 00:00:00	9:19:45:00	27821.5711			150.4533		
00:30:00	9:20:15:00	27821.7729			150.4510		
01:00:00	9:20:45:00	27821.8990			150.4498		
01:30:00	9:21:15:00	27822.0504			150.4498		
02:00:00	9:21:45:00	27822.1512			150.4498		
02:30:00	9:22:15:00	27822.3530			150.4498		
03:00:00	9:22:45:00	27822.5548			150.4498		
03:30:00	9:23:15:00	27822.7061			150.4475		
04:00:00	9:23:45:00	27822.9583			150.4475		
04:30:00	10:00:15:00	27823.0340			150.4463		
05:00:00	10:00:45:00	27823.1348			150.4463		
05:30:00	10:01:15:00	27823.3366			150.4463		
06:00:00	10:01:45:00	27823.4879			150.4463		
06:30:00	10:02:15:00	27823.5888			150.4463		
07:00:00	10:02:45:00	27823.8158			150.4452		
07:30:00	10:03:15:00	27823.8915			150.4440		
08:00:00	10:03:45:00	27824.0932			150.4440		
08:30:00	10:04:15:00	27824.1436			150.4440		
09:00:00	10:04:45:00	27824.3706			150.4452		
09:30:00	10:05:15:00	27824.3958			150.4440		
10:00:00	10:05:45:00	27824.6733			150.4428		
10:30:00	10:06:15:00	27824.7741			150.4428		
11:00:00	10:06:45:00	27824.9002			150.4417		
11:30:00	10:07:15:00	27824.9507			150.4417		
12:00:00	10:07:45:00	27825.0011			150.4417		
12:30:00	10:08:15:00	27825.2029			150.4417		
13:00:00	10:08:45:00	27825.3290			150.4405		
13:30:00	10:09:15:00	27825.4298			150.4405		
14:00:00	10:09:45:00	27825.5559			150.4417		
14:30:00	10:10:15:00	27825.7325			150.4405		
15:00:00	10:10:45:00	27825.7577			150.4417		
15:30:00	10:11:15:00	27825.8586			150.4417		
16:00:00	10:11:45:00	27826.0856			150.4405		
16:30:00	10:12:15:00	27826.1360			150.4405		
17:00:00	10:12:45:00	27826.3882			150.4405		
17:30:00	10:13:15:00	27826.3377			150.4405		
18:00:00	10:13:45:00	27826.3882			150.4428		
18:30:00	10:14:15:00	27826.5647			150.4417		
19:00:00	10:14:45:00	27826.7413			150.4405		

Data

9431Q-16E Real Time (mmin dd,yy 24 hr)	Elapsed Time (DDD:HH:MM:SS)	9431Q-16E Pressure (KPa G)	9427q-16e Pressure (KPa G)	9427q-16e vs 9431Q-16E Press. Diff. (KPa)	9431Q-16E Temperature (DegC)	9427q-16e Temperature (DegC)	Comments
19:30:00	10:15:15:00	27826.9178			150.4417		
20:00:00	10:15:45:00	27827.0187			150.4417		
20:30:00	10:16:15:00	27827.0943			150.4405		
21:00:00	10:16:45:00	27827.2204			150.4417		
21:30:00	10:17:15:00	27827.3213			150.4417		
22:00:00	10:17:45:00	27827.4474			150.4428		
22:30:00	10:18:15:00	27827.6239			150.4417		
23:00:00	10:18:45:00	27827.7500			150.4405		
23:30:00	10:19:15:00	27827.8761			150.4417		
Apr 23, 99 00:00:00	10:19:45:00	27827.9770			150.4417		
00:30:00	10:20:15:00	27828.0527			150.4428		
01:00:00	10:20:45:00	27828.1536			150.4428		
01:30:00	10:21:15:00	27828.2544			150.4428		
02:00:00	10:21:45:00	27828.3049			150.4428		
02:30:00	10:22:15:00	27828.4310			150.4417		
03:00:00	10:22:45:00	27828.5066			150.4428		
03:30:00	10:23:15:00	27828.7588			150.4428		
04:00:00	10:23:45:00	27828.8345			150.4417		
04:30:00	11:00:15:00	27828.9354			150.4440		
05:00:00	11:00:45:00	27829.0110			150.4428		
05:30:00	11:01:15:00	27829.1119			150.4428		
06:00:00	11:01:45:00	27829.1623			150.4452		
06:30:00	11:02:15:00	27829.3137			150.4452		
07:00:00	11:02:45:00	27829.4397			150.4463		
07:30:00	11:03:15:00	27829.4650			150.4452		
08:00:00	11:03:45:00	27829.5911			150.4440		
08:30:00	11:04:15:00	27829.7928			150.4463		
09:00:00	11:04:45:00	27829.8180			150.4475		
09:30:00	11:05:15:00	27830.0198			150.4475		
10:00:00	11:05:45:00	27830.0702			150.4475		
10:30:00	11:06:15:00	27830.1963			150.4486		
11:00:00	11:06:45:00	27830.3224			150.4498		
11:30:00	11:07:15:00	27830.3981			150.4486		
12:00:00	11:07:45:00	27830.4738			150.4498		
12:30:00	11:08:15:00	27830.5494			150.4510		
13:00:00	11:03:45:00	27830.6755			150.4498		
13:30:00	11:09:15:00	27830.7764			150.4498		
14:00:00	11:09:45:00	27830.9529			150.4510		
14:30:00	11:10:15:00	27831.0034			150.4533		
15:00:00	11:10:45:00	27831.1295			150.4521		
15:30:00	11:11:15:00	27831.2303			150.4521		
16:00:00	11:11:45:00	27831.3060			150.4533		
16:30:00	11:12:15:00	27831.4321			150.4545		
17:00:00	11:12:45:00	27831.5330			150.4545		
17:30:00	11:13:15:00	27831.6338			150.4545		
18:00:00	11:13:45:00	27831.6338			150.4568		
18:30:00	11:14:15:00	27831.7599			150.4556		
19:00:00	11:14:45:00	27831.8608			150.4556		
19:30:00	11:15:15:00	27831.8608			150.4579		
20:00:00	11:15:45:00	27832.0878			150.4568		
20:30:00	11:16:15:00	27832.0878			150.4591		
21:00:00	11:16:45:00	27832.2391			150.4591		
21:30:00	11:17:15:00	27832.2895			150.4591		
22:00:00	11:17:45:00	27832.3147			150.4603		
22:30:00	11:18:15:00	27832.5669			150.4603		
23:00:00	11:18:45:00	27832.6174			150.4603		
23:30:00	11:19:15:00	27832.6678			150.4626		
Apr 24, 99 00:00:00	11:19:45:00	27832.7687			150.4626		

Data

9431Q-16E Real Time (mmm dd,yy 24 hr)	Elapsed Time (DDD:HH:MM:SS)	9431Q-16E Pressure (KPa G)	9427q-16e Pressure (KPa G)	9427q-16e vs 9431Q-16E Press. Diff. (KPa)	9431Q-16E Temperature (DegC)	9427q-16e Temperature (DegC)	Comments
00:30:00	11:20:15:00	27832.9452			150.4638		
01:00:00	11:20:45:00	27832.9956			150.4638		
01:30:00	11:21:15:00	27833.1722			150.4649		
02:00:00	11:21:45:00	27833.2478			150.4661		
02:30:00	11:22:15:00	27833.2730			150.4672		
03:00:00	11:22:45:00	27833.2982			150.4684		
03:30:00	11:23:15:00	27833.4495			150.4684		
04:00:00	11:23:45:00	27833.5756			150.4696		
04:30:00	12:00:15:00	27833.6765			150.4696		
05:00:00	12:00:45:00	27833.7774			150.4696		
05:30:00	12:01:15:00	27833.7773			150.4719		
06:00:00	12:01:45:00	27833.8782			150.4719		
06:30:00	12:02:15:00	27833.9791			150.4719		
07:00:00	12:02:45:00	27834.0800			150.4719		
07:30:00	12:03:15:00	27834.1304			150.4742		
08:00:00	12:03:45:00	27834.2817			150.4742		
08:30:00	12:04:15:00	27834.3826			150.4742		
09:00:00	12:04:45:00	27834.3825			150.4765		
09:30:00	12:05:15:00	27834.4834			150.4765		
10:00:00	12:05:45:00	27834.6347			150.4765		
10:30:00	12:06:15:00	27834.6599			150.4777		
11:00:00	12:06:45:00	27834.8112			150.4777		
11:30:00	12:07:15:00	27834.7355			150.4789		
12:00:00	12:07:45:00	27834.9120			150.4800		
12:30:00	12:08:15:00	27834.9372			150.4812		
13:00:00	12:08:45:00	27835.0380			150.4835		
13:30:00	12:09:15:00	27835.1389			150.4835		
14:00:00	12:09:45:00	27835.1641			150.4847		
14:30:00	12:10:15:00	27835.3407			150.4835		
15:00:00	12:10:45:00	27835.2902			150.4858		
15:30:00	12:11:15:00	27835.3911			150.4858		
16:00:00	12:11:45:00	27835.5676			150.4870		
16:30:00	12:12:15:00	27835.6936			150.4882		
17:00:00	12:12:45:00	27835.7441			150.4882		
17:30:00	12:13:15:00	27835.7440			150.4905		
18:00:00	12:13:45:00	27835.7943			150.4928		
18:30:00	12:14:15:00	27835.9205			150.4916		
19:00:00	12:14:45:00	27835.9708			150.4940		
19:30:00	12:15:15:00	27836.0969			150.4951		
20:00:00	12:15:45:00	27836.1221			150.4963		
20:30:00	12:16:15:00	27836.2482			150.4951		
21:00:00	12:16:45:00	27836.3238			150.4963		
21:30:00	12:17:15:00	27836.4752			150.4963		
22:00:00	12:17:45:00	27836.4246			150.4986		
22:30:00	12:18:15:00	27836.4751			150.4986		
23:00:00	12:18:45:00	27836.5759			150.4986		
23:30:00	12:19:15:00	27836.7020			150.4998		
Apr 25, 99 00:00:00	12:19:45:00	27836.7019			150.5021		
00:30:00	12:20:15:00	27836.8028			150.5021		
01:00:00	12:20:45:00	27836.9288			150.5033		
01:30:00	12:21:15:00	27836.9791			150.5056		
02:00:00	12:21:45:00	27837.0800			150.5056		
02:30:00	12:22:15:00	27837.1556			150.5067		
03:00:00	12:22:45:00	27837.1303			150.5079		
03:30:00	12:23:15:00	27837.3321			150.5079		
04:00:00	12:23:45:00	27837.3573			150.5091		
04:30:00	13:00:15:00	27837.4833			150.5102		
05:00:00	13:00:45:00	27837.5842			150.5102		

Data

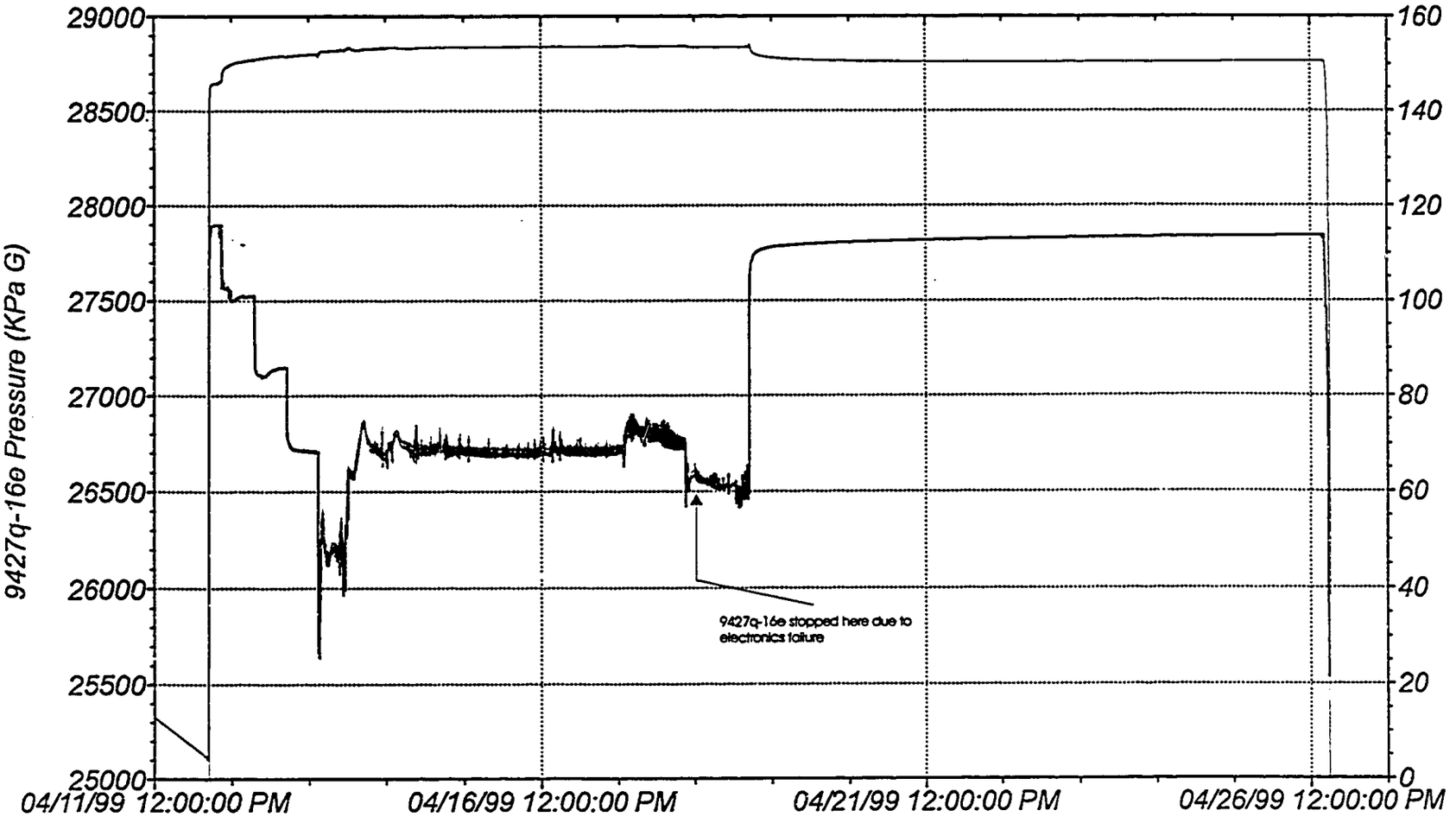
9431Q-16E Real Time (mmm dd,yy 24 hr)	Elapsed Time (DDD:HH:MM:SS)	9431Q-16E Pressure (KPa G)	9427q-16e Pressure (KPa G)	9427q-16e vs 9431Q-16E Press. Diff. (KPa)	9431Q-16E Temperature (DegC)	9427q-16e Temperature (DegC)	Comments
05:30:00	13:01:15:00	27837.6094			150.5114		
06:00:00	13:01:45:00	27837.7101			150.5137		
06:30:00	13:02:15:00	27837.8363			150.5126		
07:00:00	13:02:45:00	27837.8866			150.5149		
07:30:00	13:03:15:00	27837.9370			150.5149		
08:00:00	13:03:45:00	27838.0126			150.5160		
08:30:00	13:04:15:00	27837.9620			150.5184		
09:00:00	13:04:45:00	27837.9872			150.5195		
09:30:00	13:05:15:00	27838.1890			150.5195		
10:00:00	13:05:45:00	27838.2645			150.5207		
10:30:00	13:06:15:00	27838.3148			150.5230		
11:00:00	13:06:45:00	27838.4915			150.5218		
11:30:00	13:07:15:00	27838.4913			150.5242		
12:00:00	13:07:45:00	27838.6426			150.5242		
12:30:00	13:08:15:00	27838.6425			150.5265		
13:00:00	13:08:45:00	27838.7180			150.5277		
13:30:00	13:09:15:00	27838.7432			150.5288		
14:00:00	13:09:45:00	27838.8441			150.5288		
14:30:00	13:10:15:00	27838.9701			150.5300		
15:00:00	13:10:45:00	27839.0710			150.5300		
15:30:00	13:11:15:00	27839.0959			150.5335		
16:00:00	13:11:45:00	27839.2977			150.5335		
16:30:00	13:12:15:00	27839.1464			150.5335		
17:00:00	13:12:45:00	27839.1715			150.5346		
17:30:00	13:13:15:00	27839.3731			150.5369		
18:00:00	13:13:45:00	27839.3982			150.5381		
18:30:00	13:14:15:00	27839.4233			150.5393		
19:00:00	13:14:45:00	27839.5493			150.5404		
19:30:00	13:15:15:00	27839.6249			150.5416		
20:00:00	13:15:45:00	27839.6754			150.5416		
20:30:00	13:16:15:00	27839.7256			150.5439		
21:00:00	13:16:45:00	27839.7509			150.5428		
21:30:00	13:17:15:00	27839.8769			150.5439		
22:00:00	13:17:45:00	27839.9525			150.5451		
22:30:00	13:18:15:00	27839.9018			150.5474		
23:00:00	13:18:45:00	27839.9018			150.5474		
23:30:00	13:19:15:00	27840.0783			150.5486		
Apr 26, 99 00:00:00	13:19:45:00	27840.1538			150.5497		
00:30:00	13:20:15:00	27840.1536			150.5520		
01:00:00	13:20:45:00	27840.2796			150.5532		
01:30:00	13:21:15:00	27840.3552			150.5544		
02:00:00	13:21:45:00	27840.5316			150.5555		
02:30:00	13:22:15:00	27840.6325			150.5555		
03:00:00	13:22:45:00	27840.6072			150.5567		
03:30:00	13:23:15:00	27840.7332			150.5579		
04:00:00	13:23:45:00	27840.7583			150.5590		
04:30:00	14:00:15:00	27840.8592			150.5590		
05:00:00	14:00:45:00	27841.0105			150.5590		
05:30:00	14:01:15:00	27841.0102			150.5613		
06:00:00	14:01:45:00	27841.1111			150.5613		
06:30:00	14:02:15:00	27841.0604			150.5637		
07:00:00	14:02:45:00	27841.2118			150.5637		
07:30:00	14:03:15:00	27841.3124			150.5660		
08:00:00	14:03:45:00	27841.2617			150.5683		
08:30:00	14:04:15:00	27841.4130			150.5683		
09:00:00	14:04:45:00	27841.3877			150.5695		
09:30:00	14:05:15:00	27841.4379			150.5718		
10:00:00	14:05:45:00	27841.5388			150.5718		

Data

9431Q-16E Real Time (mmm dd,yy 24 hr)	Elapsed Time (DDD:HH:MM:SS)	9431Q-16E Pressure (KPa G)	9427q-16e Pressure (KPa G)	9427q-16e vs 9431Q-16E Press. Diff. (KPa)	9431Q-16E Temperature (DegC)	9427q-16e Temperature (DegC)	Comments
10:30:00	14:06:15:00	27841.5892			150.5718		
11:00:00	14:06:45:00	27841.7403			150.5741		
11:30:00	14:07:15:00	27841.7653			150.5753		
12:00:00	14:07:45:00	27841.7904			150.5764		
12:30:00	14:08:15:00	27841.9164			150.5776		
13:00:00	14:08:45:00	27841.9415			150.5788		
13:30:00	14:09:15:00	27842.0170			150.5799		
14:00:00	14:09:45:00	27842.0925			150.5811		
14:30:00	14:10:15:00	27842.1681			150.5822		
15:00:00	14:10:45:00	27842.1931			150.5834		
15:30:00	14:11:15:00	27842.2690			150.5822		
16:00:00	14:11:45:00	27842.6165			150.6194		
16:12:00	14:11:57:00	27791.1405			150.2184		off bottom
16:42:00	14:12:27:00	27484.0016			146.3113		
17:12:00	14:12:57:00	27103.8957			137.7373		
17:42:00	14:13:27:00	24863.0903			93.1685		

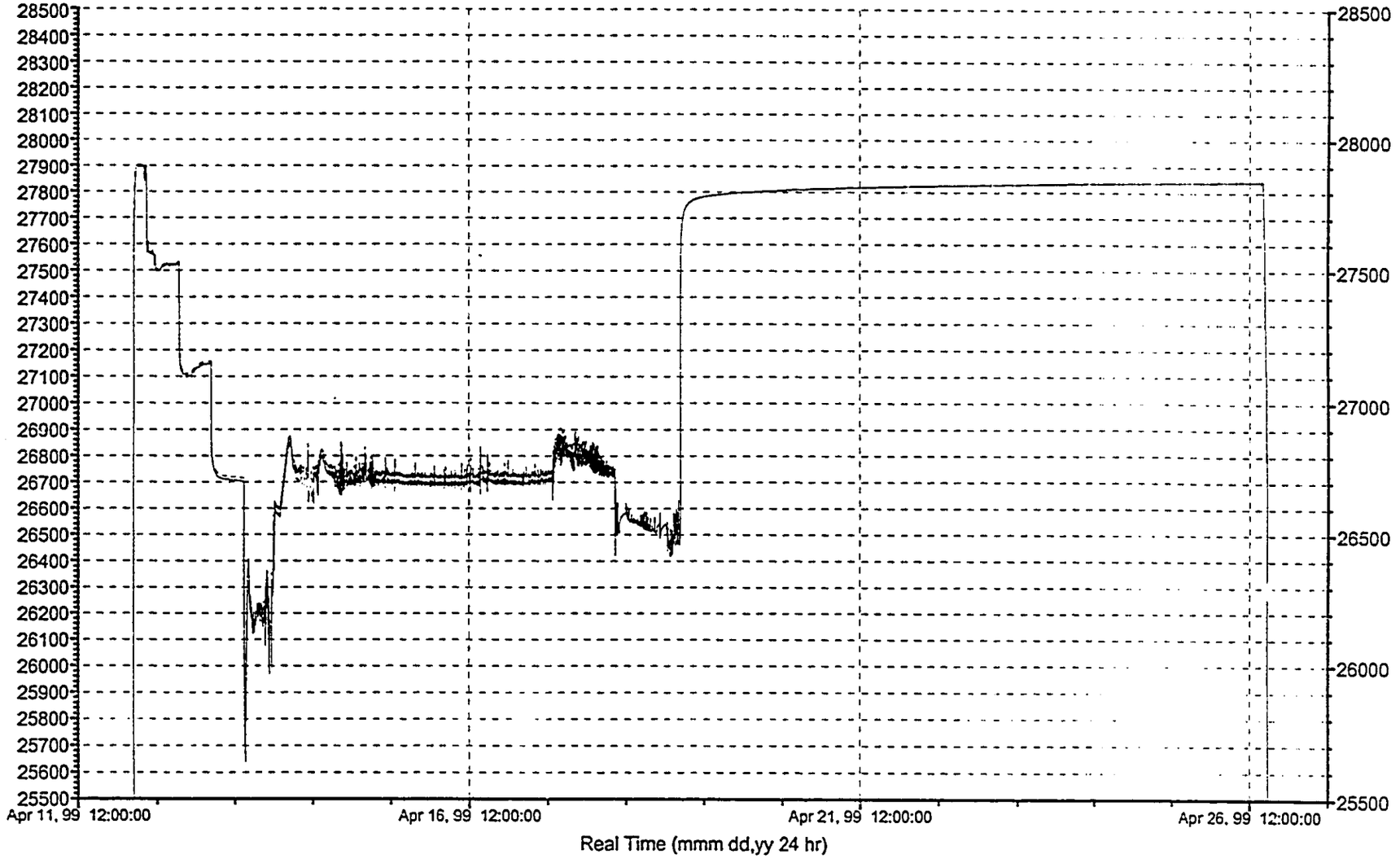
Pressure & Temperature vs. Real Time

Company:	Lee Tool, Div. of Schlumberger	Field:	Liard
Client:	Chevron CanadaResources	Well Name:	Chevron et al Liard
Remarks:	9427q-16e bot. rec. & 9431q-16e top rec.	Well Number:	k-29



Pressure vs. Real Time

Company:	**Lee Tool, Div. of Schlumberger**	*Field:*	**Liard**
Client:	**Chevron Canada Resources**	*Well Name:*	**Chevron et al Ft. Liard k-29**
Remarks:	**9427q-16e bot. rec. & 9431q-16e top rec.**	*Well Number:*	**k-29**



Chevron Canada Resources

Static Gradient Out
Chevron et al Ft. Liard k-29
k-29
Apr 26, 99

Service Company Contact Info		
Report Writer: Vio Tandara, 1-403-309-7913(347-2524)	Service Company: Lee Tool, Div. of Schlumberger	
Operator: Dale Sallstrom, 1-780-778-2371	Job ID: k-29ext	Test Date: Apr 26, 99

Gauge: Lee Memory Recorder Model 3000s (Quartz)
Manufacturer: Lee Tool, Division of Schlumberger Canada Limited

Static Gradient Out

Chevron Canada Resources
Alberta, Canada

Apr 26, 99

Chevron et al Ft. Liard k-29 | **k-29** | **Liard, Nahanni**

Well

Client	Province	Country
Chevron Canada Resources	Alberta	Canada
Well Name	**Deviated Well**	**Well Status**
Chevron et al Ft. Liard k-29	Yes	Gas
Well No.	**KB Elevation**	**CF Elevation**
k-29	418.80 m	409.60 m
Field / **Pool**	**Pool Datum**	
Liard / Nahanni	2500.00 mSS	

Test

Test Type			**Atmospheric**		
Static Gradient Out			101.30 KPa A		
Test Start (mm/dd/yy)		**Test Finish**	**Casing ID**		**Tubing ID**
04/26/99	04:12 PM	04/26/99 06:43 PM			88.90 mm
On Bottom		**Off Bottom**	**C. Pres. Before**		**T. Pres. Before**
04/12/99	05:07 AM	04/26/99 04:12 PM			
Shut In		**ETD**	**C. Pres. After**		**T. Pres. After**
04/19/99	05:00 AM	04/12/99 04:15 AM			

	Meas. Depth [mCF]	TVD [mCF]	Est. Pressure [KPa G]	Est. Gradient [KPa/m]	Est. Temperature [DegC]	Grad. Threshold
						2.00 KPa/m
Well Datum		2909.60	29353.51	1.55		Grad. Recorder 9431Q-16E
Run Depth	2641.50	2624.87	27854.35	1.55		
Avg. MPP Depth	2840.80	2785.74	28103.93	1.55		

Operator	Service Company
Dale Sallstrom, 1-780-778-2371	Lee Tool, Div. of Schlumberger

Remarks: 9427q-16e bot. rec. & 9431q-16e top rec.

Depth References

Depth Reference	Offset [m]	Elevation [mMSL]
Casing Flange (CF)		409.60
Kelly Bushing (KB)	CF + 9.20	418.80

Perforations

Perf Top MD, [mKB]	Perf Bottom MD, [mKB]	Perf Top MD, [mCF]	Perf Bottom MD, [mCF]	MPP TVD, [mCF]	Pressure [KPa G]	Gradient [KPa/m]
2700.00	3000.00	2690.80	2990.80	2785.74	28103.93	1.55

Recorder Description

Model	Serial	Latest Calibration	
LMR-3000S	9431Q-16E	03/10/99	
Max. Rated Press.	**Max. Rated Temp.**		
110213.27 KPa G	174.96 DegC		

Gradient Stops

Depth							
Tool String MD, [mKB]	Recorder MD, [mKB]	Recorder MD, [mCF]	Recorder TVD, [mCF]	Sample R/T [mmm dd, 24hr]	Pressure [KPa G]	Gradient [KPa/m]	Temperature [DegC]
504.00	502.50	493.30	493.15	Apr 26, 99 17:58:25	23743.07		58.49
1004.00	1002.50	993.30	992.13	17:46:50	24838.25	2.19	87.31
1504.00	1502.50	1493.30	1488.17	17:34:40	25838.15	2.02	107.49
2004.00	2002.50	1993.30	1986.26	17:21:55	26770.56	1.87	129.68
2204.00	2202.50	2193.30	2185.69	17:11:30	27106.72	1.69	137.82
2304.00	2302.50	2293.30	2285.37	17:00:30	27282.46	1.76	141.17
2404.00	2402.50	2393.30	2385.03	16:49:20	27459.96	1.78	144.42
2504.00	2502.50	2493.30	2484.66	16:37:35	2762[illegible].57	1.62	147.79
2554.00	2552.50	2543.30	2534.21	16:27:20	27709.22	1.77	148.92
2604.00	2602.50	2593.30	2582.13	16:17:10	27788.05	1.64	149.99
2643.00	2641.50	2632.30	2617.05	15:02:20	27842.22	1.55	150.58

Deviated Well Survey

Meas. Depth [mKB]	Inclination [Degrees]	TVD [mKB]	Meas. Depth [mCF]	TVD [mCF]
0.00		0.00	-9.20	-9.20
425.00	2.00	424.94	415.80	415.74
513.00	3.75	512.83	503.80	503.63
960.00	3.88	958.93	950.80	949.73
1027.00	4.00	1025.77	1017.80	1016.57
1502.00	9.00	1496.88	1492.80	1487.68
1512.70	8.90	1507.45	1503.50	1498.25
2001.20	3.70	1994.16	1992.00	1984.96
2030.00	3.40	2022.90	2020.80	2013.70
2202.00	6.60	2194.39	2192.80	2185.19
2288.20	2.80	2280.29	2279.00	2271.09
2307.30	3.20	2299.36	2298.10	2290.16
2393.70	5.50	2385.47	2384.50	2376.27
2403.30	5.50	2395.03	2394.10	2385.83
2413.10	5.30	2404.79	2403.90	2395.59
2484.00	4.40	2475.42	2474.80	2466.22
2510.00	4.60	2501.34	2500.80	2492.14
2548.60	11.00	2539.59	2539.40	2530.39
2558.30	13.50	2549.07	2549.10	2539.87
2598.40	20.30	2587.50	2589.20	2578.30
2608.00	22.60	2596.44	2598.80	2587.24
2636.40	29.80	2621.85	2627.20	2612.65
2646.00	31.90	2630.10	2636.80	2620.90
2655.60	33.90	2638.16	2646.40	2628.96
2694.20	37.40	2669.22	2685.00	2660.02
2703.90	36.70	2676.96	2694.70	2667.76
2848.90	35.60	2794.04	2839.70	2784.84
2858.60	35.60	2801.93	2849.40	2792.73

Deviated Well Survey

Meas. Depth [mKB]	Inclination [Degrees]	TVD [mKB]	Meas. Depth [mCF]	TVD [mCF]
2983.00	36.10	2902.76	2973.80	2893.56
2990.04	36.10	2908.45	2980.84	2899.25
3001.00	36.10	2917.31	2991.80	2908.11

Tool Summary

Chevron Canada Resources
Alberta, Canada

Apr 26, 99

Chevron et al Ft. Liard k-29 | k-29 | Liard, Nahanni

Recorder Description

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9431Q-16E	03/10/99	165
Landed Depth	**Depth Offset**	**Min. Battery**	
2043.50 mCF	-1.50 m	11.94 V	

Program: 30 day test for c-nelson

	Intervals				Expected Samples			Actual Samples				
Mode	Interval [d hh:mm:ss]	Rate [hh:mm:ss]	Delta [KPa]	Periodic [hh:mm:ss]	Regular Samples	Percent Storage	Energy [Ahr]	Regular Samples	Delta Samples	Percent Storage	Energy [Ahr]	Duration [d hh:mm:ss]
HB	6	10			51840	14.8%	1.0949	51840		14.8%	1.0949	6
HB	10	5			172800	49.4%	1.9698	148311		42.4%	1.6907	8 13:59:15
HB	14	10			120960	34.6%	2.5549					
HB	30	15:00			2880	0.8%	5.0448					
Totals:	60				348480	99.7%	10.6645	200151		57.3%	2.7856	14 13:59:15

Calibration Summary

Chevron Canada Resources
Alberta, Canada

Apr 26, 99

Chevron et al Ft. Liard k-29 | **k-29** | **Liard, Nahanni**

Recorder Description

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9431Q-16E	03/10/99	165
Landed Depth	**Depth Offset**	**Min. Battery**	
2043.50 mCF	-1.50 m	11.94 V	

Equations

FP = Pres Freq (Hz)
FT = Temp Freq (Hz)

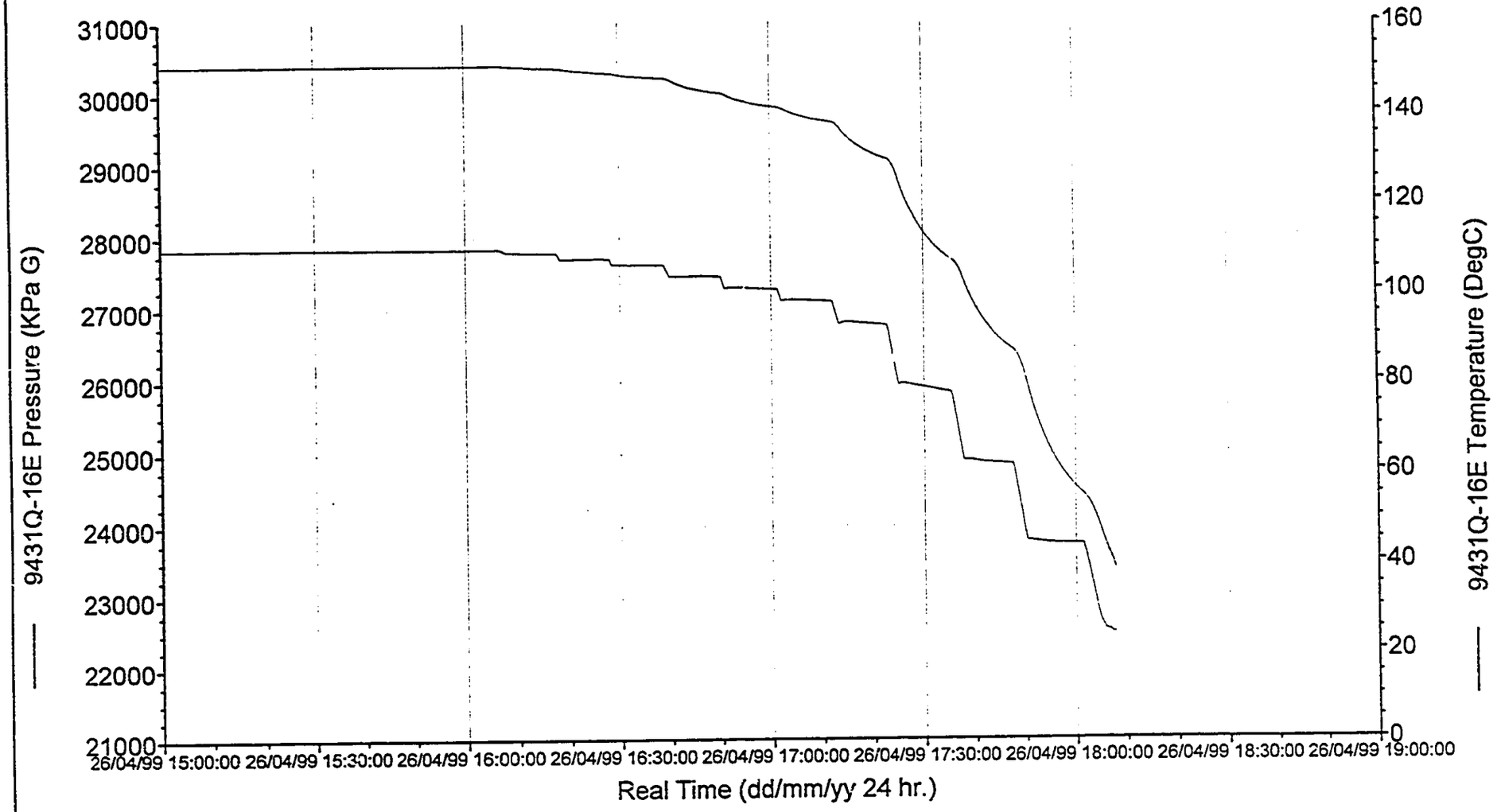
XP = 2.747100e+004 + (1.000000e-002) FP
XT = 4.165900e+004 + (1.000000e-002) FT

P_0 = 1.969811e+001+ (-1.905926e+000) XT + (-2.204650e-002) XT^2 + (5.969970e-007) XT^3 + (-1.199156e-008) XT^4
P_1 = 4.175652e+001+ (-2.090861e-002) XT + (3.950641e-005) XT^2 + (3.892917e-008) XT^3 + (1.680186e-010) XT^4
P_2 = -1.753347e-003+ (6.452854e-006) XT + (-1.495265e-007) XT^2 + (-6.967713e-010) XT^3 + (-1.314358e-012) XT^4
P_3 = 2.401419e-007+ (1.776446e-008) XT + (5.031246e-010) XT^2 + (2.763359e-012) XT^3 + (4.645005e-015) XT^4
P_4 = 6.002160e-010+ (-2.415368e-011) XT + (-5.531387e-013) XT^2 + (-3.138960e-015) XT^3 + (-5.151525e-018) XT^4
Pressure (psiA) = $P_0 + P_1 XP + P_2 XP^2 + P_3 XP^3 + P_4 XP^4$

T_0 = 2.574944e+001
T_1 = -7.444312e-001
T_2 = -8.630388e-004
T_3 = -6.347411e-007
Temperature (degC) = $T_0 + T_1 XT + T_2 XT^2 + T_3 XT^3$

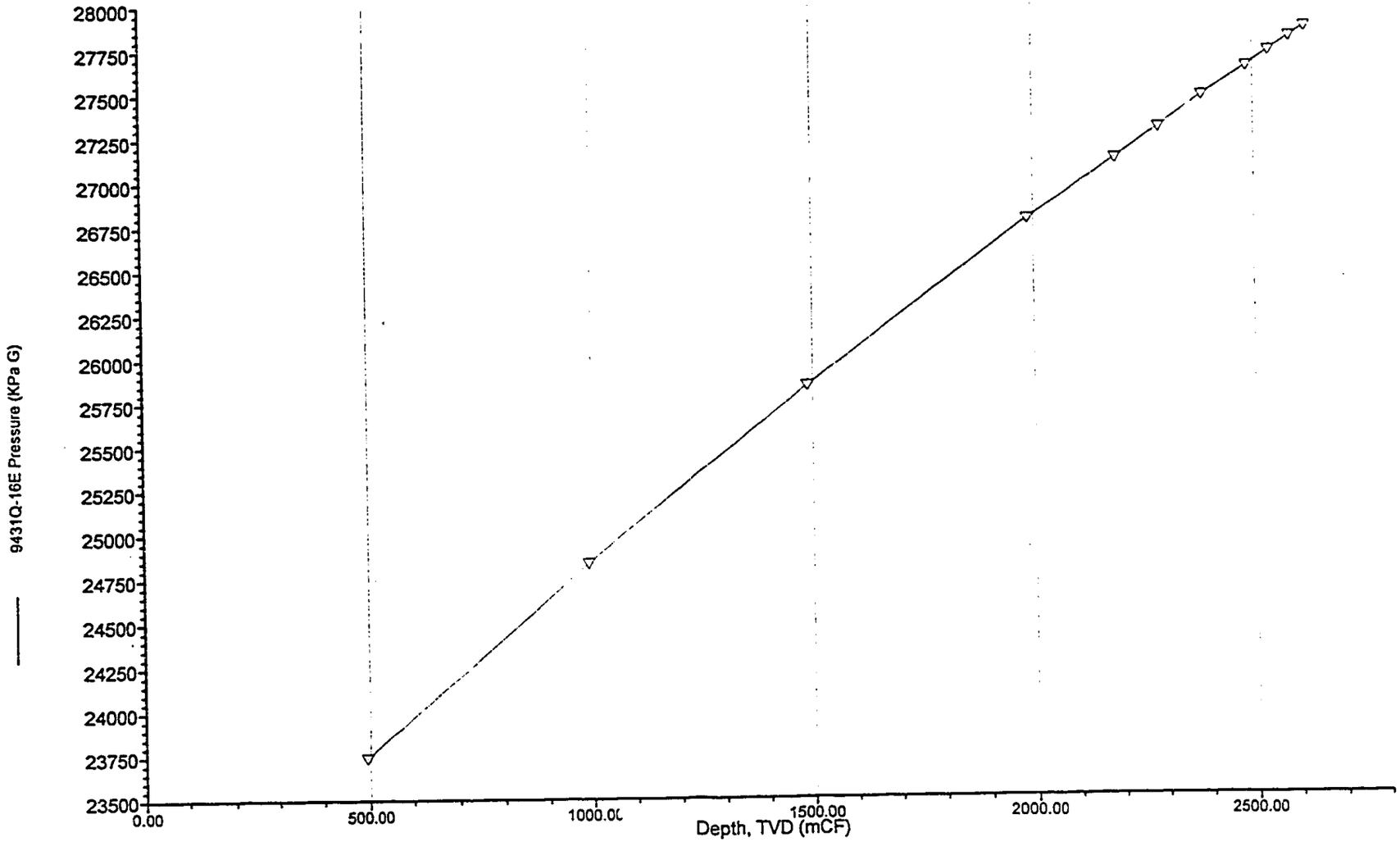
Pressure & Temperature vs. Real Time

Company:	Lee Tool, Div. of Schlumberger	*Field:*	Liard
Client:	Chevron Canada Resources	*Well Name:*	Chevron et al Ft. Liard k-29
Remarks:	9427q-16e bot. rec. & 9431q-16e top rec.	*Well Number:*	k-29



Pressure vs. Depth

Company:	Lee Tool, Div. of Schlumberger	*Field:*	Liard
Client:	Chevron Canada Resources	*Well Name:*	Chevron et al Ft. Liard k-29
Remarks:	9427q-16e bot. rec. & 9431q-16e top rec.	*Well Number:*	k-29



TOUR SHEETS

118268

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LICENCE NO.: SOL-29

WELL NAME AND NO.: CHEVRON ET AL LOARD K-29 60°30'N 123°30'W

OPERATOR: CHEVRON Can. Res.

CONTRACTOR: AKITA DRILLING LTD.

SURFACE LOCATION: K-29 60°30'N 123°30'W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS — OPR. / R.M.

(1) Daily Work Around Inspection — Initial / Initial
(2) Detailed Inspection-Weekly (using checklist) — Initial / Initial
(3) H²S Signs Posted (if required) — Initial / Initial
(4) Well License & Blok Diagram Posted — Initial / Initial
(5) Flare Lines Staked — Initial / Initial
(6) BOP Drills Performed — Initial / Initial
(7) Visually Inspect BOP's - Flexibles & Degasser Lines — Initial / Initial

(1) Rig Site Health and Safety Meeting (once/week/month) — Initial / Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial / Initial
(3) Mast Inspection Before Raising or Lowering — Initial / Initial
(4) Crown Saver Checked — Initial / Initial
(5) Master Kills checked — Initial / Initial

YEAR 92 — RIG NO. 4-F — FUEL HIG 1145 — WEATHER: TEMPERATU / CURRENT CONDITIO / WIND DIREC

TIME / HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT/SLIP DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.			
MORN.							1/2				7 3/4													
DAY																								
EVE.																								
TOTAL																								

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

			LENGTH
			m
			m
			m
			m
			m
			m
			m
	D.P.	STANDS	m
	D.P.	SINGLES	m
	KELLY DOWN		m
	TOTAL		m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE				B	Gage	ODC	Reason Pulled	Total Run m/hr.
T_i	T_o	MDC	LOC					

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED / SOLIDS CONTROL

PRODUCT	AMOUNT X UNIT

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

DESANDER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLG RMKS CORE #	ROT R.R.

LINER SIZE (mm)	S.P.M.

DEPTH (m)	DEVIATION (°)

DRIVER SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

			LENGTH
			.35 m
1/2	BS/XO		.75/1.90 m
27	F2-D.P.		258.60 m
1/1	XO/D.P.		38/.24 m
1	SCRAPER		1.88 m
1/1	BS/XO		.74/1.65 m
3	H-D.P.		27.48 m
1	JAR		9.58 m
33	H-D.P.	6305	302.40 m
72	F2-D.P. →		694.90 m
126	X2-D.P. →		1205.87 m
	D.P.	STANDS	m
	D.P.	SINGLES	m
	KELLY DOWN		m
	TOTAL		m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	RR17
SIZE (mm)	215.9
IADC CODE	
MFG.	SECURITY
TYPE	S86F
SERIAL NO.	731699
JETS (mm)	OPEN
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE				B	Gage	ODC	Reason Pulled	Total Run m/hr.
T_i	T_o	MDC	LOC					

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED / SOLIDS CONTROL

PRODUCT	AMOUNT X UNIT

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

DESANDER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLG RMKS CORE #	ROT R.R.

LINER SIZE (mm)	S.P.M.
152	

DEPTH (m)	DEVIATION (°)

DRIVER SIGNATURE

EVENING TOUR

DRILLING ASSEMBLY (At End of Tour)

			LENGTH
			.25 m
1/2	BS/XO		.75/1.90 m
27	F2 DP		258.60 m
1/1	XO/D.P.-D.P.		38/.24 m
1	SCRAPER		1.88 m
1/1	BS/XO		.74/1.65 m
3	H-DP		27.50 m
1/33	JAR/H-DP		9.58/302.40 m
		342	693.05 m
			m
			m
	D.P.	STANDS	m
	D.P.	SINGLES	m
	KELLY DOWN		m
	TOTAL		m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	RR17
SIZE (mm)	215.9
IADC CODE	
MFG.	SEC.
TYPE	S86F
SERIAL NO.	731699
JETS (mm)	O P E N
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE				B	Gage	ODC	Reason Pulled	Total Run m/hr.
T_i	T_o	MDC	LOC					

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	2300
DENSITY kg/m³	1150
FUNNEL VIS. - (S/L)	41
W.L. (cm³)	
pH	10.1
	119.6

MUD MATERIALS ADDED / SOLIDS CONTROL

PRODUCT	AMOUNT X UNIT
CAUSTIC SODA	56 SX

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

DESANDER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLG RMKS CORE #	ROT R.R.

LINER SIZE (mm)	S.P.M.	SIZE
152	70	

DEPTH (m)	DEVIATION (°)

DRIVER SIGNATURE

FOLD HERE →

CHECKS — OPR. / R.M.

- Walk Around Inspection — Initial / Initial
- Inspection-Weekly (using checklist) — Initial / Initial
- Signs Posted (if necessary) — Initial / Initial
- Licence & Shift Program Posted — Initial / Initial
- Lines Staked — Initial / Initial
- Drills Performed — Initial / Initial
- Daily Inspect BOP's - Flarelines & Degasser Lines — Initial / Initial
- Tour Health and Safety Meeting (once/week/month) — Initial
- U.D.G. Rig Safety Inspection Checklist (once/month) — Initial
- Inspection Before Raising or Lowering — Initial
- Crown Saver Checked — Initial
- Kelly checked — Initial

YEAR 09 | MONTH 05 | DAY 30

RIG NO. 48

FUEL @ 8:00

RIG 1.4.0 | BOILER 3.2

WEATHER — TEMPERATURE °C

CURRENT CONDITIONS 5551

WIND DIRECTION

ROAD CONDITIONS

LAST CASING TUBING OR LINER	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
	244.5	222.22	64.37	VAM PRO	M-80	71	964.52	7.31	2500
	244.5	220.50	69.94	VAM PRO	M-80	120	1535.74	7.31	2500

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
127	29	E	106	152	5"XH	121	7-P-100	NATIONAL	235
127	29	X2	106	152	5"XH	33	7-P-100	NATIONAL	235
127	29	X2	106	156	5"XH	162			

22 | 23 | 24 | 25 | 26

TOTALS 8

SHALE SHAKER(S) — NO. | TYPE

SCREENS CHANGED ☐ YES ☐ NO

TOP	TOP
110	110
MIDDLE 110	MIDDLE 110
BOTTOM 110	BOTTOM

RENTALS/SERVICES

MORNING TOUR

METRES DRILLED

FROM	TO	DH-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	HRS	CODE
00:00	07:45	7¾	11
07:45	08:00	¼	7

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

Lay down singles and Riggers

RIS

NOTES: Drawworks Linkage - Crown Saver Clamp Advice
Bauer Bail Dr. 1N2 03:00 07:00

BOILER: HRS RAN | TEMP | STACK TEMP

DAY TOUR

METRES DRILLED

FROM	TO	DH-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
	152		152	

2200 @ 60 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	HRS	CODE
08:00	16:00	8	11
16:00	16:30	½	7
16:30	20:00	3½	6

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

Log W/ Schlumberger. Tear out loggers
R/S Close Blind Rams Fill Flow + Annulus
Make up BIT + Scraper. TIH W/ Break Circ @ 1315m

NOTES: Drawworks / Brake Linkage / Crown Saver Clamp Advice
Fisher Block Drum @ 1100, 1500, 1900

BOILER: HRS RAN | TEMP | STACK TEMP — 12 | 175 | 225°C

Sr. J.A. — 6796

EVENING TOUR

METRES DRILLED

FROM	TO	DH-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
5 Ton	152	70		

1600 @ 60 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	HRS	CODE
20:00	21:30	1½	6
21:30	23:45	2¼	5
23:45	24:00	¼	7

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

R.I.H. To 2735.48m
C.R.C. - Work P.P.E
R/S Fish. Annular & Floor Hose C/O

NOTES: Drawworks / Brake Linkage / Crown Saver Clamp Advice
Rotary Block Drum @ 2300

BOILER: HRS RAN | TEMP | STACK TEMP — 4 | 9 | 225

INEXPERIENCED/UNDOCUMENTED | SAFETY TOPICS | BOP'S

118267

FOLD HERE →

LICENCE NO.: SDL-99

WELL NAME AND NO.: Chevron Fox Lake K-24 60°30'N 123°30'W

OPERATOR: Chevron Canada Resources Ltd

CONTRACTOR: Akita Drilling Ltd

SURFACE LOCATION: K-24 60°30'N, 123° 30' W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS — OPR. / R.M.

(1) Daily Walk Around Inspection
(2) Detailed Inspection-Weekly (Long checklist)
(3) HPS Signs Posted (if required)
(4) Well Licence & Blow Diagram Posted
(5) Flare Lines Staked
(6) BOP Drills Performed
(7) Visually Inspect BOP's - Flarelines & Degasser Lines

(1) Rig Site Health and Safety Meeting (environment)
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/tigmantin)
(3) Mast Inspection Before Raising or Lowering
(4) Crown Saver Checked
(5) Motor Kills checked

YEAR | RIG NO. 41 | FUEL | RIG | WEATHER | TEMPERATURE | CURRENT CONDITION | WIND DIR'N | ROAD

TIME - HRS

CODE NO	OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.
	MORN.					1½	4½	½		3½												
	DAY					¾	5¼	¼				1¾										
	EVE.											8										
	TOTAL																					

DRILLING ASSEMBLY (At End of Tour)

		LENGTH
		.2 m
1	B.S. Sub	.76 m
1	D.C.	1.90 m
15	8½" DP	144.62 m
12	HWDP	107.11 m
1	Jar	6.58 m
21	HWDP	320.67 m
	Bull	485.12 m
95	6 5/8"	943.50 m
126	5 1/2"	205.87 m
		m
320.3	D.P. STANDS	347.50 m
1	D.P. SINGLES	8.95 m
	KELLY DOWN	8.26 m
	TOTAL	3000 m
WT. OF DC		1000 daN
WT. OF STRING	99	1000 daN

BIT RECORD

BIT NO.	1
SIZE (mm)	311
IADC CODE	
MFG.	Hughes
TYPE	GS46F
SERIAL NO.	731659
JETS (mm)	3 x 15
DEPTH OUT (m)	
DEPTH IN (m)	3000
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE: T_i | T_o | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG: 7-14 / 6-11
TORQUE AT BOTTOM: 11400 - 12000
FILL ON BOTTOM (m): 0

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	07:00
DENSITY kg/m³	1145
FUNNEL VIS. - (S/L)	60
W.L. (cm³)	6.6
pH	10.1
PVT	118.0

PRODUCT	AMOUNT X UNIT

HOURS RUN | INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLG MUD CORE-G	ROT R

LINER SIZE (mm)	S.P.M.
7400	150
3000	60

DEPTH (m)	DEVIATION (°)

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

		LENGTH
		m
		m
		m
		m
		m
		m
		m
		m
		m
		m
	D.P. STANDS	m
	D.P. SINGLES	m
	KELLY DOWN	m
	TOTAL	m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE: T_i | T_o | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG
TORQUE AT BOTTOM
FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

PRODUCT	AMOUNT X UNIT
Lime	3 Sx
Soda Ash	2 Sx
KCl	25 Sx
Ca Cl2	56

HOURS RUN | INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLG MUD CORE-G	ROT R

LINER SIZE (mm)	S.P.M.
7150	150
2000	60

DEPTH (m)	DEVIATION (°)
IRP Proof	
Meas	14.30
Calc	14.05
Diff	.07

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

		LENGTH
		m
		m
		m
		m
		m
		m
		m
		m
		m
		m
	D.P. STANDS	m
	D.P. SINGLES	m
	KELLY DOWN	m
	TOTAL	m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE: T_i | T_o | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG
TORQUE AT BOTTOM
FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

PRODUCT	AMOUNT X UNIT

HOURS RUN | INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLG MUD CORE-G	ROT R

LINER SIZE (mm)	S.P.M.
152	
2500	60

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

EVENING TOUR

FOLD HERE →

CHECKS — OPR. / R.M.

- Work Around Inspection — Initial / Initial
- and Inspection-Weekly (using checklist) — Initial / Initial
- Signs Posted (if required) — Initial / Initial
- Licenses & Stick Diagram Posted — Initial / Initial
- Lines Staked — Initial / Initial
- DP Drills Performed — Initial / Initial
- Verify respect BOPs - Flarelines & Degasser Lines — Initial / Initial
- Tour Health and Safety Meeting (one/crew/month) — Initial
- C.O.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
- Inspection Before Raising or Lowering — Initial
- Vacuum Saver Checked — Initial
- Other Units checked — Initial

YEAR 91 | MONTH 03 | DAY 31

RIG NO. 414

FUEL @ 8:00

RIG 1.5E | MOOSE 37

WEATHER

TEMPERATURE °C

CURRENT CONDITIONS 3234

WIND DIRECTION 02721

ROAD /

LAST CASING / TUBING / OR LINER

	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG / HEAD (m)	SET AT (m)
	244.5	222.50	47.37	Vam Ion	MN80	71	914.52	7.31	2500
	244.5	220.50	69.41	Vam Ion	MN80	126	1535.74	7.31	2500

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
127	214	E	108	152	5"XH	121	F-1000	NATIONAL	235
127	214	X3	106	152	5"XH	133	F-1000	NATIONAL	235
127	38	X3	101	156	5XH	164			

TOTAL: 8 / 8

SHALE SHAKER(S) — NO. / TYPE

SCREENS CHANGED ☐ YES ☐ NO

TOP	110	TOP	110
MIDDLE	110	MIDDLE	110
BOTTOM	110	BOTTOM	110

RENTALS/SERVICES

MORNING TOUR

METRES DRILLED

FROM	TO	DR-O RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
152	120		

7400

3000

DEPTH (m)	DEVIATION (°)	DIRECTION

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

TIME LOG

FROM	TO	HRS	CODE
00:00	04:00	4½	C
04:00	05:30	1½	3
05:30	07:00	1½	7
07:00	08:30	1½	6
08:30	18:00	11½	9

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

- MAKE UP BHA + RUN TO HOLE FROM 3m.
- 1435. 2500.
- SLIP CUT 31m.
- K. SERVICE FOR BOP TEST @ MAN DOOR.
- K. T. HOLE WASH TO BTM FM 2880 to 3000.
- NO FILL
- CIRC COND MUD

NOTES: SAFETY MEETING @ 3:00 & 7:00

BOILER BLOWDOWN @ 3:00 & 7:00

2 9 77598

DAY TOUR

METRES DRILLED

FROM	TO	DR-O RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
152	120	152	

7450

2000

DEPTH (m)	DEVIATION (°)	DIRECTION
TRP RECORD		
MEAS	14.10	
CALC	14.03	
DIFF	.07	

DRILLER SIGNATURE

TIME LOG

FROM	TO	HRS	CODE
00:00	08:45	¾	5
08:45	14:00	5¼	6
14:00	19:15	1¾	7
19:15	16:00	13/4	11

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

- CIRC & COND MUD
- FLOW CHECK, PUMP PILL, POOH, FLOW CHECK @ SHOE 50 SDS
- TOOL HANDLING AT SURFACE
- RIG FUNC. BLIND RAMS, FLOOR & MANUAL VALVES
- RIG UP SCHLUMBERGER RUN #4

NOTES: 15 BLOCKS LINKAGE, DRILL SPOOL, CHOKE & KILL LINE

BOILER BLOWDOWN @ 11:00 & 15:00

2 8 77598

EVENING TOUR

METRES DRILLED

FROM	TO	DR-O RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
152		152	

7500

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	HRS	CODE
16:00	24:00	8	11

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

- RIG TOOL & W/SCHLUMBERGER.

NOTES: SAFETY MEETING @ 23:00 / FAST CREW / BOP

Fire Alarm Drill @ 20:30

BOILER BLOWDOWN | STACK TEMP | RADIO/MED EXPERIENCED HOOKED ON | CASING TOPIC

8 15 77598 | | | x | 6796

118266

FOLD HERE →

LICENCE NO.: 50C-99

WELL NAME AND NO.: CHEVRON ET AL LAIRD K-J9 60°3'N 123°30'W

OPERATOR: CHEVRON CANADA RESOURCES LTD

CONTRACTOR: ARCTIC DRILLING LTD

SURFACE LOCATION: K-J9 60°3'N 123°30'W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS

	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (Using checklist)	Initial	Initial
(3) H²S Signs Posted (if required)	Initial	Initial
(4) Well License & Block Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (crew/environment)	Initial	Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (crew/equipment)	Initial	Initial
(3) Mast Inspection Before Raising or Lowering	Initial	Initial
(4) Crown Saver Checked	Initial	Initial
(5) Motor Kills-checked	Initial	Initial

YEAR 97 MO

RIG NO. L1

FUEL

RIG 1.65

WEATHER: TEMPERATURE; CURRENT CONDITIONS; WIND DIRECTION; ROAD G.J.

TIME - HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.			
MORN.							1/4				7 1/4													
DAY																								
EVE.							1/4				3 3/4										1/4			
TOTAL																								

DRILLING ASSEMBLY (At End of Tour)

				m
				m
				m
				m
				m
				m
				m
				m
				m
				m
	D.P.	STANDS		m
	D.P.	SINGLES		m
	KELLYDOWN			m
	TOTAL			m

WT. OF DC: 1000 daN

WT. OF STRING: 1000 daN

BIT RECORD

BIT NO.									
SIZE (mm)									
IADC CODE									
MFG.									
TYPE									
SERIAL NO.									
JETS (mm)									
DEPTH OUT (m)									
DEPTH IN (m)									
TOTAL METRES DRILLED (m)									
TOTAL HOURS RUN									

CUTTING STRUCTURE				B	Gage	ODC	Reason Pulled	Total Run m/hr.
T_I	T_O	MDC	LOC					

HOLE CONDITION

HOLE DRAG

TORQUE AT BOTTOM

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE ■ WATER BASED ■ OIL BASED

TIME			
DENSITY kg/m³			
FUNNEL VIS. - (S/L)			
W.L. (cm³)			
pH			

PRODUCT	AMOUNT X UNIT

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRD-RMVD CORE-C	ROT R

LINER SIZE (mm)	S.P.M.

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

MORNING TOUR

DAY TOUR

EVENING TOUR

FOLD HERE →

DAILY CHECKS — OPR. / R.M.

- Daily Walk Around Inspection — Initial / Initial
- Detailed Inspection-Weekly (using checklist) — Initial / Initial
- H2S Signs Posted (if required) — Initial / Initial
- Well Licence & Blow Down Diagram Posted — Initial / Initial
- Gas Lines Tested — Initial / Initial
- BOP Drills Performed — Initial / Initial
- Monthly Inspect BOP's - Flowlines & Degasser Lines — Initial / Initial
- Pre-Spud Site Health and Safety Meeting (one/crew/month) — Initial / Initial
- A.D.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial / Initial
- Derrick Inspection Before Raising or Lowering — Initial / Initial
- Blowdown Sewer Checked — Initial / Initial
- Trip Tanks Checked — Initial / Initial

YEAR 97 | MONTH 03 | DAY 28

RIG NO. LIF 101

FUEL @ 8:00

HIC 1.65 BRAKE 32

WEATHER — TEMPERATURE °C

CURRENT CONDITIONS 11633

WIND DIRECTION

ROAD 220724

LAST CASING TUBING OR LINER	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
	244.5	222.55	64.37	Van Leu	MN80	71	964.52	7.31	2500
	244.5	220.50	69.94	Van Leu	MN80	120	1635.74	7.31	2500

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STRING LTH. (mm)
127	2-1	E	108	152	5"XH	121	F1000	National	235
127	2-1	X3	106	152	5"XH	138	F1000	National	235
127	38	V3	101	156	5"XH	108			

BIT NO.	SIZE	MAKE	TYPE	SERIAL NO.	JETS OR TFA	IN
5	311	Hughes	HP53A	5102	3-13	1635
6	311	Hughes	HP53A	5102	3-13	1635

SHALE SHAKER(S) — NO. / TYPE

SCREENS CHANGED ☑ YES ☐ NO

TOP 110 / TOP 110

MIDDLE 110 / MIDDLE 110

BOTTOM 110 / BOTTOM 110

RENTALS/SERVICES

MORNING TOUR

METRES DRILLED

FROM	TO	DRLG RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	SHIFT	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
20:00	07:00	7 1/2	11	Log W/Schlumberger #1 GR-AIT-LDS-DSI-ACTRACM
				#2 AIT-FMS-TOOL-ACTRACM
				Ran 2500 - 3500m #2 SGT-DSI-FMS-NAC-HNGS
07:00	08:00	1	7	R.C. Service Fix Blower Chain

NOTES: Crew Safety Meeting Drills Pason Down

Finish Logging 7:00 @ 7:00

2 9 775

DAY TOUR

METRES DRILLED

FROM	TO	DRLG RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	SHIFT	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
0800	1945	11 3/4	11	Log W/Schlumberger #2 SGT-DSI-FMS-NAC-HNGS
				#3 AIT-BHC-PCL
1945	2:00	1/4	7	R.C.

NOTES: Crew Safety Meeting Drills Pason Down

Rig Service 11:00 18:00 19:00

1 2 775

EVENING TOUR

METRES DRILLED

FROM	TO	DRLG RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	SHIFT	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
20:00	23:30	3 1/2	11	Log W/Schlumberger #4 Repeat Same.
23:30	23:45	1/4	7	R.C. Service
23:45	24:00	1/4	21	Safety Meet

NOTES: Crew Safety Meeting Drills Pason Down

Rig Service 23:00

4 9 775

118265

FOLD HERE →

LICENCE NO.: SDL 99

WELL NAME AND NO.: CHEVRON ETAL LIARD K-79 60°30'N 123°30'W

OPERATOR: CHEVRON CANADA RESOURCES LTD

CONTRACTOR: AKITA DRILLING LTD

SURFACE LOCATION: K-79 60°30'N 123°30'W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS — OPR. / R.M.

(1) Daily Walk Around Inspection — Initial / Initial
(2) Detailed Inspection-Weekly (using checklist) — Initial / Initial
(3) H²S Signs Posted (if required) — Initial / Initial
(4) Well License & Stick Diagram Posted — Initial / Initial
(5) Flare Lines Staked — Initial / Initial
(6) BOP Drills Performed — Initial / Initial
(7) Visually Inspect BOP's - Flarelines & Degasser Lines — Initial / Initial

(1) Rig Site Health and Safety Meeting (one/crew/month) — Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
(3) Mast Inspection Before Raising or Lowering — Initial
(4) Crown Saver Checked — Initial
(5) Motor Kills checked — Initial

RIG NO. 45

FUEL

WEATHER — TEMPERATURE / CURRENT CONDITION / WIND DIRECTION / ROAD

TIME-HRS

CODE NO. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	Fishing	DIR. WORK	SAFETY MTG.
MORN.		6¾			½		¼			1½											
DAY		10¼			1½		¼														
EVE.							¼				3½										¼
TOTAL																					

DRILLING ASSEMBLY (At End of Tour)

			.25 m
1	¼		270 m
1	¼		236 m
1	¼		207 m
1	¼		177 m
2	¼		147 m
15	¼		145.51 m
12	¼		129.63 m
2	¼		117.34 m
			532.28 m
59	¼		943.51 m
126	¼		1205.67 m
10	½ D.P.	STANDS	2881.43 m
2	½ D.P.	SINGLES	19.40 m
	KELLY DOWN		9.02 m
	TOTAL		3060 m

WT. OF DC 1000 daN

WT. OF STRING 1010 daN

BIT RECORD

BIT NO.	16
SIZE (mm)	215.9
IADC CODE	5 3 7
MFG.	REED
TYPE	HP53A
SERIAL NO.	LG4101
JETS (mm)	3 x 15.9
DEPTH OUT (m)	3000
DEPTH IN (m)	2727
TOTAL METRES DRILLED (m)	273
TOTAL HOURS RUN	50½

CUTTING STRUCTURE: T / T_O / MDC / LOC / B / Gage / ODC / Reason Pulled / Total Run m/hr.

HOLE CONDITION

HOLE DRAG: 8-16 / 4-12

TORQUE AT BOTTOM: 11000 – 13000 Ft lbs.

FILL ON BOTTOM (m):

MUD RECORD

MUD TYPE: GEL CHEM ☐ WATER BASED ☐ OIL BASED

TIME	02:00	04:00	06:00
DENSITY kg/m³	1125	1130	1140
FUNNEL VIS. - (S/L)	55	55	55
W.L. (cm³)	6.2	6.3	6.2
pH	10.1	10.1	10.1
PVT (B³)	137.1	137.4	

MUD MATERIALS ADDED / SOLIDS CONTROL

PRODUCT	AMOUNT X UNIT
BARACO	107 SXS
Defoamer	3 SXS.
Desco	2 SXS
Lime	2 SXS

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRD FOR CORREC	RC FR
2161	3000	31	

LINER SIZE (mm)	S.P.M.
10000	152

3300 — 60

DEPTH (m)	DEVIATION (°)
2951.60	36.6
2964.30	36
2974.00	35.9
2983.00	36.1

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

			m
			m
			m
			m
			m
			m
			m
			m
			m
			m
	D.P.	STANDS	m
	D.P.	SINGLES	m
	KELLY DOWN		m
	TOTAL		m

WT. OF DC 1000 daN

WT. OF STRING 1000 daN

BIT RECORD

BIT NO.	16
SIZE (mm)	215.9
IADC CODE	5 3 7
MFG.	REED
TYPE	HP53A
SERIAL NO.	LG4101
JETS (mm)	3 x 15.9
DEPTH OUT (m)	3000
DEPTH IN (m)	2727
TOTAL METRES DRILLED (m)	273
TOTAL HOURS RUN	50½

CUTTING STRUCTURE: T / T_O / MDC / LOC / B / Gage / ODC / Reason Pulled / Total Run m/hr.

HOLE CONDITION

HOLE DRAG:

TORQUE AT BOTTOM:

FILL ON BOTTOM (m):

MUD RECORD

MUD TYPE: GEL CHEM ☐ WATER BASED ☐ OIL BASED

TIME	TRIP Period		
DENSITY kg/m³	Dens 1453		
FUNNEL VIS. - (S/L)	PLC 1431		
W.L. (cm³)	Dec -.22		
pH			

MUD MATERIALS ADDED / SOLIDS CONTROL

PRODUCT	AMOUNT X UNIT
Calcab	47
Dmcc	1

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRD FOR CORREC	RC FR

LINER SIZE (mm)	S.P.M.
10000	152

3500 — 60

DEPTH (m)	DEVIATION (°)

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

			m
			m
			m
			m
			m
			m
			m
			m
			m
			m
	D.P.	STANDS	m
	D.P.	SINGLES	m
	KELLY DOWN		m
	TOTAL		m

WT. OF DC 1000 daN

WT. OF STRING 1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE: T / T_O / MDC / LOC / B / Gage / ODC / Reason Pulled / Total Run m/hr.

HOLE CONDITION

HOLE DRAG:

TORQUE AT BOTTOM:

FILL ON BOTTOM (m):

MUD RECORD

MUD TYPE: GEL CHEM ☐ WATER BASED ☐ OIL BASED

TIME			
DENSITY kg/m³			
FUNNEL VIS. - (S/L)			
W.L. (cm³)			
pH			

MUD MATERIALS ADDED / SOLIDS CONTROL

PRODUCT	AMOUNT X UNIT

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRD FOR CORREC	RC FR

LINER SIZE (mm)	S.P.M.

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

EVENING TOUR

FOLD HERE →

Y CHECKS — OPR. / R.M.

- Walk Around Inspection — Initial / Initial
- Inspection-Weekly (using checklist) — Initial / Initial
- Hours Posted (if required) — Initial / Initial
- Licenses & Slick Diagram Posted — Initial / Initial
- Lines Slicked — Initial / Initial
- Drills Performed — Initial / Initial
- Inspect BOP's - Flarelines & Degasser Lines — Initial / Initial

- Safety Meeting (one/crew/month) — Initial
- I.A.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
- Inspection Before Raising or Lowering — Initial
- Derrick Saver Checked — Initial
- Kelly checked — Initial

YEAR 94 | MONTH 05 | DAY 27

RIG NO. 454

FUEL @ 8:00

RIG 85 | POWER 32

WEATHER

	°C
TEMPERATURE	
CURRENT CONDITIONS	11633
WIND DIRECTION	
ROAD	22324

LAST CASING TUBING OR LINER

	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
	244.5	222.50	64.37	VAMPLUS	MN80	71	3141.42	7.31	3300
	244.5	220.50	61.94	VAMPLUS	MN80	126	1535.71	7.31	3300

	DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS
	127	99	E	103	152	5" XH	121
	127	91	X	106	152	5" XH	133
	127	38	X	101	156	5" XH	168

PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
9 PUMP	NATIONAL	235
9 PUMP	NATIONAL	235

	22	23	24	25	26

TOTAL: 8 / 12 / 41

SHALE SHAKER(S)

NO. | TYPE

SCREENS CHANGED ☐ YES ☑ NO

	TOP	MIDDLE	BOTTOM
	110	110	110
	110	110	110

RENTALS/SERVICES

DRILLER

METRES DRILLED

FROM	TO	DRD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2716	3300	31	20	11/12

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
10000	152	120	152	

REDUCED PUMP SPEED

3300 @ 120 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2954.60	36.6	119.6
2964.30	36	118.3
2974.00	35.9	119.1
2983.00	36.1	119.2

DRILLER SIGNATURE

TIME LOG

FROM	TO	HRS	CODE
06:00	11:40	5 1/2	M
11:40	12:55	1 1/4	O
12:55	14:10	1 1/4	R
14:10	16:00	1 5/6	N
16:00	06:00	14	G

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

Drill 311mm Hole w/Motor fr: 2716m to 3300m

NOTES: Crew Safety Meeting @ Morning Tour Change

BOILER HRS RAN	STACK TEMP	MAJOR EXPERIENCE/BOOKOAH	SAFETY TOPIC
12			

DRILLER

METRES DRILLED

FROM	TO	DRD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
3300	3550	31	20	11/12

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
10000	152	120	152	

REDUCED PUMP SPEED

3550 @ 120 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	HRS	CODE
06:00	08:30	2 1/2	5
08:30	11:30	3	10
11:30	12:30	1	5
12:30	19:45	7 1/4	6
19:45	20:00	1/4	7

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

Circ Bottoms Up + Flow Ck
Wiper Trip to Shoe Flow Ck @ Shoe
RIH to Bottom No Fill
Circ for Trip Out
Flow Ck Pump Pill Pooh Flow Ck @ Shoe, 45 stds
Flow Ck Layout Dir Tools, Flow Ck @ Floor
Rig Service Top Drive Floor Tongs C/O

Fuel Start 79cm Finish 194cm / Start 32m³ Finish 83m³ Transferred 25m³

NOTES: Derricks Walk to Cat / Safety Clamp Inspection
Rig Repair Crew @ 11:00 11:30 19:00

BOILER HRS RAN	STACK TEMP	MAJOR EXPERIENCE/BOOKOAH	SAFETY TOPIC
12			

DRILLER

METRES DRILLED

FROM	TO	DRD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	HRS	CODE
20:00	21:30	1 1/2	11
21:30	20:45	1 1/4	21
20:45	21:00	1/4	—
21:00	24:00	3	11

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

Rig Up + Run Logs
Pull Jar + Mess w/ Weight Indicator
Rig Service Top Drive @ Mast Crown
Run Log #1 CR-AIT-FMS-DSI-AMS-CAL
Fr: 3500m - TD 3550m

NOTES: Crew Safety Briefing w/ Loggers
Bring Fluid Down @ 23:00

BOILER HRS RAN	STACK TEMP	MAJOR EXPERIENCE/BOOKOAH	SAFETY TOPIC
4	9	77°	

118264

FOLD HERE →

LICENCE NO.: SDL-95

WELL NAME AND NO.: CHEVRON ETAL LIARD K-39 60°30'N 123°30'W

OPERATOR: CHEVRON CANADA RESOURCES LTD

CONTRACTOR: NIKITA DRILLING LTD

SURFACE LOCATION: K-39 60°30'N 123°30'W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS (OPR. / R.M.)

(1) Daily Walk Around Inspection — Initial / Initial
(2) Detailed Inspection-Weekly (using checklist) — Initial / Initial
(3) H²S Signs Posted (if required) — Initial / Initial
(4) Well License & Block Diagram Posted — Initial / Initial
(5) Flare Lines Staked — Initial / Initial
(6) BOP Drills Performed — Initial / Initial
(7) Visually Inspect BOP's - Flarelines & Degasser Lines — Initial / Initial
(1) Rig Site Health and Safety Meeting (once/week/month) — Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (once/week/month) — Initial
(3) Mast Inspection Before Raising or Lowering — Initial
(4) Crown Saver Checked — Initial
(5) Motor Kills checked — Initial

RIG NO.

FUEL

RIG: 1.14

WEATHER: TEMPERATURE / CURRENT CONDITION / WIND DIRECTION / ROAD CONDITION

TIME HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.			
MORN.		7¼					1¼			½														
DAY		10½					¼			1½														
EVE.		3¼					¼			½														
TOTAL																								

DRILLING ASSEMBLY (At End of Tour)

			LENGTH
	BIT		.25 m
1/1	MOTOR / F.S.		670 / 1.70 m
1/1	SHORT FLEX / FLEX		336 / 9.27 m
2/1	H.O.S. / X/O		.95 / 1.55 m
2/1	FLEX / X/O		1662 / 1.66 m
15	X3 DP		145.56 m
32/1	X/O / JAR		1694 / 6.55 m
25	H.W.D.P.		232.63 m
		R/B	532.78 m
99	X3 DP		963.50 m
126	X3 DP		1205.97 m
9	X3 D.P.	STANDS	260.33 m
	D.P.	SINGLES	m
	KELLYDOWN		7.58 m
	TOTAL		2750 m
WT. OF DC			1000 daN
WT. OF STRING	99		1000 daN

BIT RECORD

BIT NO.	16
SIZE (mm)	215.9
IADC CODE	537
MFG.	REED
TYPE	HP53A
SERIAL NO.	LG4101
JETS (mm)	3 x 15.9
DEPTH OUT (m)	/
DEPTH IN (m)	2727
TOTAL METRES DRILLED (m)	23
TOTAL HOURS RUN	40½

CUTTING STRUCTURE								
T	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG: 15-20 ↑ 10-12 ↓

TORQUE AT BOTTOM: 11100 - 11900

FILL ON BOTTOM (m):

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

	00:00	04:00	06:00
TIME	00:00	04:00	06:00
DENSITY kg/m³	1105	1115	1115
FUNNEL VIS. - (S/L)	50	50	50
W.L. (cm³)	6.2	6.4	6.5
pH	10	10.1	10.1
PVT	141.3	142.0	142.3

WATER ADDITIONS / SOLIDS CONTROL

PRODUCT	AMOUNT X UNIT
CAUSTIC	2 SX

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLG WHILE CORING	ROTATING R.P.
2850	2888	38	

LINER SIZE (mm)	S.P.M.
9500	152 130

3300 @ 125

DEPTH (m)	DEVIATION (°)
2848.90	35.6
2858.60	36.0
2866.30	36.3

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

			LENGTH
	BIT		.25 m
1/1	MOTOR / F.S.		670 / 1.70 m
1/1	SHORT FLEX / FLEX		336 / 9.27 m
1/1	H.O.S. / X/O		.95 / 1.55 m
2/1	FLEX / X/O		1662 / 1.66 m
15	X3 DP		145.56 m
32/1	X/O / JAR		1694 / 6.55 m
25	H.W.D.P.		232.63 m
		R/B	532.78 m
99	X3 DP		963.50 m
126	X3 DP		1205.97 m
9	X3 D.P.	STANDS	260.33 m
	D.P.	SINGLES	m
	KELLYDOWN		7.58 m
	TOTAL		2750 m
WT. OF DC			1000 daN
WT. OF STRING	99		1000 daN

BIT RECORD

BIT NO.	16
SIZE (mm)	215.9
IADC CODE	537
MFG.	REED
TYPE	HP53A
SERIAL NO.	LG4101
JETS (mm)	3 x 15.9
DEPTH OUT (m)	/
DEPTH IN (m)	2727
TOTAL METRES DRILLED (m)	223
TOTAL HOURS RUN	40½

CUTTING STRUCTURE								
T	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG: 4-15 ↑ 3-10 ↓

TORQUE AT BOTTOM: 11300 - 11000 ft.lbs

FILL ON BOTTOM (m):

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

	10:00	14:00	18:00
TIME	10:00	14:00	18:00
DENSITY kg/m³	1115	1125	1125
FUNNEL VIS. - (S/L)	52	52	64
W.L. (cm³)	6.5	7	7
pH	10.3	10.3	10.3
PVT	145.4	144.6	146.0

WATER ADDITIONS / SOLIDS CONTROL

PRODUCT	AMOUNT X UNIT
CAUSTIC	3 SX
ANTI-FOAM	2 SX
KWIK-SEAL F	3 SX
LIGNITE	3 SX
CMC	5 SX
DEFOAMER	1 PAIL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLG WHILE CORING	ROTATING R.P.
2794	2850	56	

LINER SIZE (mm)	S.P.M.
9500	152 130

3270 @ 120

DEPTH (m)	DEVIATION (°)
2777	33.2
2784	35.4
2796	36.3
2815	36.4
2815	35.5
2815	35.1

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

			LENGTH
	BIT		.25 m
1/1	MOTOR / F.S.		670 / 1.70 m
1/1	SHORT FLEX / FLEX		336 / 9.27 m
1/1	H.O.S. / X/O		.95 / 1.55 m
2/1	FLEX / X/O		1662 / 1.66 m
15	X3 DP		145.56 m
32/1	X/O / JAR		1694 / 6.55 m
25	H.W.D.P.		232.63 m
		R/B	532.78 m
99	X3 DP		963.50 m
126	X3 DP		1205.97 m
9	X3 D.P.	STANDS	260.33 m
1	X3 D.P.	SINGLES	9.70 m
	KELLYDOWN		7.58 m
	TOTAL		2767.46 m
WT. OF DC			1000 daN
WT. OF STRING	100		1000 daN

BIT RECORD

BIT NO.	16
SIZE (mm)	215.9
IADC CODE	537
MFG.	REED
TYPE	HP53A
SERIAL NO.	LG4101
JETS (mm)	3 x 15.9
DEPTH OUT (m)	—
DEPTH IN (m)	2727
TOTAL METRES DRILLED (m)	242
TOTAL HOURS RUN	43¾

CUTTING STRUCTURE								
T	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG: 4-15 ↑ 6-14 ↓

TORQUE AT BOTTOM: 11200 - 11400

FILL ON BOTTOM (m):

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

	21:00	22:00	24:00
TIME	21:00	22:00	24:00
DENSITY kg/m³	1125	1125	1125
FUNNEL VIS. - (S/L)	64	65	59
W.L. (cm³)	5.6	6.5	5.5
pH	10.3	10.1	9.9
PVT	147.1	133.9	135.2

WATER ADDITIONS / SOLIDS CONTROL

PRODUCT	AMOUNT X UNIT
LIGNITE	5 SX
DESCO	3 SX

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLG WHILE CORING	ROTATING R.P.
2850	2935	14	

LINER SIZE (mm)	S.P.M.	SIZE
9500	152 120	1

3300 @ 125

DEPTH (m)	DEVIATION (°)
2935.20	35.7
2949.90	36.0

DRILLER SIGNATURE:

EVENING TOUR

FOLD HERE →

Y CHECKS	OPR.	R.M.
ly Walk Around Inspection	Initial	Initial
ined Inspection-Weekly (using checklist)	Initial	Initial
Signs Posted (if required)	Initial	Initial
e Licenses & Stub Diagram Posted	Initial	Initial
re Lines Staked	Initial	Initial
P Drills Performed	Initial	Initial
ekly Inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
		Initial
ekly Health and Safety Meeting (one/crew/month)		Initial
A.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
ekly Inspection Before Flaring or Lowering		Initial
own Saver Checked		Initial
or Kills checked		Initial

YEAR 94 | MONTH 5 | DAY 22

RIG NO. 419

FUEL @ 8:00

RIG 1.14 | ADDED 32

WEATHER

	°C
TEMPERATURE	
CURRENT CONDITIONS	7557
WIND DIRECTION	
ROAD	G16,17B

LAST CASING TUBING OR LINER

O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
244.5	222.94	64.37	Van Leu	MN80	71	964.42	7.31	2500
244.5	220.50	69.94	Van Leu	MN80	120	1535.74	7.31	2500

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS
127	294	E	108	152	5"XH	121
127	297	X2	106	152	5"XH	133
127	334	X3	101	156	5"XH	Nop

PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
9-P100	NATIONAL	235
9-P100	NATIONAL	235

	22	23	24	25	26
QTY					

TOTAL
8
12
4

SHALE SHAKER(S)

NO.	TYPE

SCREENS CHANGED ☑ YES ☐ NO

TOP	TOP
110	110
MIDDLE 110	MIDDLE 110
BOTTOM 110	BOTTOM 110

RENTALS/SERVICES

MORNING TOUR

RD

00	06:00
5	1115
0	50
.4	6.5
.1	10.1
.0	142.3

METRES DRILLED

FROM	TO	DRLD IN CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2856	2894	38	20	11/13

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
152	120	152	

REDUCED PUMP SPEED

3300 @ 60

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2848.10	35.6	120.3
2858.60	36.0	119.4
2868.30	36.3	120.3

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	HRS	CODE
0600	0745	1¼	2
0745	0745	½	10
0745	0800	¼	7

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

Drill 311mm Hole F/2856m - 2894m

Service Top Drive

Rig Service Fix Annular - Floor Hose 1/4

NOTES Crown Saver Blind Rams Function Tested

Bops Function Drill @ 00:00 - 04:00

8		111		None	7352

DAY TOUR

RD

	1800
5	1125
2	64
7	7
3	KC-3
6	1402

METRES DRILLED

FROM	TO	DRLD IN CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2894	2750	56	20	11/11
			40	11/17

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
152	120	152	

REDUCED PUMP SPEED

330 @ 60

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2877	35.8	120.1
2867	35.4	119.5
2856	36.3	120.5
2846	36.3	120.3
2835	36.5	119.7
2824	35.4	119.4

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	HRS	CODE
0800	1730	9½	2
1730	1745	¼	7
1745	1830	¾	2
1830	2000	1½	10

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

Drill 216mm Hole F/2894m - 2992m

RS Function T-2 Pipe Rams F/Floor Instr Sta

Drill 216mm Hole F/2992m - 3050m

Service TS For Next Drill Up

NOTES Crown Saver Blind Rams Function Tested

Bops Function Drill @ 00:00 - 04:00

12	9	77<	102000		7497

EVENING TOUR

RD

80	2400
5	1125
5	59
5	55
1	99
9	1352

METRES DRILLED

FROM	TO	DRLD IN CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2750	2835	14	20	11/11

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
152	120	152	

REDUCED PUMP SPEED

330 @ 60

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2835.20	35.7	119.3
2844.50	36.0	119.0

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	HRS	CODE
2000	2354	3¾	2
2354	2354	½	10
2354	2400	¼	7

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

Drill 216mm Hole F/2992m - 3050m

Service TS For Next Drill Up

Rig Service Fix Rig Line @ Tim

NOTES Crown Saver Blind Rams Function Tested

Bops Function Drill @ 22:00

4	19	77<	134		7767

118263

FOLD HERE →

LICENCE NO.: 500-99

WELL NAME AND NO.: CHEVRON ET AL LERAC K-29, 60°5'N, 123°30'W

OPERATOR: CHEVRON CANADA RESOURCES LTD

CONTRACTOR: AKITA DRILLING LTD

SURFACE LOCATION: K-29, 60°5'N 123°30'W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS (OPR. / R.M.)

(1) Daily Work Around Inspection — R.M. BL
(2) Detailed Inspection-Weekly (using checklist)
(3) H²S Signs Posted (if required)
(4) Well License & Block Diagram Posted
(5) Flare Lines Staked
(6) BOP Drills Performed
(7) Visually inspect BOP's - Flarelines & Degasser Lines

(1) Rig Site Health and Safety Meeting (one/crew/month)
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)
(3) Mast Inspection Before Raising or Lowering
(4) Crown Saver Checked
(5) Motor Kills checked

RIG NO. 4

FUEL

WEATHER — TEMPERAT / CURRENT CONDITION / WIND DIRE / ROAD

TIME-HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.	Dev. Surv.		
MORN.		7					1 1/2			3/4														
DAY		10					1/4			1 1/2												1/4		
EVE.		5 3/4					1 1/4			1/2											1/2			
TOTAL																								

DRILLING ASSEMBLY (At End of Tour)

		LENGTH
	BIT	.25 m
1	MOTOR, FLEX SUB	6.70 m
1	SHORT FLEX	2.86 9.27 m
1/2	NMS 1/2 FLEX 1.96	1.50 14.26 m
15	X3 DP	145.56 m
10	4 HWDP	109.41 m
1	JAR	6.58 m
25	HWDP	229.63 m
	BHA	532.78 m
99	E-DP	943.50 m
126	X2-DP	1205.87 m
3	x3 D.P. STANDS	87.07 m
1	x3 D.P. SINGLES	9.66 m
	KELLY DOWN	m
	TOTAL	2778.44 m
WT. OF DC		1000 daN
WT. OF STRING	97	1000 daN

BIT RECORD

BIT NO.	16
SIZE (mm)	215.9
IADC CODE	5 3 7
MFG.	REED
TYPE	HP53A
SERIAL NO.	LQ4101
JETS (mm)	3 x 15.9
DEPTH OUT (m)	—
DEPTH IN (m)	2727
TOTAL METRES DRILLED (m)	51
TOTAL HOURS RUN	10 1/4

CUTTING STRUCTURE: T, T_o, MDC, LOC, B, Gage, ODC, Reason Pulled, Total Run m/hr.

HOLE CONDITION

HOLE DRAG: 2-14 / 3-10

TORQUE AT BOTTOM: 5400 - 6400 ft lbs

FILL ON BOTTOM (m): —

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	02:00	04:00	06:00
DENSITY kg/m³	1130	1135	1130
FUNNEL VIS. - (S/L)	51	53	55
W.L. (cm³)	6.7	6.5	6.3
pH	10.2	10.3	10.3
PVT	130.3	132.3	133.0

MUD MATERIALS ADDED / SOLIDS CONTROL

PRODUCT	AMOUNT X UNIT
Polypac	3 5x
Lignite	2 5x
Pac R	2 5x

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLG PMR CORES C	RO PMR
2744	2778	34	

LINER SIZE (mm)	S.P.M.
9400	150 120

3080 @ 60

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
2732.90	35.7
2742.60	36.2
2752.20	36.6

DRILLER SIGNATURE

TOUR: MORNING

DRILLING ASSEMBLY (At End of Tour)

		LENGTH
	BIT	.25 m
1/2	MOTOR, FLEX SUB	6.70 .70 m
1/1	SHORT FLEX	2.86 7.27 m
1/1	NMS-1.96 FLEX	1.50 1.55 m
15	X3 DP	145.56 m
8 2/3	HWDP 1.96	78.62 1.69 m
25	HWDP	229.63 m
	BHA	532.78 m
99	E-DP	943.50 m
126	X2-DP	1205.87 m
5	x3 D.P. STANDS	145.56 m
	D.P. SINGLES	m
	KELLY DOWN	7.77 m
	TOTAL	2835 m
WT. OF DC		1000 daN
WT. OF STRING	95	1000 daN

BIT RECORD

BIT NO.	16
SIZE (mm)	215.9
IADC CODE	5 3 7
MFG.	REED
TYPE	HP53A
SERIAL NO.	LQ4101
JETS (mm)	3 x 15.9
DEPTH OUT (m)	
DEPTH IN (m)	2727
TOTAL METRES DRILLED (m)	108
TOTAL HOURS RUN	20 1/4

CUTTING STRUCTURE: T, T_o, MDC, LOC, B, Gage, ODC, Reason Pulled, Total Run m/hr.

HOLE CONDITION

HOLE DRAG: 2-14 / 3-10

TORQUE AT BOTTOM: 5400 - 6400

FILL ON BOTTOM (m):

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	10:00	14:00	18:00
DENSITY kg/m³	1130	1120	1120
FUNNEL VIS. - (S/L)	56	58	52
W.L. (cm³)	6.3	6.2	6.3
pH	10.3	10.3	10.1
PVT	134.6	136.3	137.9

MUD MATERIALS ADDED / SOLIDS CONTROL

PRODUCT	AMOUNT X UNIT
Polypac UL	2 5x
Lignite	2 5x
Caustic	1 5x

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
2.5	1130	1065	2000

METRES DRILLED

FROM	TO	DRLG PMR CORES C	RO PMR
2778	2835	54	1

LINER SIZE (mm)	S.P.M.
9400	150 120

3300 @ 60

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
2761	36.0
2771	36.5
2780	36.4
2790	36.3
2800	36.6
2812	36.6

DRILLER SIGNATURE

TOUR: DAY

DRILLING ASSEMBLY (At End of Tour)

		LENGTH
	BIT	.25 m
1/2	MOTOR, FLEX SUB	6.70 .70 m
1/1	SHORT FLEX	3.56 9.27 m
1/2	NMS-1.96 FLEX 1.96	1.50 11.26 m
15	X3 DP	145.56 m
10	HWDP	109.41 m
1	JAR	6.58 m
25	HWDP	229.63 m
	BHA	532.78 m
99	E-DP	943.50 m
126	X2-DP	1205.87 m
6	x3 D.P. STANDS	174.15 m
	x3 D.P. SINGLES	m
	KELLY DOWN	— m
	TOTAL	2856.24 m
WT. OF DC		1000 daN
WT. OF STRING	97	1000 daN

BIT RECORD

BIT NO.	16
SIZE (mm)	215.9
IADC CODE	5 3 7
MFG.	Reed
TYPE	HP 53A
SERIAL NO.	LQ4101
JETS (mm)	3 x 15.9
DEPTH OUT (m)	—
DEPTH IN (m)	2727
TOTAL METRES DRILLED (m)	129
TOTAL HOURS RUN	33

CUTTING STRUCTURE: T, T_o, MDC, LOC, B, Gage, ODC, Reason Pulled, Total Run m/hr.

HOLE CONDITION

HOLE DRAG: 2-14 / 3-10

TORQUE AT BOTTOM: 5400 - 6400 ft lbs

FILL ON BOTTOM (m):

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	20:00	21:00	24:00
DENSITY kg/m³	1120	1110	1105
FUNNEL VIS. - (S/L)	50	52	51
W.L. (cm³)		6.3	6.0
pH	10.1	10.2	10.1
PVT	137.4	137.4	134.4

MUD MATERIALS ADDED / SOLIDS CONTROL

PRODUCT	AMOUNT X UNIT
Polypac ul	2 5x5
Lignite	3 5x5

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
2	1120	1060	2010

METRES DRILLED

FROM	TO	DRLG PMR CORES C	RO PMR
2835	2856	21	2

LINER SIZE (mm)	S.P.M.
9700	152 120

3300 @ 60

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
2815.90	36.0
2827.60	35.4
2839.20	35.4

DRILLER SIGNATURE

TOUR: EVENING

FOLD HERE →

DAILY CHECKS	OPR.	R.M.
Daily Walk Around Inspection	Initial	Initial
Detailed Inspection-Weekly (using checklist)	Initial	Initial
H2S Signs Posted (if required)	Initial	Initial
Permit Licenses & Block Diagram Posted	Initial	Initial
Power Lines Staked	Initial	Initial
BOP Drills Performed	Initial	Initial
Weekly Inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
Pre Spud Health and Safety Meeting (one/crew/month)		Initial
I.A.D.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
Pre-Last Inspection Before Raising or Lowering		Initial
Crown Saver Checked		Initial
Flare Gun Kits checked		Initial

YEAR 97 | MONTH 05 | DAY 25

RIG NO. 42

FUEL @ 8:00

HRS 1.45 | METER 32

WEATHER: TEMPERATURE °C; CURRENT CONDITIONS 0723; WIND DIRECTION; ROAD 1-17A-1

LAST CASING TUBING OR LINER	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
	241.30	222.88	64.37	VamFJ	M80	71	964.52	7.31	2500
	244.48	220.50	69.94	VamFJ	M80	120	1535.74	7.31	2500

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
177	29	E	108	152	5"XH	121	9-P100	NATIONAL	235
177	29	X	106	152	5"XH	133	9-P100	NATIONAL	235
177	33	X	101	150	5"XH	11.5			

1 22 23 24 25 26

TOTALS 12

SHALE SHAKER(S): NO. | TYPE

SCREENS CHANGED ☐ YES ☑ NO

TOP 110 | TOP 110

MIDDLE 110 | MIDDLE 110

BOTTOM 110 | BOTTOM 110

RENTALS/SERVICES | MONTH | TODAY | TOTAL

MORNING TOUR

RD

☐ OIL BASED

FROM	TO	TIME FROM	TIME TO	ELAP. TIME	CODE NO.
00	05:00	00:00	07:00	7	2
35	1130	07:00	7:45	3/4	10
53	55	7:45	18:00	11	7
5	6.3				
3	10.3				
3	133.0				

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2744	2778	34	120	12/13
			140	

CIRCULATION PRESSURE (kPa) | PUMP NO. 1: LINER SIZE (mm) 150, S.P.M. 120 | PUMP NO. 2: LINER SIZE (mm) 150, S.P.M.

9400

REDUCED PUMP SPEED: 3010 @ 40 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2730.90	35.7	121.30
2742.60	36.2	122.7
2752.20	36.6	123.4

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	07:00	7	2	Drill 311mm Hole w/Navidrill F/2744m-2778m
07:00	7:45	3/4	10	Service For Above Drilling.
7:45	18:00	11	7	Rig Service. Fix Brn Piston Main.

NOTES: Crown Saver Brakes Linkage Cleaned Adjusted. Rig Repair 12:00-13:00, 18:00-19:00

BOILER HRS RAN | gph | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | CALC'D

9 | 9 | 772°C | | | 7787

RD

☐ OIL BASED

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

DAY TOUR

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2778	2835	57	120	12/13
			140	14/15

CIRCULATION PRESSURE (kPa) | PUMP NO. 1: LINER SIZE (mm) 150, S.P.M. 120 | PUMP NO. 2: LINER SIZE (mm) 150, S.P.M.

9400

REDUCED PUMP SPEED: 3000 @ 60 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2761	36.2	121.8
2771	36.5	122.7
2780	36.4	122.4
2797	36.3	122.2
2800	36.6	122.4
2810	36.6	121.9

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
18:00	11:30	3½	2	Drill 311mm Hole F/2778m-2795m
11:30	11:45	¼	7	Rig Fix Annular F/Main 1650CFM
11:45	13:45	2	2	Drill 311mm Hole F/2795m-2807m
13:45	14:00	¼	22	Boo. H2S Main Drill Drill & Safety Meeting
14:00	12:30	4½	2	Drill 311mm Hole F/2807m-2835m
12:30	24:00	11½	10	Services For Above Drilling

NOTES: Drakes Large Crew Saver Clamp Adjusted. Rig Repair 11:00-12:00, 19:00-20:00

BOILER HRS RAN | gph | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | CALC'D

12 | 9 | 775 | 117 | H2S Drill | 7832

RD

☐ OIL BASED

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
1190	1065	2000

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

EVENING TOUR

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2835	2856	21	120	12/13

CIRCULATION PRESSURE (kPa) | PUMP NO. 1: LINER SIZE (mm) 152, S.P.M. 120 | PUMP NO. 2: LINER SIZE (mm) 152, S.P.M.

9700

REDUCED PUMP SPEED: 3000 @ 60 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2815.90	36.0	121
2821.60	35.1	119.9
2839.20	35.4	119.3

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
20:00	22:45	2¾	2	Drill 311mm Hole W/Navidrill F/2835m-2856m
22:45	23:15	½	21	H2S Drill Wiman Down + Safety Meeting w/Crew
23:15	23:45	½	12	Service For Above Drilling
23:45	24:00	¼	7	Rig Service Front Pump @ Main Clutch

NOTES: Crown Saver Brakes Linkage Adjusted. Rig Repair 2:00-4:00

BOILER HRS RAN | gph | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | CALC'D

4 | 9 | | | | 7777

118262

FOLD HERE →

LICENCE NO.: SDC-99

WELL NAME AND NO.: CHEVRON ET AL LIARD K-39 60°36'N, 123°30'W

OPERATOR: CHEVRON CANADA RESOURCES LTD

CONTRACTOR: AKITA DRILLING LTD

SURFACE LOCATION: K-39 60° 36'N, 123° 30'W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS (OPR. / R.M.)

(1) Daily Walk Around Inspection
(2) Detailed Inspection-Weekly (using checklist)
(3) H²S Signs Posted (if required)
(4) Well Licence & Sour Diagram Posted
(5) Flare Lines Staked
(6) BOP Drills Performed
(7) Visually inspect BOP's - Flarelines & Degasser Lines

(1) Rig Site Health and Safety Meeting (one/crew/month)
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)
(3) Mast Inspection Before Raising or Lowering
(4) Crown Saver Checked
(5) Motor Kills checked

YEAR: 91
RIG NO.: 48
FUEL
RIG: 174
WEATHER
TEMPERATURE
CURRENT CONDITIONS
WIND DIR.
ROAD

TIME - HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.			
MORN.		2 3/4			4 1/4		1/4			1/4														
DAY					1 3/4	9	1 1/4													1				
EVE.		3 1/4					1/4			1/2														
TOTAL																								

DRILLING ASSEMBLY (At End of Tour)

NO.	DESCRIPTION		LENGTH
			25 m
1	[illegible]		[illegible] m
1	[illegible]		[illegible] m
1	[illegible]		[illegible] m
1	[illegible]		[illegible] m
15	x3 DP		145.56 m
1	[illegible]		[illegible] m
25	HWDP		229.63 m
	BHA		55.78 m
79	x3 D.P.	STANDS	735.05 m
1	x3 D.P.	SINGLES	9.67 m
	KELLYDOWN		6.30 m
	TOTAL		2727.17 m
WT. OF DC			1000 daN
WT. OF STRING	96		1000 daN

BIT RECORD

BIT NO.	15
SIZE (mm)	215.9
IADC CODE	537Y
MFG.	STC
TYPE	F3
SERIAL NO.	LR0031
JETS (mm)	3X 15.1
DEPTH OUT (m)	2727
DEPTH IN (m)	2575
TOTAL METRES DRILLED (m)	152
TOTAL HOURS RUN	41

CUTTING STRUCTURE T	T_o	MDC	LOC	B	Gage	OOC	Reason Pulled	Total Run m/hr.
								37

HOLE CONDITION

HOLE DRAG: 16.1 / 41.1

TORQUE AT BOTTOM: 7400 - 8300

FILL ON BOTTOM (m):

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	02:00	04:00	06:00
DENSITY kg/m³	1110	1115	1120
FUNNEL VIS. - (S/L)	52	52	52
W.L. (cm³)	6.6	6.4	6.4
pH	10.2	10.3	10.2
PVT m³	132.9	131.4	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
Poly PAC R	2 SXS
Lignite	2 SXS
Kelzan	2 SXS
Caustic	2 SXS
Cal. Carb	141 SXS

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
DESILTER				
CENTRIFUGE				

MORNING TOUR

METRES DRILLED

FROM	TO	DRLG MUD & CORE C	RO R
2718	2727	9	

LINER SIZE (mm)	S.P.M.
9500	150

3 1/2 @ 90

DEPTH (m)	DEVIATION (°)
2713.50	36.7

DRILLER SIGNATURE:

DRILLING ASSEMBLY (At End of Tour)

NO.	DESCRIPTION		LENGTH
			25 m
1	[illegible]		[illegible] m
1	[illegible]		[illegible] m
1	[illegible]		[illegible] m
1	[illegible]		[illegible] m
15	x3 DP		145.56 m
1	[illegible]		[illegible] m
25	HWDP		229.63 m
	BHA		55.78 m
79	x3 D.P.	STANDS	735.05 m
1	x3 D.P.	SINGLES	9.67 m
	KELLYDOWN		6.30 m
	TOTAL		2727.17 m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	15	16
SIZE (mm)	215.9	215.9
IADC CODE	537Y	537
MFG.	STC	REED
TYPE	F3	HP53A
SERIAL NO.	LR0031	LR9101
JETS (mm)	3X 15.9	3X 15.9
DEPTH OUT (m)	2727	
DEPTH IN (m)	2575	2727
TOTAL METRES DRILLED (m)	152	
TOTAL HOURS RUN	41	

CUTTING STRUCTURE T	T_o	MDC	LOC	B	Gage	OOC	Reason Pulled	Total Run m/hr.
5	6	BT	11	52	[illegible]	FC	TD	37

HOLE CONDITION

HOLE DRAG:

TORQUE AT BOTTOM:

FILL ON BOTTOM (m):

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	07:00	19:45
DENSITY kg/m³	1130	1140
FUNNEL VIS. - (S/L)	52	52
W.L. (cm³)	6.5	
pH	10.2	10.0

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
Cal. Carb	80 SXS.
TP PRESS	13.14
MW	12.90
DIFF	.24

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
DESILTER				
CENTRIFUGE				

DAY TOUR

METRES DRILLED

FROM	TO	DRLG MUD & CORE C	RO R
2550	2727	177	

LINER SIZE (mm)	S.P.M.
9500	150

3 1/2 @ 90

DEPTH (m)	DEVIATION (°)

DRILLER SIGNATURE:

DRILLING ASSEMBLY (At End of Tour)

NO.	DESCRIPTION		LENGTH
			25 m
1	[illegible]		[illegible] m
1	[illegible]		[illegible] m
1	[illegible]		[illegible] m
15	x3 DP		145.56 m
1	[illegible]		109.41 m
25	HWDP		229.63 m
	BHA		55.78 m
79	x3 DP		735.50 m
106	x3 DP		1005.87 m
2	x3 D.P.	STANDS	58.06 m
	D.P.	SINGLES	m
	KELLYDOWN		3.79 m
	TOTAL		2744 m
WT. OF DC			1000 daN
WT. OF STRING	91		1000 daN

BIT RECORD

BIT NO.	16
SIZE (mm)	215.9
IADC CODE	537
MFG.	REED
TYPE	HP53A
SERIAL NO.	LR0101
JETS (mm)	3 15.9
DEPTH OUT (m)	—
DEPTH IN (m)	2727
TOTAL METRES DRILLED (m)	17
TOTAL HOURS RUN	3 1/4

CUTTING STRUCTURE T	T_o	MDC	LOC	B	Gage	OOC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG: 4-12 T 4-10 L

TORQUE AT BOTTOM: 7200 - 8400 ft lbs

FILL ON BOTTOM (m):

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	21:00	24:00
DENSITY kg/m³	1130	1130
FUNNEL VIS. - (S/L)	55	52
W.L. (cm³)	6.3	6.5
pH	10.2	10.2
PVT.	127.6	130.1

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
[illegible]	1

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
DESILTER				
CENTRIFUGE				

EVENING TOUR

METRES DRILLED

FROM	TO	DRLG MUD & CORE C	RO R
2727	2744	17	

LINER SIZE (mm)	S.P.M.
9500	150

3000 @

DEPTH (m)	DEVIATION (°)
2713.50	36.9

DRILLER SIGNATURE:

FOLD HERE →

CHECKS — OPR. / R.M.

- Walk Around Inspection — Initial / Initial
- Pipe Inspection-Weekly (using checklist) — Initial / Initial
- Tours Posted (if required) — Initial / Initial
- Licenses & Shift Diagram Posted — Initial / Initial
- Lines Staked — Initial / Initial
- Drills Performed — Initial / Initial
- Pre-Inspect BOPs - Flarelines & Degasser Lines — Initial / Initial

- Site Health and Safety Meeting (one/crew/month) — Initial
- C.O.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
- Inspection Before Raising or Lowering — Initial
- Mud Saver Cleaned — Initial
- Kills checked — Initial

YEAR 91 | MONTH 03 | DAY 24

RIG NO. 48 III

FUEL @ 8:00

RIG 174 | BOILER 32

WEATHER: TEMPERATURE °C; CURRENT CONDITIONS 5583; WIND DIRECTION; ROAD 1-11-974

LAST CASING TUBING OR LINER

O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
244.5	222.85	64.77	Vamco	MN80	71	9H4.52	7.31	2500
244.5	220.50	69.14	Vam Ltd	MN80	12	1535.74	7.31	2500

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
127	29	E	108	152	5"XH	121	9P100	NATIONAL	235
127	29	X2	106	152	5"XH	133	9P100	NATIONAL	235
127	38	X3	101	156	5"XH	168			

22 23 24 25 26

TOTALS: 8 / 12 / 4

SHALE SHAKER(S): NO. | TYPE

SCREENS CHANGED ☐ YES ☑ NO

TOP 110 | TOP 110

MIDDLE 110 | MIDDLE 110

BOTTOM 110 | BOTTOM 110

RENTALS/SERVICES — WORK | TODAY | TOTAL

D

MORNING TOUR

METRES DRILLED

FROM	TO	DRILLED IN CORED	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2718	2727	9	20 / 60	12/13

PUMP	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
#9500	152	120	152	

REDUCED PUMP SPEED: 3 stroke @ 60 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2713.50	36.7	122.5

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	BLADE TIME	CODE NO.
00:00	02:15	2 1/4	2
02:15	03:00	1/4	10
03:00	07:45	4 3/4	5
07:45	08:00	1/4	7

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

- Drill 2718m to 2727m. WOB 12/13 tons.
- Survey for Motor Orienting.
- Circ Bttms Up Prior To TFP. Pump WT Mix 113 bbls.
- Rig Service Fcn Pumps @ Floor 1/4

NOTES: Crown Saver Brakes, Linkage, Floor/Motor Runs Drilling @ 3:00 - 7:00

BOP DRILL | HRS. RANG | STACK TEMP | SUCCESSFUL/EXPERIENCED/HOOKLOAD | SAFETY TOPIC

8 | 9 | 225

DAY TOUR

METRES DRILLED

FROM	TO	DRILLED IN CORED	ROTARY R.P.M.	WT. ON BIT (1000 daN)

PUMP	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
#9500	152		152	120

REDUCED PUMP SPEED: 3100 @ @ 60

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	BLADE TIME	CODE NO.
08:00	12:45	4 3/4	6
12:45	13:00	1/4	20
13:00	13:15	1/4	7
13:15	14:00	3/4	20
14:00	18:15	4 1/4	6
18:15	17:00	3/4	5
17:00	20:00	1	5
			*

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

- Pull out of hole, Pump 2 slugs, 30 stds, 1 std, blow out of hole
- Lay down M.W.D.
- RIS Func. Blind Rams f/floor & Sec'y
- Make up Bit #4, P/U M.W.D. (15 stds)
- R.I.H. To 165m Test M.W.D. Test 2 Strms 1600m, 1300m, 1770m, 2145m, 2480m R/U To 2755m
- Wash 15/2755m - Bottom (1 hr)
- Drill Formation
- * Flow Checks Prior To TOH, L.D. M.W.D.

NOTES: Brakes, Linkage, Crown Saver, Choke, Alarms. Rig Service Rig (2) 1100

BOP DRILL | HRS. RANG | STACK TEMP | SUCCESSFUL/EXPERIENCED/HOOKLOAD | SAFETY TOPIC

9 | 9 | 225

EVENING TOUR

METRES DRILLED

FROM	TO	DRILLED IN CORED	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2727	2744	17	20 / 60	12/13

PUMP	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
#9500	152		152	120

REDUCED PUMP SPEED: 3003 @ @ 60

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2713.50	36.7	121.4

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	BLADE TIME	CODE NO.
20:00	23:15	3 1/4	2
23:15	23:45	1/2	10
23:45	24:00	1/4	7

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

- Drill 2744m to 2727m - 2744m
- Survey for Bit Trip
- Rig Service Fcn Top Drive & Floor

NOTES: Crown Saver Brakes, Linkage, Choke, Alarms. Function Test Crown Saver

BOP DRILL | HRS. RANG | STACK TEMP | SUCCESSFUL/EXPERIENCED/HOOKLOAD | SAFETY TOPIC

4 | 9 | 225 | 114 | 2787

118261

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LICENCE NO.: SDL-99 | WELL NAME AND NO.: CHEVRON ATAL LIARD K-29 60°30'N 123°30'W

OPERATOR: CHEVRON CANADA RESOURCES LTD | CONTRACTOR: AKITA DRILLING

SURFACE LOCATION: K-29 60°30'N 123°30'W | UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE: | SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS

	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) H²S Signs Posted (if required)	Initial	Initial
(4) Well License & Block Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually Inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)		Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
(3) Mast Inspection Before Raising or Lowering		Initial
(4) Crown Saver Checked		Initial
(5) Motor Kills checked		Initial

YEAR 99 | RIG NO. 4 | FUEL RIG 1.9 | WEATHER: TEMPERATURE | CURRENT CONDITIONS | WIND DIR. | ROAD G.I.

TIME-HRS

CODE NO.	1 OPER.	2 RIG UP & TEAR DOWN	3 DRILL ACTUAL	4 REAMING	5 CORING	6 COND. MUD & CIRC	7 TRIPS	8 RIG SERVICE	9 REPAIR RIG	10 CUT OFF DRILL LINE	11 DEV. SURVEY	12 WIRE LINE LOGS	13 RUN CASE & CEMENT	14 WAIT ON CEMENT	15 NIPPLE UP B.O.P.	16 TEST B.O.P.	17 DRILL STEM TEST	18 PLUG BACK	19 SQUEEZE CEMENT	20 FISHING	21 DIR. WORK	22 SAFETY MTG.	23	24
	MORN.		7¼					1/4			1/2											LOST PIPE		
	DAY		9¾					1/4			1/2											1/2		
	EVE.		3½					1/4			1/4													
	TOTAL																							

DRILLING ASSEMBLY (At End of Tour)

NO.		LENGTHS
1	BIT	.25 m
1/1	MOTOR	6.70/7.70 m
1/1	SHORT FLEX / FLEX	9.27 m
1/1	HDS / XO	.95/55 m
2/1	FLEX / XO	9.62/64 m
15	X-OP	145.56 m
12	HWDP	109.41 m
1	JAR	6.98 m
25	HWDP	229.63 m
	BHA =	532.76 m
99	E-DP	943.50 m
40	x2 D.P. STANDS	1148.70 m
2	x2 D.P. SINGLES	18.96 m
	KELLYDOWN	6.76 m
	TOTAL	2650.70 m
WT. OF DC		1000 daN
WT. OF STRING	95	1000 daN

BIT RECORD

BIT NO.	15
SIZE (mm)	215.9
IADC CODE	537X
MFG.	STC
TYPE	F3
SERIAL NO.	LR0031
JETS (mm)	3 X 15.9
DEPTH OUT (m)	—
DEPTH IN (m)	2575
TOTAL METRES DRILLED (m)	75
TOTAL HOURS RUN	25

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG 6-11↑ 4-8↓

TORQUE AT BOTTOM 6200 Ft lbs.

FILL ON BOTTOM (m) —

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	01:00	04:00	07:00
DENSITY kg/m³	1105	1100	1105
FUNNEL VIS. - (S/L)	50	49	49
W.L. (cm³)	6.5	6.8	6.9
pH	10.0	10.5	10.5
PVT	139.4	140.6	141.3

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
CENTRIFUGE				
CENTRIFUGE				

METRES DRILLED

FROM	TO	DRLD / RMVD CORED	RUN
2623	2650	23	5

LINER SIZE (mm)	S.P.M.
152	120

3400 @ 60

DEPTH (m)	DEVIATION (°)
2617.50	25.3
2626.90	27.8

DRILLER'S SIGNATURE:

METRES DRILLED

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.		LENGTHS
1	BIT	.25 m
1/1	MOTOR	6.76/7.70 m
1/1	SHORT FLEX / FLEX	9.27 m
1/1	HDS / XO	.95/55 m
2/1	FLEX / XO	9.62/64 m
15	X-OP	145.56 m
12	HWDP	109.41 m
1	JAR	6.98 m
25	HWDP	229.63 m
	BHA =	532.76 m
99	E-DP	943.50 m
42	x2 D.P. STANDS	1205.67 m
2	x3 D.P. SINGLES	19.36 m
	KELLYDOWN	3.49 m
	TOTAL	2705 m
WT. OF DC		1000 daN
WT. OF STRING	96	1000 daN

BIT RECORD

BIT NO.	15
SIZE (mm)	215.9
IADC CODE	537X
MFG.	S.T.C.
TYPE	F3
SERIAL NO.	LR0031
JETS (mm)	3 X 15.9
DEPTH OUT (m)	—
DEPTH IN (m)	2575
TOTAL METRES DRILLED (m)	130
TOTAL HOURS RUN	34¾

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG 8-12↑ 6-7↓

TORQUE AT BOTTOM 7000-7600

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	10:00	14:00	18:00
DENSITY kg/m³	1105	1105	1105
FUNNEL VIS. - (S/L)	48	47	48
W.L. (cm³)	6.0	7.0	7.0
pH	10.5	10.5	10.5
PVT	141.7	142.0	139.9

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
CENTRIFUGE				
CENTRIFUGE				

METRES DRILLED

FROM	TO	DRLD / RMVD CORED	RUN
2650	2705	55	

LINER SIZE (mm)	S.P.M.
152	120

3500 @ 60

DEPTH (m)	DEVIATION (°)
2635.42	29.9
2645.0	31.9
2655.5	33.9
2665.1	36.5
2674.8	36.4
2684.2	37.1

DRILLER'S SIGNATURE:

METRES DRILLED

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.		LENGTHS
1	BIT	.25 m
1/1	MOTOR Float Sub	6.70/7.70 m
1/1	Short Flex Sub	9.27 m
1/1	HDS / XO	.95/55 m
2/1	FLEX / XO	9.62/64 m
15	X-OP	145.56 m
12	HWDP	109.41 m
1	JAR	6.98 m
25	HWDP	229.63 m
	BHA	532.76 m
99	E-DP	943.50 m
42	x2 D.P. STANDS	1205.87 m
1	x3 D.P. SINGLES	24.05 m
	KELLYDOWN	6.80 m
	TOTAL	2718 m
WT. OF DC		1000 daN
WT. OF STRING	91	1000 daN

BIT RECORD

BIT NO.	15
SIZE (mm)	215.9
IADC CODE	537X
MFG.	S.T.C.
TYPE	F3
SERIAL NO.	LR0031
JETS (mm)	3 X 15.9
DEPTH OUT (m)	—
DEPTH IN (m)	2575
TOTAL METRES DRILLED (m)	143
TOTAL HOURS RUN	38¼

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG 8-14↑ 6-10↓

TORQUE AT BOTTOM 7000 - 7400 Ft lbs.

FILL ON BOTTOM (m) —

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	20:00	22:00	
DENSITY kg/m³	1105	1110	
FUNNEL VIS. - (S/L)	47	50	
W.L. (cm³)	6.9	7.0	
pH	10.1	10.2	
PVT	132.4	131.3	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
CENTRIFUGE				
CENTRIFUGE				

METRES DRILLED

FROM	TO	DRLD / RMVD CORED	RUN
2705	2718	13	

LINER SIZE (mm)	S.P.M.
150	120

3500 @ 60

DEPTH (m)	DEVIATION (°)
3694.20	37.4

DRILLER'S SIGNATURE:

METRES DRILLED

EVENING TOUR

FOLD HERE →

CHECKS	OPR.	R.M.
Walk Around Inspection	Initial	Initial
Inspection-Weekly (using checklist)	Initial	Initial
Signs Posted (if required)	Initial	Initial
License & Slack Diagram Posted	Initial	Initial
Lines Staked	Initial	Initial
Drills Performed	Initial	Initial
Daily Inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
Tour Health and Safety Meeting (one/crew/month)		Initial
C.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
Inspection Before Raising or Lowering		Initial
Crown Saver Checked		Initial
Kelly checked		Initial

YEAR 99 | MONTH 03 | DAY 23

RIG NO. 48

FUEL @ 8:00

RIG 1.495 | BOILER

WEATHER: TEMPERATURE °C; CURRENT CONDITIONS 1110; WIND DIRECTION; ROAD hard

	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
LAST CASING	244.5	222.88	64.37	[illegible]	[illegible]				
TUBING OR LINER	244.5	220.50		Vamco	MN80	71	914.52	7.31	2500
	244.5	220.50	69.94	Vamco	MN80	120	1535.74	7.31	2500

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
127	29	E	108	152	5"XH	121	9-P100	National	355
127	29	X	106	152	5"XH	133	9-P100	National	355
127	38	X	101	152	5"XH	168			

22 | 23 | 24 | 25 | 26

Joint P.P.E

1/2

TOTALS: 8 | 12 | 4

SHALE SHAKER(S) / RENTALS/SERVICES

NO. | TYPE

SCREENS CHANGED ☐ YES ☑ NO

	TOP	TOP
	110	110
MIDDLE	110	110
BOTTOM	110	110

MORNING TOUR

METRES DRILLED

FROM	TO	DRLD RMR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2627	2650	23	20	3/14
			60	12/16

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
152	120	152	

REDUCED PUMP SPEED: 3400 @ 60

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2617.50	25.3	129.0
2626.90	27.8	128.6

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	07:15	7 1/4	2	Drill 216mm Hole W/Motor FR: 2627m - 2650m.
07:15	07:30	1/4	7	Rig Service Fem Brm P.Pos & Main Loc. C/L
07:30	08:00	1/2	10	Survey For Above Drilling

NOTES: ✓ Crown Saver Brakes Linkage Clamp Anchor

Boiler Blow Down @ 7:00 & 7:00

BOILER HRS	RAN	STACK TEMP	MAX/MIN EXPERIENCED HOOKLOAD	SAFETY TOPIC	CREW
8	9	225°C	100	Noise	8023

DAY TOUR

METRES DRILLED

FROM	TO	DRLD RMR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2650	2705	55	20	12/14
			40	14/14

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
152	120	152	

REDUCED PUMP SPEED: 3500 @ 60

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2635.42	29.5	126.4
2645.0	31.9	123.9
2655.5	33.9	123.7
2665.1	36.0	120.1
2674.5	36.6	121.1
2684.5	37.1	120.6

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
08:00	15:00	7	2	Drill 216mm Hole F/2650m - 2705m
15:00	15:15	1/4	7	R/S Flow Nipple & Main Loc. C/L
15:15	15:30	2 1/4	2	Drill 216mm Hole F/2705m - 2705m
12:00	18:30	1/2	23	Work P.P.
18:30	20:00	1 1/2	10	Surveys For Above

NOTES: Brakes Linkage Crown Saver Clamp Anchor Greased Crown

Blow Down @ 11:00, 15:00, 19:00

BOILER HRS	RAN	STACK TEMP	MAX/MIN EXPERIENCED HOOKLOAD	SAFETY TOPIC	CREW
12	9	225	112 000		8023

EVENING TOUR

METRES DRILLED

FROM	TO	DRLD RMR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2705	2718	13	30	12/13
			60	14/17

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
152	120	152	

REDUCED PUMP SPEED: 3500 @ 60

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2694.20	37.4	121.8

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
2:00	23:30	3 1/2	2	Drill 216mm Hole W/Motor FR: 2705 - 2718
23:30	23:45	1/4	7	Rig Service Fem T.P. Pipes @ Main Loc. C/L
23:45	24:00	1/4	10	Survey For Above Drilling

NOTES: Crown Saver Brakes Linkage Clamp Anchor

Blow Down @ 20:00

BOILER HRS	RAN	STACK TEMP	MAX/MIN EXPERIENCED HOOKLOAD	SAFETY TOPIC	CREW
4	9	225			

111090

FOLD HERE →

LICENCE NO.: SDL 99

WELL NAME AND NO.: CHEVRON ETAL HARD K-29 60° 30' N 123° 30' W

OPERATOR: CHEVRON CANADA RESOURCES LTD

CONTRACTOR: AKITA DRILLING

SURFACE LOCATION: K-29 60° 30' N 123° 30' W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) H'S Signs Posted (if required)	Initial	Initial
(4) Well Licence & Stick Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)		Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
(3) Mast Inspection Before Raising or Lowering		Initial
(4) Crown Saver Checked		Initial
(5) Motor Kills checked		Initial

JOB NO. 79

RIG NO.

FUEL

RIG 130 cm

WEATHER: TEMPERATU / CURRENT CONDITION / WIND DIRECT / ROAD

TIME-HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC.	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.			
MORN.		3				3 3/4	1/4		3/4	1/4														
DAY		7 1/4					1/4			1/2														
EVE.		7 1/4					1/4			1/2														
TOTAL																								

DRILLING ASSEMBLY (At End of Tour)

		LENGTH m
1		.25 / 6.76 m
1	F.S. / SHORT FLEX	.20 / 3.86 m
1	FLEX / HWDP	9.27 / 195 m
1	XO / FLEX	.55 / 14.62 m
1	XO / X-O.P.	.64 / 145.56 m
12	HWDP	109.41 m
1	JAR	6.58 m
25	HWDP	229.63 m
	BHA	532.78 m
99	E-D.P.	9013.50 m
		m
38	D.P. STANDS	1091.25 m
1	D.P. SINGLES	9.57 m
SLUGG	KELLY DOWN	9.58 m
	TOTAL	2586.68 m
WT. OF DC		1000 daN
WT. OF STRING	95	1000 daN

BIT RECORD

BIT NO.	15
SIZE (mm)	215.9
IADC CODE	5 3 7 X
MFG.	STC.
TYPE	F-3
SERIAL NO.	LR0031
JETS (mm)	3+15.9
DEPTH OUT (m)	—
DEPTH IN (m)	2575
TOTAL METRES DRILLED (m)	11
TOTAL HOURS RUN	3 1/4

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG

TORQUE AT BOTTOM

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	05:00	07:00
DENSITY kg/m³	1120	1120
FUNNEL VIS. - (S/L)	51	50
W.L. (cm³)		
pH	10.0	10.0
PVT.	125.3	125.1

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
Poly Pac UL	4
Caustic	4
Lig.	2

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
2	1120	1055	1900
HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD CORE-C	ROT R.P.
2577	2586	9	R. 5

LINER SIZE (mm)	S.P.M.
152	80

8800 — 60

DEPTH (m)	DEVIATION (°)
2540.10	13.7

DRILLER'S SIGNATURE

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

		LENGTH m
1		.25 m
1	BIT / MOTOR	6.76 m
1	STAB / FLEX / STAB	3.86 m
1	FLEX / HWDP	.55 m
10	XO / X-O.P.	145.56 m
10	HWDP	109.41 m
1	JAR	6.58 m
25	HWDP	229.63 m
	BHA	532.78 m
99	E2-D.P.	9435.60 m
		m
39	12 D.P. STANDS	1115.98 m
1	x2 D.P. SINGLES	9.57 m
	KELLY DOWN	3.17 m
	TOTAL	2609 m
WT. OF DC		1000 daN
WT. OF STRING	95	1000 daN

BIT RECORD

BIT NO.	15
SIZE (mm)	215.9
IADC CODE	5 3 7 X
MFG.	S.T.C.
TYPE	F-3
SERIAL NO.	LR0031
JETS (mm)	3 x 15.9
DEPTH OUT (m)	—
DEPTH IN (m)	2575
TOTAL METRES DRILLED (m)	34
TOTAL HOURS RUN	10 1/2

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG: 14-12 ↓ 4-10

TORQUE AT BOTTOM: 6500 - 7000 FT. LBS

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	09 00	12:00	15:00
DENSITY kg/m³	1100	1100	1110
FUNNEL VIS. - (S/L)	46	48	50
W.L. (cm³)			
pH	10	10	10.5
PVT m³	130.0	132.1	131.8

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
Polypac R	2 SxS
Polypac UL	2 SxS
Lig.	2 SxS
Caustic	3 SxS
Cal. Carb	150 SxS

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
2	1120	1080	1910
HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD CORE-C	ROT R.P.
2586	2609	17	T. 2 S.

LINER SIZE (mm)	S.P.M.
152	120

9000 — 68

DEPTH (m)	DEVIATION (°)
2579.30	16.7
2588.80	18.2

DRILLER'S SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

		LENGTH m
1		.25 m
1/1	MOTOR / STAB	6.76 / .70 m
1/1	STAB / FLEX / STAB	3.86 / .77 m
1/1	M.O.S. / XO	.55 / .55 m
2/1	FLEX / XO	18.62 / 1.64 m
15	X/O DP	145.56 m
12	HWDP	109.41 m
1	JAR	6.58 m
25	HWDP	229.63 m
	BHA	532.78 m
39	E2 DP	363.50 m
4	x2 D.P. STANDS	1149.70 m
	D.P. SINGLES	m
	KELLY DOWN	3.02 m
	TOTAL	2107 m
WT. OF DC		1000 daN
WT. OF STRING	95	1000 daN

BIT RECORD

BIT NO.	15
SIZE (mm)	215.9
IADC CODE	5 3 7 X
MFG.	S.T.C.
TYPE	F3
SERIAL NO.	LR0031
JETS (mm)	3 X 15.9
DEPTH OUT (m)	—
DEPTH IN (m)	2575
TOTAL METRES DRILLED (m)	452
TOTAL HOURS RUN	17 3/4

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG: 6-10 ↑ 4-10 ↓

TORQUE AT BOTTOM

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	16:00	20 00	24 00
DENSITY kg/m³	1115	1105	1110
FUNNEL VIS. - (S/L)	48	46	53
W.L. (cm³)		6	6.5
pH	10.5	10.5	11
PVT	132.2	134.2	136.4

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
Caustic	25x
Kelzan	25x

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD CORE-C	ROT R.P.
2609	2677	18	4

LINER SIZE (mm)	S.P.M.
152	120

3100 — 60

DEPTH (m)	DEVIATION (°)
2518.4	20.3
2665	22.6

DRILLER'S SIGNATURE

EVENING TOUR

FOLD HERE →

DAILY CHECKS

	OPR.	R.M.
Daily Walk Around Inspection	Initial	Initial
Detailed Inspection-Weekly (using checklist)	Initial	Initial
H2S Signs Posted (if required)	Initial	Initial
Well Licensee & Stick Diagram Posted	Initial	Initial
Flare Lines Staked	Initial	Initial
BOP Drills Performed	Initial	Initial
Visually Inspect BOP's - Flaretines & Degasser Lines	Initial	Initial
Rig Site Health and Safety Meeting (one/crew/month)		Initial
C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
Derrick Inspection Before Raising or Lowering		Initial
Hydrogen Sulfide Sensor Checked		Initial
Motor Kills checked		Initial

YEAR 99 | MONTH 03 | DAY 22

RIG NO. 4/4

FUEL @ 8:00

RIG 130 cm | DERRICK 33 cm

WEATHER

TEMPERATURE °C	
CURRENT CONDITIONS	4C7
WIND DIRECTION	
ROAD CONDITIONS	T/L/SSR

LAST CASING TUBING OR LINER

O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
244.5	222.88	60.27	VAM PRD	N-80	71	964.52	7.31	2500
244.5	222.50	69.94	VAM PRD	N-80	120	1535.74	7.31	2500

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
127	29	E2	108	152	5"XH	121	9-P-100	NATIONAL	235
127	29	X2	106	154	5"XH	133	9-P-100	NATIONAL	235
127	38	X3	101	154	5"XH	116			

21 22 23 24 25 26

TOTALS

SHALE SHAKER(S) — NO. | TYPE

SCREENS CHANGED ☐ YES ☐ NO

TOP 110	TOP 110
MIDDLE 110	MIDDLE 110
BOTTOM 115	BOTTOM 115

RENTALS/SERVICES

RD

MORNING TOUR

RELEASED 07:00

00	1120
0	50
0	10.0
3	125.1

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
1120	1055	1190

METRES DRILLED

FROM	TO	DR-D PART CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2577	2586	9	8-20	12/13
			5 60	14/15

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
9-P-100	152	90	152	

REDUCED PUMP SPEED: 4800 @ 60 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2561.10	13.7	116.7

DRILLER SIGNATURE: [signature]

TIME LOG

FROM	TO	HRS	CODE
00:00	03:45	3 3/4	6
03:45	04:30	3/4	9
04:30	04:45	1/4	7
04:45	07:45	3	2
07:45	08:00	1/4	10

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

RUN IN W/BIT #15 / 1° MOTOR & HWDP.
SLIP + CUT 18m OF DRILLING LINE.
R/S CLOSE TOP PIPE RAMS @ FLOOR C/C TEST
DRILL 21½mm HOLE W/MOTOR F/2577-2586
SURVEY FOR ARNIC DRILLING.

NOTES: VISUAL SHAKER / FLOW LINE CLEAN / ANCHORS / BRAKE LINKAGE
Safety Rig Drill @ 0730-0700

BOILER HRS RAN 9 | STACK TEMP 175°C | MAN EXPERIENCED/WORKLOAD 110 mm | SAFETY TOPIC 7532

RD

DAY TOUR

RELEASED 15:00

00	1110
0	50
	10.5
.1	131.8

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
1140	1080	1910

METRES DRILLED

FROM	TO	DR-D PART CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2586	2609	17	20	12/13
			560	

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
9-P-100	152	120	152	

REDUCED PUMP SPEED: 3300 @ 60 @ 5

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2571.30	16.1	122.5
2588.80	18.2	126.6

DRILLER SIGNATURE: [signature]

TIME LOG

FROM	TO	HRS	CODE
05:00	15:15	7 1/4	2
15:15	15:30	1/4	7
15:30	16:00	1/2	10

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

DRILL 21½mm HOLE F/ 2586m - 2609m.
RIG SERVICE FUN ANNULAR @ FLOOR C/O BOP'S
SURVEY FOR ARNIC DRILLING.

NOTES: VISUAL SHAKER, FLOW LINE, CLEAN FLOOR
FIRE DRILL @ 10:00, 14:00

BOILER HRS RAN 9 | STACK TEMP 175°C | MAN EXPERIENCED/WORKLOAD | SAFETY TOPIC 7777

ORD

EVENING TOUR

RELEASED 2400

	1110
	53
	6.3
	11
2	138.5

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D PART CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2609	2627	18	40-60	15/16

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
9-P-100	152	120	152	

REDUCED PUMP SPEED: 3100 @ 60 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2618.4	20.3	129.0
2635	22.6	129.8

DRILLER SIGNATURE: [signature]

TIME LOG

FROM	TO	HRS	CODE
14:00	22:15	6 1/4	2
22:15	22:30	1/4	7
22:30	23:30	1	2
23:30	24:00	1/2	10

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

DRILL 21½mm HOLE F/ 2609m - 2624m
RIG FUNCTION TEST RAMS F/FLOOR C/C
DRILL 21½mm HOLE F/ 2624m - 2627m
SURVEY FOR ARNIC DRILLING

NOTES: BRAKES, LINKAGE, CROWN SAVER, CLAMP ANCHOR, GREASED BLOCKS
ROUGH RIG DRILL @ 1400, 2200

BOILER HRS RAN 8 | STACK TEMP 225 | MAN EXPERIENCED/WORKLOAD | SAFETY TOPIC 1125

111089

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LICENCE NO.: SDL-99

WELL NAME AND NO.: CHEVRON ETAL LIARD K-29 60° 30' N 123° 30' W

OPERATOR: CHEVRON CANADA RESOURCES LTD

CONTRACTOR: AKITA DRILLING

SURFACE LOCATION: ~~K-[illegible]~~ K-29 60°30'N 123°30'W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS — OPR. / R.M.

(1) Daily Walk Around Inspection
(2) Detailed Inspection-Weekly (using checklist)
(3) H²S Signs Posted (if required)
(4) Well License & Stick Diagram Posted
(5) Flare Lines Staked
(6) BOP Drills Performed
(7) Visually inspect BOP's - Flarelines & Degasser Lines

(1) Rig Site Health and Safety Meeting (one/crew/month)
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)
(3) Mast Inspection Before Raising or Lowering
(4) Crown Saver Checked
(5) Motor Kills checked

YEAR 94 — RIG NO. 41

FUEL — INV. 1.56m

WEATHER — TEMPERATURE / CURRENT CONDITION / WIND DIRECTION / TOUR HOURS

TIME - HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV. SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.				
MORN.		4			3/4	2 1/2	1/4			1/4												R.O.P. DRILL				
DAY		1/4			2 1/4	5 1/4	1/4													1		1/4				
EVE.						3 1/4	1/4													1/2						
TOTAL		4 1/4								1/4															

DRILLING ASSEMBLY (At End of Tour)

NO.		LENGTHS
1		25 m
1	Mills / F.S.	6.76 / 1.70 m
1	Stab / Flex	3.86 / 9.27 m
1	H.W.D.P. XO	18.42 / 1.44 m
12	H.W.D.P.	109.41 m
1	JAR	6.58 m
25	H.W.D.P.	229.17 m
	BHA	347.22 m
99	F2-D.P.	943.50 m
126	X2-D.P.	1205.87 m
1	X3 D.P. STANDS	29.05 m
	D.P. SINGLES	m
	KELLY DOWN	9.67 m
	TOTAL	2575.31 m
WT. OF DC		1000 daN
WT. OF STRING	94	1000 daN

BIT RECORD

BIT NO.	14
SIZE (mm)	215.9
IADC CODE	537
MFG.	Security
TYPE	S86F
SERIAL NO.	731699
JETS (mm)	3-15.9
DEPTH OUT (m)	2575
DEPTH IN (m)	2500
TOTAL METRES DRILLED (m)	75
TOTAL HOURS RUN	16 3/4

CUTTING STRUCTURE: T_i | T_o | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr. — 4.47

HOLE CONDITION

HOLE DRAG	10-14 ↑ 6-10 ↓
TORQUE AT BOTTOM	5000-11000
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	2:00 / 4:00
DENSITY kg/m³	1120 / 1120
FUNNEL VIS. - (S/L)	64 / 71
W.L. (cm³)	
pH	10 / 10
PVT	143.2 / 144.4

MUD ADDITIVES ADDED — SOLIDS CONTROL

PRODUCT	AMOUNT X UNIT
CAL CARB	56 SX
LIGNITE	30 SX
CAUSTIC	4 SX
POLYPAC R	2 SX
POLYPAC UL	7 SX
DESCO	1 SX

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
SOLIDS CONTROL				
CENTRIFUGE				

MORNING TOUR

METRES DRILLED

FROM	TO	DRD. RM-R CORE-C	ROT. R.P.
2565	2575	10	R

LINER SIZE (mm)	S.P.M.
152	

3200 — NAT

DEPTH (m)	DEVIATION (°)
2558-31	13.5

DRILLER'S SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.		LENGTHS
1	Mills / F.S.	1.25 / 6.76 / 1.70 m
1	S. Stab / Flex	3.86 / 9.27 m
1	H.W.D.P. / XO	18.42 / 1.44 m
12	H.W.D.P.	109.41 m
1	JAR	6.58 m
25	H.W.D.P.	229.63 m
	BHA	350.78 ~~349.22~~ m
99	F2 D.P.	943.50 m
~~126~~	~~X2~~	~~1205.87 m~~
36	X2 D.P. STANDS	1091.25 m
1	X3 D.P. SINGLES	m
	KELLY DOWN	9.57 m
	TOTAL	2547.11 m
WT. OF DC		1000 daN
WT. OF STRING	92	1000 daN

BIT RECORD

BIT NO.	14	15
SIZE (mm)	215.9	215.9
IADC CODE	537	537X
MFG.	SECURITY	SMITH
TYPE	S86F	LR0031
SERIAL NO.	731699	F3
JETS (mm)	3-15.9	3-15.9
DEPTH OUT (m)	2575	
DEPTH IN (m)	2500	2575
TOTAL METRES DRILLED (m)	75	2
TOTAL HOURS RUN	16 3/4	1/4

CUTTING STRUCTURE: T_i | T_o | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

2	2	BT	A	E	I	N	TQ	4.4

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	T	17:00
DENSITY kg/m³		1120
FUNNEL VIS. - (S/L)	R	63
W.L. (cm³)	I	
pH	P	10.0
PVT m³		125.6

PRODUCT	AMOUNT X UNIT
Caustic	2 SXS
Cal. Carb.	56 SXS

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
SOLIDS CONTROL				
CENTRIFUGE				

DAY TOUR

METRES DRILLED

FROM	TO	DRD. RM-R CORE-C	ROT. R.P.
2575	2577	2	3

LINER SIZE (mm)	S.P.M.
152	

3200

DEPTH (m)	DEVIATION (°)
Hole Full	Calc.
2577	0.5
	0.6

DRILLER'S SIGNATURE

DRILLING ASSEMBLY (At End of Tour)

NO.		LENGTHS
1		25 / 6.76 m
1	F.S. / Float Flex	.70 / 3.86 m
1	Flex / H.W.D.P.	9.27 / 95 m
1	XO / Flex	.55 / 1.42 m
1	XO / X3 D.P.	44 / 1155 m
12	H.W.D.P.	109.41 m
1	JAR	6.58 m
25	H.W.D.P.	229.63 m
	BHA	532.78 m
99	F2-D.P.	943.50 m
	D.P. STANDS	m
	D.P. SINGLES	m
	KELLY DOWN	m
	TOTAL	m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	15
SIZE (mm)	215.9
IADC CODE	537X
MFG.	STC
TYPE	12RM31
SERIAL NO.	F3
JETS (mm)	3-15.9
DEPTH OUT (m)	
DEPTH IN (m)	2575
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE: T_i | T_o | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

PRODUCT	AMOUNT X UNIT

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
SOLIDS CONTROL				
CENTRIFUGE				

EVENING TOUR

METRES DRILLED

FROM	TO	DRD. RM-R CORE-C	ROT. R.P.
2577			

LINER SIZE (mm)	S.P.M.
152	

3200

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

FOLD HERE →

DAILY CHECKS

	OPR.	R.M.
Daily Walk Around Inspection	Initial	Initial
Weekly Inspection-Weekly (using checklist)	Initial	Initial
Signs Posted (if required)	Initial	Initial
Hat Licenses & Stick Diagram Posted	Initial	Initial
Flare Lines Tested	Initial	Initial
Fire Drills Performed	Initial	Initial
Daily Inspect BOP's - Flareness & Degasser Lines	Initial	Initial
Site Health and Safety Meeting (one/crew/month)		Initial
A.D.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
Last Inspection Before Raising or Lowering		Initial
Crown Saver Checked		Initial
Floor Kills checked		Initial

YEAR 94 | MONTH 03 | DAY 21

RIG NO. 48

FUEL @ 8:00

RIG 1.56m | HOBBS 33xm

WEATHER: TEMPERATURE °C; CURRENT CONDITIONS 12840; WIND DIRECTION; ROADS - Loose

LAST CASING TUBING OR LINER

	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
	244.5	222.89	64.73	VAM P&O	MN80	71	964.52	7.31	2500
	244.5	220.50	69.94	VAM P&O	MN80	120	1535.74	7.31	2500

	DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
	127	29	E-Z	108	152	5"XH	121	G-P-100	NATIONAL	235
	127	29	X-3	1010	151	5"XH	133	G-P-100	NATIONAL	235
	127	29	X-3	101	151	5"XH	1064			

22 | 23 | 24 | 25 | 26

QTY	R.O.P. Drill				
	1/1				
	1/1				

TOTALS: 1 | 12 | 1 | 24

SHALE SHAKER(S)

NO. | TYPE

SCREENS CHANGED ☐ YES ☑ NO

TOP 110	TOP 110
MIDDLE 110	MIDDLE 110
BOTTOM 110	BOTTOM 110

RENTALS/SERVICES — HOURS | FOOTAGE | COST

MORNING TOUR

RD

CASED	
	1620

SOLIDS CONTROL

	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2565	2575	10	20	10/12
			60	15/20

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
	152		152	120

REDUCED PUMP SPEED: 3200 @ rpm @ 60

DEVIATION SURVEYS

DEPTH (m)	DEVIATION (°)	DIRECTION
2558.31	13.5	115.9

DRILLER SIGNATURE

TIME LOG

FROM	TO	BLAST TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	04:00	-1	2	Drill 216mm Hole w/Motor ER: 2565-2575
04:00	04:15	1/4	10	Survey
04:15	05:00	3/4	5	Circulate Button Hole Sa. Sk
05:00	05:15	1/4	7	Rig Service Clean T.P. Screens @ Manf.
05:15	07:45	2½	6	Flow / Pump Pill / Hoist B.T. 14 / Flow Check / 35 STDS
7:45	00:00	1/4	22	Hold B.O.P. Drill w/Crew.

NOTES: Pump Swivel Packing / Bearing Lubricate / Fill Line Chain / Adjust.
Rig Up Plan Dan @ 2200-0700

BOILER HRS. RAN	STACK TEMP.	MAXIMUM EXPERIENCED HOOKLOAD	SAFETY TOPIC	ACC.
8	175°C	120 000		7532

DAY TOUR

CASED

	17:00
	1120
	63
	10.0
	125.6

SOLIDS CONTROL

	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2575	2577	2	30	14

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
	152		152	120

REDUCED PUMP SPEED: 3200 @ @ 60

DEVIATION SURVEYS

DEPTH (m)	DEVIATION (°)	DIRECTION
Hole Fin	Calc. 12.24	
	Mess. 12.82	
	Dif. .58	

DRILLER SIGNATURE

TIME LOG

FROM	TO	BLAST TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
06:00	10:00	2	6	Pull Out of Hole Flare 415m.
10:00	11:00	1	22	Handle Directnl + Change Bit Flare on Bit
11:00	15:45	4¾	6	Run In Hole w/MWD @ Pick Up 15 x 30°
				Test MWD @ 180m, 720-1250, 1750 2500
15:45	17:45	1½	5	Wash To Btm. ER: 2500-2575m.
				+ Circ Out Trip Gas Over Shaker.
17:45	17:30	1/2	2	Drill 216mm Hole ER: 2575m - 2577m.
17:30	18:15	3/4	5	Pump Lo Vis Water; Attempt To Flush MWD
				MWD Failed To Get MWD To Work
				After Many Tries
18:15	19:45	1½	6	Pull Stands From 2500 MWD, Pump Pill + Flow Chk
19:45	21:00	1¼	7	Rig Service Flow. Run Pipe @ 2500m.

NOTES: Crown Saver Bearing Lubricate, Chain Adjust.
Pump Pressure 11.00 - 11.00

BOILER HRS. RAN	STACK TEMP.	MAXIMUM EXPERIENCED HOOKLOAD	SAFETY TOPIC	ACC.
17	77°			

EVENING TOUR

CASED

SOLIDS CONTROL

	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2577				

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
	152		152	

REDUCED PUMP SPEED: 3200 @ @ 60

DEVIATION SURVEYS

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	BLAST TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
20:00	22:45	2¾	6	Hoist To Check MWD / Flow / 3 Stds. / Flow
				/ Pump Pill + Out Of Hole.
22:45	23:15	1/2	22	Change Out MWD.
23:45	23:45	1/2	6	Run In / 2 Tr. 15 Check MWD / Fuse /
				Pump Rates
2345	24:00	1/4	7	R/S Check Crown Saver Op. 10/c 18 Sec.

NOTES: Crown Saver Bearing Lubricate, Chain Adjust.
Boiler Blow Down @ 7300

BOILER HRS. RAN	STACK TEMP.	MAXIMUM EXPERIENCED HOOKLOAD	SAFETY TOPIC	ACC.
4	175°C			7532

111088

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LICENCE NO.: SDL 99

WELL NAME AND NO.: CHEVRON ETAL LIARD K-29 60°30'N 123°30'W

OPERATOR: CHEVRON CANADA RESOURCES LTD

CONTRACTOR: AKITA DRILLING

SURFACE LOCATION: K-29 60° 30'N 123° 30'W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS

	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) HPS Signs Posted (if required)	Initial	Initial
(4) Well Licence & Stick Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually Inspect BOP's - Pipelines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)	Initial	
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)	Initial	
(3) Mast Inspection Before Raising or Lowering	Initial	Initial
(4) Crown Saver Checked	Initial	
(5) Motor Kills checked	Initial	

YEAR: 97

RIG NO.:

FUEL

RIG: 191 m

WEATHER: TEMPERATU / CURRENT CONDITIONS / WIND DIRE / ROADS

TIME-HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV. SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.				
MORN.						5	1/4													2½					
DAY		9¼				13½	¼			½											1¼				
EVE.		3¼					¼			½															
TOTAL		12½				18¾	1			1										2½	1½				

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.		LENGTH
1	BIT	.25 m
1	F.S. / STAB - FIEX	.70 / 2.76 m
1	FIEX / H.O.S.	9.27 / 2.95 m
1	XO	.55 m
2	FIEX / H.O.S.	18.62 m
1	XO	.64 m
12	HWDP	109.41 m
1	JAR	6.56 m
25	HWDP	229.63 m
		374.22 m
	D.P. STANDS	m
	D.P. SINGLES	m
	KELLY DOWN	m
	TOTAL	m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	14
SIZE (mm)	215.9
IADC CODE	537
MFG.	SECURITY
TYPE	G586F
SERIAL NO.	731699
JETS (mm)	3-15.9
DEPTH OUT (m)	
DEPTH IN (m)	2500
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE: T_i | T_o | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG

TORQUE AT BOTTOM

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
GEL	11 SX
CAL CARB	56 SX
DEFOAM	1 PAIL

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLG RMR CORE C	ROT R.P.
2503			

LINER SIZE (mm) | S.P.M.

DEPTH (m) | DEVIATION (°)

TRIP

MEAS - 11.80 m³

CALC - 11.70 m³

DIFF .10 m³

DRILLER'S SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.		LENGTH
1	BIT	.25 m
1	MOTOR / FLEX 3x8	6.76 / .70 m
1	STAB / FLEX	3.86 / 9.27 m
1	PUP / XO	1.79 / .55 m
3	FLEX / XO	18.62 / 1.64 m
12	HWDP	109.41 m
1	JAR	6.56 m
25	HWDP	229.63 m
	BHA	389.22 m
99	F2-DP	943.56 m
126	X2-DP	1205.87 m
1	D.P. STANDS	9.68 m
1	D.P. SINGLES	m
	KELLY DOWN	m
	TOTAL	4.73 m
WT. OF DC		2551.00 1000 daN
WT. OF STRING		92 1000 daN

BIT RECORD

BIT NO.	14
SIZE (mm)	215.9
IADC CODE	537
MFG.	Sec
TYPE	G586F
SERIAL NO.	731699
JETS (mm)	3x15.9
DEPTH OUT (m)	—
DEPTH IN (m)	2500
TOTAL METRES DRILLED (m)	51
TOTAL HOURS RUN	9½

CUTTING STRUCTURE: T_i | T_o | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG 6-10↑ 2-4↓

TORQUE AT BOTTOM 6200

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	11:00	16:00	19:00
DENSITY kg/m³	1070	1085	1090
FUNNEL VIS. - (S/L)	58	65	58
W.L. (cm³)	20	17	17
pH	9.9	9.9	10.1
PVT	105.4	110.7	116.1

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
Cal Carb.	565 SKS
Lignite	6 SKS
Desco	10 SKS
Gel	10 SKS
Polypac	4 SKS
Kelzan	2 SKS
Caust. C	7 SKS

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLG RMR CORE C	ROT R.P.
2503	2551	48	

LINER SIZE (mm) | S.P.M.

9500 | 152

3500

DEPTH (m) | DEVIATION (°)

2519.61 | 5.7

2529.30 | 7.2

DRILLER'S SIGNATURE

EVENING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.		LENGTH
1	BIT	.25 m
1	MOTOR / FLEX	6.76 / .70 m
1	STAB / FLEX	3.86 / 9.27 m
1	HOS / XO	1.79 / .55 m
3	FLEX / XO	18.62 / 1.64 m
12	HWDP	109.41 m
1	JAR	6.56 m
25	HWDP	229.63 m
	BHA	357.27 m
99	F2-DP	943.56 m
126	X2-DP	1205.87 m
3	D.P. STANDS	29.05 m
	D.P. SINGLES	m
	KELLY DOWN	m
	TOTAL	2565.44 m
WT. OF DC		1000 daN
WT. OF STRING	92	1000 daN

BIT RECORD

BIT NO.	14
SIZE (mm)	215.9
IADC CODE	537
MFG.	SECURITY
TYPE	G586F
SERIAL NO.	731699
JETS (mm)	3-15.9
DEPTH OUT (m)	—
DEPTH IN (m)	2500
TOTAL METRES DRILLED (m)	65
TOTAL HOURS RUN	12¾

CUTTING STRUCTURE: T_i | T_o | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG 10-24↑ 6-10↓

TORQUE AT BOTTOM

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	20:00	22:00	24:00
DENSITY kg/m³	1120	1120	1120
FUNNEL VIS. - (S/L)	55	74	66
W.L. (cm³)	NOT HIGH TEMP	4.5	8.7 (15)
pH	10.7	10.5	10
PVT	137.5	134.2	134.1

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLG RMR CORE C	ROT R.P.
2551	2565	14	

LINER SIZE (mm) | S.P.M.

Mud 152

3660

DEPTH (m) | DEVIATION (°)

2538.95 | 9.4

2548.64 | 11

DRILLER'S SIGNATURE

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CHECKS

	OPR.	R.M.
Walk Around Inspection	Initial	Initial
Inspection-Weekly (using checklist)	Initial	Initial
Signs Posted (if required)	Initial	Initial
Licenses & Stick Diagram Posted	Initial	Initial
Lines Stated	Initial	Initial
Drills Performed	Initial	Initial
Inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
Site Health and Safety Meeting (one/crew/month)		Initial
I.A.D.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
Inspection Before Raising or Lowering		Initial
Crown Saver Checked		Initial
Derrick Kills checked		Initial

YEAR 99 | MONTH 03 | DAY 25

RIG NO. 48

FUEL @ 8:00

RIG 1911 m | DRILLED 2503 m

WEATHER: TEMPERATURE °C; CURRENT CONDITIONS -6517; WIND DIRECTION; ROAD -6.0548

LAST CASING TUBING OR LINER

	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
	244.5	222.98	64.73	VAM PRO	Mod 80	71	964.52	7.31	2500
	244.5	220.50	69.94	VAM P20	Mod 80	120	1535.74	7.31	2500

	DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
	127	29	E2	108	152	5"XH	121	9-P-100	NATIONAL	325
	127	29	X2	106	154	5"XH	133	9-P-100	NATIONAL	325
	127	38	X2	101	151	5"XH	169			

22	23	24	25	26
Y w/mud.				
H				
J				
H/J				

TOTAL: 8, 12, 4, 24

SHALE SHAKER(S) NO. | TYPE

SCREENS CHANGED ☐ YES ☑ NO

TOP 110 | MIDDLE 110 | BOTTOM 110

RENTALS/SERVICES

	HOURS	PICK UP	RETURN

RD

OIL BASED

SOLIDS CONTROL

	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
CENTRIFUGE			

MORNING TOUR

METRES DRILLED

FROM	TO	DRD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2503				

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
TRIP		
Mem - 11.80 m³		
Calc - 11.70 m³		
Diff .10 m³		

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NPT
00:00	03:00	3	6
03:00	03:15	1/4	7
03:15	05:45	2 1/2	22
05:45	06:00	1/4	6
06:00	06:15	1/4	22
06:15	07:00	13/4	6

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

HOIST TO PICK UP D.P. TOOLS / FLOW @ 40 STKS / CHOOP + DUMP OF HOSE. (LAY DOWN D.C.)

R/S CHOKE LINES & FLOW + MAIN

MAKE UP D.P. TOOLS.

RIG UP.

SHALLOW TEST MWD

R.I.H. W/ TEST MWD 750m / 1250m.

NOTES: CROWN SAVER / BRAKE LINKAGE / FAST LINE CLAMPS / ADJUST. Boiler Blow Down @ 0300, 0700

BOILER: HRS RAN 4 | STACK TEMP 9 | 700°C

MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | TOOL PUSHER

DAY TOUR

METRES DRILLED

FROM	TO	DRD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2503	2551	48	35	5/3
			60	14/15

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
9500	152		152	120

REDUCED PUMP SPEED

350 @ @ 60

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2519.60	5.7	91.9
2549.30	7.2	103.3

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NPT
08:00	09:45	1 3/4	6
09:45	11:00	1 1/4	2
11:00	11:15	1/4	7
11:15	11:30	1/4	21
11:30	19:30	3	2
19:30	20:00	1/2	10

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

RUN IN HOLE. TEST MWD 1750, 2500m.

DRLG 216mm HOLE W/MOTOR FR 2503m - 2535m.

R/S SERVICE FLOW ANNULAR @ FLOOR 11 STDS/H.

SAFETY MEETING W/ STANDARD SAFETY

DRLG 216mm H.E. W/MOTOR FR 2535m - 2551

SURVEYS FOR ABOVE DRILLING.

NOTES: CROWN SAVER / BRAKE LINKAGE, CLAMPS / ADJUST. Boiler Blow Down @ 1100, 1600

BOILER: HRS RAN 12 | STACK TEMP 9.5 | 225

MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | TOOL PUSHER 97368

EVENING TOUR

METRES DRILLED

FROM	TO	DRD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2551	2565	14	R 20	14/12
			S 60	15/16

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
9500-1400	152		152	120

REDUCED PUMP SPEED

360 @ @ 60

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2538.95	9.4	107.9
2548.64	11	112.5

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NPT
20:00	23:15	3 1/4	2
23:15	23:30	1/4	7
23:30	24:00	1/2	10

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

DRLG 216mm HOLE W/MOTOR FR 2551-2565

R/S CLOSE RAMS & PRESS TEST FLOOR VALVE

R/S SERVICE FLOW ANNULAR @ FLOOR

NOTES: CROWN SAVER / BRAKE LINKAGE / FAST LINE CLAMPS / ADJUST. Boiler Blow Down @ 2200

BOILER: HRS RAN 4 | STACK TEMP 129°F | MAXIMUM EXPERIENCED HOOKLOAD 120 tons | SAFETY TOPIC H2S SAFETY | TOOL PUSHER 1532

111087

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LICENCE NO.: SDL-99

WELL NAME AND NO.: CHEVRON ETAL LIARD K-29 60° 30' N 123° 30' W

OPERATOR: CHEVRON CANADA RESOURCES LTD

CONTRACTOR: AKITA DRILLING

SURFACE LOCATION: K-29 60° 30' N 123° 30' W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS

	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) H²S Signs Posted (if required)	Initial	Initial
(4) Well Licensee & Stick Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually Inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)		Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
(3) Mast Inspection Before Raising or Lowering		Initial
(4) Crown Saver Checked		Initial
(5) Motor Kills checked		Initial

YEAR 79

RIG NO. 124

FUEL

WEATHER: TEMPERATU / CURRENT CONDITION / WIND DIRECT / ROADS

TIME-HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC.	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV. SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.				
MORN.																						Drill Rat	Drilling	Flowline	Load
DAY		1/4			3 1/2		1/4															13/4	1/4		
EVE.																									
TOTAL																									

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
1			.25 m
1	B.T Sub		.74 m
1	D.C.	171	9.55 m
1	XO		1.09 m
12	HWDP		109.41 m
1	JAR		6.58 m
25	HWDP		229.63 m
	BHA		357.25 m
99	E-D.P		943.50 m
			m
			m
40	x2 D.P.	STANDS	1148.70 m
	D.P.	SINGLES	m
	KELLYDOWN		m
	TOTAL		m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	14
SIZE (mm)	215.9
IADC CODE	537
MFG.	SECURITY
TYPE	GS86F
SERIAL NO.	731699
JETS (mm)	3-15.9
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG

TORQUE AT BOTTOM

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: WATER BASED / OIL BASED

TIME			
DENSITY kg/m³			
FUNNEL VIS. - (S/L)			
W.L. (cm³)			
pH			

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
DIESEL	5 m³
400 BBL	32 m³ START
	27 m³ FIN

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROT R.P.

LINER SIZE (mm) | S.P.M.

152

REDUCED PUMP SPEED

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
D.P. STRAP	
BOARD	309
STRAP	329
D.P.	

DRILLER'S SIGNATURE

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
1			.25 m
1	Bit Sub		.74 m
1	DC	171	9.55 m
1	XO		1.09 m
12	HWDP		109.41 m
1	JAR		6.58 m
25	HWDP		229.63 m
	BHA		357.25 m
99	E-DP		943.50 m
126	x2 DP		1205.87 m
	D.P.	STANDS	m
	D.P.	SINGLES	m
	STANDS KELLYDOWN		-3.62 m
	TOTAL		2503 m
WT. OF DC			1000 daN
WT. OF STRING		92	1000 daN

BIT RECORD

BIT NO.	14
SIZE (mm)	215.9
IADC CODE	537
MFG.	Sec.
TYPE	GS 86F
SERIAL NO.	731699
JETS (mm)	3-15.9
DEPTH OUT (m)	2503
DEPTH IN (m)	2500
TOTAL METRES DRILLED (m)	3
TOTAL HOURS RUN	1/4

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG

TORQUE AT BOTTOM

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: WATER BASED / OIL BASED

TIME	14:00	16:00	19:00
DENSITY kg/m³	1010	1010	1050
FUNNEL VIS. - (S/L)	31	51	59
W.L. (cm³)		12	
pH	10.4	10	10
	9[illegible]8	96.5	96.8

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
MIGEL	150 5x's
SODIUM BICARB	4 5x's
DIESEL FUEL TANK -	= 9.0 m³
CALCARB	224 5x's
KELZAN	3 5x's

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROT R.P.

LINER SIZE (mm) | S.P.M.

9900 | 152 | 80

REDUCED PUMP SPEED

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
1			.25 m
1	B.T Sub		.74 m
1	D.C.	171	9.55 m
1	XO		1.09 m
12	HWDP		109.41 m
1	JAR		6.58 m
25	HWDP		229.63 m
	BHA		357.25 m
99	E-D.P.		943.50 m
126	x2-D.P.		1205.87 m
	D.P.	STANDS	m
	D.P.	SINGLES	m
	SINGLE KELLYDOWN		-2.62 m
	TOTAL		2503 m
WT. OF DC			1000 daN
WT. OF STRING		92	1000 daN

BIT RECORD

BIT NO.	14
SIZE (mm)	215.9
IADC CODE	537
MFG.	SECURITY
TYPE	GS86F
SERIAL NO.	731699
JETS (mm)	3-15.9
DEPTH OUT (m)	2503
DEPTH IN (m)	2500
TOTAL METRES DRILLED (m)	3
TOTAL HOURS RUN	1/4

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG

TORQUE AT BOTTOM

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: WATER BASED / OIL BASED

TIME	22:00
DENSITY kg/m³	1070
FUNNEL VIS. - (S/L)	47
W.L. (cm³)	
pH	
PIT	106.1

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
CAL CARB	255 5x
GEL	15 5x

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROTA P.P.
2503			

LINER SIZE (mm) | S.P.M.

10400 | 152 | 80 | 1

REDUCED PUMP SPEED

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

EVENING TOUR

FOLD HERE →

Y CHECKS	OPR.	R.M.
Walk Around Inspection	Initial	Initial
Inspection-Weekly (using checklist)	Initial	Initial
Signs Posted (if required)	Initial	Initial
License & Stick Diagram Posted	Initial	Initial
Lines Staked	Initial	Initial
Drills Performed	Initial	Initial
Inspect BOP's - Pipe/Hex & Degasser Lines	Initial	Initial
Site Health and Safety Meeting (one/crew/month)		Initial
A.D.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
Inspection Before Raising or Lowering		Initial
Down Sewer Checked		Initial
Kills checked		Initial

YEAR 99 | MONTH 03 | DAY 14

RIG NO. 44

FUEL @ 8:00

RIG 124 m | WATER 32 m

WEATHER

TEMPERATURE	°C
CURRENT CONDITIONS	2023
WIND DIRECTION	
ROADS	594014

LAST CASING TUBING OR LINER

O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
244.5	222.88	64.73	JAM PRO	N80	71	964.52	7.31	2500
244.5	22050	69.94	JAM PRO	N 80	120	1535.74	7.31	2500

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
127	29	E2	108	152	5"XH	121	9-P-100	NATIONAL	235
127	29	X2	106	154	5"XH	133	9-P-100	NATIONAL	235
127	38	X3	101	156	5"XH	114			

22	23	24	25	26
Drill Data	Drilling	Flow	Leak Off	
13/4	1/4			

TOTALS

SHALE SHAKER(S) — RENTALS/SERVICES

NO. | TYPE

SCREENS CHANGED ☑ YES ☐ NO

12

TOP	TOP
110	110
MIDDLE	MIDDLE
110	110
BOTTOM	BOTTOM
118	118

MORNING TOUR

RD — OIL BASED

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION — PUMP NO. 1 — PUMP NO. 2

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
	152		152	

REDUCED PUMP SPEED

@ — @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
D.P. STRAP		
BOARD	3092	20
STRAP	3092	53
DIFF		33

DRILLER'S SIGNATURE

Khalil Lamri

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
0000	04:00	4	15	FINISH PRESS TESTING, STACK TEST INSIDE
				B.O.P. + DRILL TEST MANIFOLD TO 1500 KPA AND
				24500 KPA HIGH (RUNNING BHA)
04:00	07:00	3	6	RUNNING TO DRILL OUT (STRAP IN) T. 2449
07:00	07:15	1/4	7	RIG SERVICE CLOSE ANNULAR & FLICK O/C 17 SEC
07:15	08:00	3/4	5	DISPLACE HOLE W/ WATER.

NOTES: CREW SAFETY / BRAKE LINKAGE / FAST LINE CLIP / ANCHOR. BAKER HUGHES DOWN @ 0700, 0700

BOILER HRS. RAN | STACK TEMP. | MAXIMUM EXPERIENCED HOOKLOAD | SAFE WORK LOAD

8 | 4 | 2750C

DAY TOUR

RD — OIL BASED

0	19.00
7	1050
	59
	10
5	96.8

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
9800	152	80	152	80

CIRCULATION — PUMP NO. 1 — PUMP NO. 2

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@ — @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
0800	0915	1¼	5	DISPLACE HOLE W/WATER
0915	1100	1¾	20	DRILL OUT STRAP, FLOAT + SHOE, 2m OF NEW
				ON TOP OF HOLE.
1100	1115	¼	2	DRILL 215mm HOLE FROM 2500m - 2503m
1115	1345	2½	5	CIRC. POOH TO 152mm. MUD UP
1345	1930	5¾	7	RIG SERVICE FUNCTION HYDRIL TEST 3/6
1930	2000	½	23	BIT DRUG

NOTES: CREW SAFETY / BRAKE LINKAGE CLAMP ANCHOR. BAKER HUGHES @ 11:00 & 19:00

BOILER HRS. RAN | STACK TEMP. | MAXIMUM EXPERIENCED HOOKLOAD | SAFE WORK LOAD

12 | 4.5 | 2750C | 1050

EVENING TOUR

RD — OIL BASED

1	

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2503				

CIRCULATION — PUMP NO. 1 — PUMP NO. 2

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
10420	152	90	152	80

REDUCED PUMP SPEED

@ — @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
20:00	22:00	2	5	RIG UP HIT + MIX MUD.
22:00	22:15	¼	24	FLOW CHECK
22:15	23:00	¾	25	LEAK OFF TEST.
				FORMATION STRENGTH TEST TO 14.1 PPG
				EMW = 1477
23:00	23:15	¼	7	RIG CLOSE TOP PREVENTER FLOOR: 15sec
23:15	24:00	¾	6	FLOW / PUMP PILL / HOIST TO DRILL
				W/ D.C. TOOLS / FLOW CHECK.

NOTES: CREW SAFETY / BRAKE LINKAGE / FAST LINE / ANCHOR

BOILER HRS. RAN | STACK TEMP. | MAXIMUM EXPERIENCED HOOKLOAD | SAFE WORK LOAD

4

111086

FOLD HERE →

LICENCE NO.: SDL 99

WELL NAME AND NO.: CHEVRON ETAC LIARD K-29 60° 30' N 123° 30' W

OPERATOR: CHEVRON CANADA RESOURCES LTD

CONTRACTOR: AKITA DRILLING

SURFACE LOCATION: K-29 60° 30'N 123° 30'W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS (OPR. / R.M.)

(1) Daily Walk Around Inspection — Initial / Initial
(2) Detailed Inspection-Weekly (using checklist) — Initial / Initial
(3) HPS Signs Posted (if required) — Initial / Initial
(4) Well License & Slot Diagram Posted — Initial / Initial
(5) Flare Lines Staked — Initial / Initial
(6) BOP Drills Performed — Initial / Initial
(7) Visually Inspect BOP's - Flarelines & Degasser Lines — Initial / Initial

(1) Rig Site Health and Safety Meeting (one/crew/month) — Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
(3) Mast Inspection Before Raising or Lowering — Initial
(4) Crown Saver Checked — Initial
(5) Motor Kills checked — Initial

YEAR 99

RIG NO. 142

FUEL

WEATHER: TEMPERATURE / CURRENT CONDITION / WIND DIRECT / ATT ROADS

TIME-HRS

CODE NO.	1 OPER.	2 RIG UP & TEAR DOWN	3 DRILL ACTUAL	4 REAMING	5 CORING	6 COND MUD & CIRC.	7 TRIPS	8 RIG SERVICE	9 REPAIR RIG	10 CUT OFF DRILL LINE	11 DEV SURVEY	12 WIRE LINE LOGS	13 RUN CASE & CEMENT	14 WAIT ON CEMENT	15 NIPPLE UP B.O.P.	16 TEST B.O.P.	17 DRILL STEM TEST	18 PLUG BACK	19 SQUEEZE CEMENT	20 FISHING	21 DIR. WORK	22 SAFETY MTG.	23	24	25
	MORN.							1/4							2								Tuesday Hands Workin Hills			
	DAY															8							4 1/2	1 1/4 4		
	EVE.							1/4								3 3/4										
	TOTAL																									

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.		LENGTH
		m
		m
		m
		m
		m
		m
		m
		m
	D.P. STANDS	m
	D.P. SINGLES	m
	KELLYDOWN	m
	TOTAL	m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG
TORQUE AT BOTTOM
FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
DESILTER				
CENTRIFUGE				
		LINER SIZE (mm)	S.P.M.	

METRES DRILLED

FROM	TO	DRLG ROT CORE-C	ROT R.P.

REDUCED PUMP SPEED @ S.P.M.

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.		LENGTH
		m
		m
		m
		m
		m
		m
		m
		m
	D.P. STANDS	m
	D.P. SINGLES	m
	KELLYDOWN	m
	TOTAL	m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG
TORQUE AT BOTTOM
FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
DESILTER				
CENTRIFUGE				
		LINER SIZE (mm)	S.P.M.	

METRES DRILLED

FROM	TO	DRLG ROT CORE-C	ROT R.P.

REDUCED PUMP SPEED @ S.P.M.

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

EVENING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.		LENGTH
1	BIT SUB	1.25 m
1	D.C. 171	9.55 m
1	XO	1.09 m
12	HWDP	109.41 m
1	JAR	6.58 m
25	HWDP	229.63 m
	BHA	357.25 m
99	E-D.P.	943.50 m
	D.P. STANDS	m
	D.P. SINGLES	m
	KELLYDOWN	m
	TOTAL	m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	14
SIZE (mm)	215.9
IADC CODE	5 3 7
MFG.	SECURITY
TYPE	GS86F
SERIAL NO.	731699
JETS (mm)	3-15.9
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG
TORQUE AT BOTTOM
FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
DESILTER				
CENTRIFUGE				
		LINER SIZE (mm)	S.P.M.	

METRES DRILLED

FROM	TO	DRLG ROT CORE-C	ROT R.P.

REDUCED PUMP SPEED @ S.P.M.

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

FOLD HERE →

DAILY CHECKS	OPR.	R.M.
Daily Walk Around Inspection	Initial	Initial
Detailed Inspection-Weekly (using checklist)	Initial	Initial
H2S Signs Posted (if required)	Initial	Initial
Well Licensee & Stick Diagram Posted	Initial	Initial
Flare Lines Staked	Initial	Initial
BOP Drills Performed	Initial	Initial
Visually Inspect BOP's - Flexibleness & Degasser Lines	Initial	Initial
Rig Site Health and Safety Meeting (one/crew/month)		Initial
C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
Mast Inspection Before Raising or Lowering		Initial
Crown Saver Checked		Initial
Motor Kills checked		Initial

YEAR 99 | MONTH 03 | DAY 18

RIG NO. 414

FUEL @ 8:00

RIG 1412 | BOILER

WEATHER: TEMPERATURE °C; CURRENT CONDITIONS 0; WIND DIRECTION

ATS ROADS 595991

LAST CASING TUBING OR LINER	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
	339.7	315.34	101.2	BUTRESS	K55	56	693.60	7.31	701.30

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
127	29	E2	108	152	5"XH	121	9-P-100	NATIONAL	235
127	29	X2	106	154	5"XH	133	9-P-100	NATIONAL	235
127	38	X3	104	156	5"XH	16			

21 22 23 24 25 26

SAFETY MTG. Tubing Hanger NATIONAL

4 1/2 1 1/4

4

TOTALS

8
12 TOP 110 TOP 110
4 MIDDLE 110 MIDDLE 110
24 BOTTOM 110 BOTTOM 110

SHALE SHAKER(S) NO. TYPE

SCREENS CHANGED ☒ YES ☐ NO

RENTALS/SERVICES

MORNING TOUR

RECORD

☐ CASED

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD RMVR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

PUMP

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	04:30	4 1/2	22	P.C.P. Csg, INSTALL TUBING HANGER & D.S.A. + PRESS TEST TUBING HANGER.
04:30	06:30	2	14	N.U. BOP & B.O.P.
06:30	06:45	1/4	7	R/S
06:45	08:00	1 1/4	23	R.U. & U.D FLOOR.
				? Fuel transfer to Rig Start Dip 86cm 13.5m³ total. Finish Dip 149cm

NOTES: Blow Down Lines & Manifolds. Fill Line Clamps & Frame. Boiler Blow Down to 07:00

BOILER HRS RAN 8 | STACK TEMP 9 | MAXIMUM EXPERIENCED HOOKLOAD 77.5°C | SAFETY TOPIC | ACCIDENTS

DAY TOUR

RECORD

☐ CASED

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD RMVR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

PUMP

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
152		152	

REDUCED PUMP SPEED

@ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
08:00			23	STEAM HOT CABARET SAND CLEAN TANK
	12:00	4	23	= LINES WAITING ON TRUCK. TEST C
12:00	20:00	8	15	BIT IN. PRESS TEST. HOLES TEST CASG. LINES 1500 KPA, 20000 KPA HIGH. 15 min EACH. BTM LINES, TOP V. DRS. HCR VALVE ALL STACK VALVES 1500 KPA LOW, 34500 KPA HIGH 15 min EACH ANNULAR 1500 KPA LOW, 17500 KPA HIGH 15 min

NOTES: CASING SAFE. BRAKE LINKAGE - FAST LINE CLAMPS / ANCHOR. FLARE PIT CLEAN TO 11:00 & 14:00 & 15:00

BOILER HRS RAN 17 | STACK TEMP 9.5 | 77°C | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | ACCIDENTS

EVENING TOUR

RECORD

☐ CASED

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD RMVR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

PUMP

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
20:00	23:45	3 3/4	15	Accu. Func. Test / Press Test Stabbing Valve Kelly cock / Blind Rams Press Test Stand Pipe & Kill Line to 1500 KPA Low / 34500 KPA High.
23:45	24:00			R.C. Crown

NOTES: BRAKE LINKAGE / FAST LINE CLAMP / ANCHOR / SAME

BOILER HRS RAN 4 | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | ACCIDENTS

111085

FOLD HERE →

LICENCE NO.: #SDL 99

WELL NAME AND NO.: CHEVRON ET AL LIARD K-29 60° 30' N 123° 30' W

OPERATOR: CHEVRON CANADA RESOURCES LTD

CONTRACTOR: AKITA DRILLING

SURFACE LOCATION: K-29 60° 30' N 123° 30' W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS — OPR. / R.M.

(1) Daily Walk Around Inspection — R.M. 20
(2) Detailed Inspection-Weekly (using checklist)
(3) H²S Signs Posted (if required)
(4) Well Licensee & Stick Diagram Posted
(5) Flare Lines Staked
(6) BOP Drills Performed
(7) Visually Inspect BOP's - Flowlines & Degasser Lines

(1) Rig Rec Hastm and Safety Meeting (one/crew/month)
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)
(3) Mast Inspection Before Raising or Lowering
(4) Crown Saver Checked
(5) Motor Kills checked

YEAR 99 — RIG NO. 24

FUEL — RIG 1.02 m

WEATHER — TEMPERATURE / CURRENT CONDITIONS / WIND DIREC / RAIN

TIME-HRS

CODE NO.	1 OPER.	2 RIG UP & TEAR DOWN	3 DRILL ACTUAL	4 REAMING	5 CORING	6 COND. MUD & CIRC	7 TRIPS	8 RIG SERVICE	9 REPAIR RIG	10 CUT OFF DRILL LINE	11 DEV SURVEY	12 WIRE LINE LOGS	13 RUN CASE & CEMENT	14 WAIT ON CEMENT	15 NIPPLE UP B.O.P.	16 TEST B.O.P.	17 DRILL STEM TEST	18 PLUG BACK	19 SQUEEZE CEMENT	20 FISHING	21 DIR. WORK	22 SAFETY MTG.	23	24	25
	MORN.							1/4					7 3/4									S.T.S. 15.			
	DAY					[illegible]		1 1/4	1	1/4			5								1/4				
	EVE.												1 1/2		1 1/2										
	TOTAL																					1			

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.		LENGTH
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLYDOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED — SOLIDS CONTROL

PRODUCT	AMOUNT X UNIT

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROT. R.P.
2500			

LINER SIZE (mm)	S.P.M.
152	

1400	@	kPa

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER SIGNATURE: Paul Leger

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.		LENGTH
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLYDOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☑ OIL BASED

TIME	14:00
DENSITY kg/m³	1285
FUNNEL VIS. - (S/L)	70
W.L. (cm³)	
pH	
PVT	77.5

MUD MATERIALS ADDED — SOLIDS CONTROL

PRODUCT	AMOUNT X UNIT
GEL	80
CAUSTIC	2
SODA ASH	1

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROT. R.P.

LINER SIZE (mm)	S.P.M.
4 1/2	152

4105	@	70	kPa

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER SIGNATURE: Neal Lee

EVENING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.		LENGTH
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLYDOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED — SOLIDS CONTROL

PRODUCT	AMOUNT X UNIT

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROT. R.P.

LINER SIZE (mm)	S.P.M.

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER SIGNATURE:

FOLD HERE →

DAILY CHECKS — OPR. / R.M.

- Daily Walk Around Inspection — Initial / Initial
- Completed Inspection-Weekly (using checklist) — Initial / Initial
- H2S Signs Posted (if required) — Initial / Initial
- Well License & Stick Diagram Posted — Initial / Initial
- Flare Lines Staked — Initial / Initial
- BOP Drills Performed — Initial / Initial
- Visually Inspect BOP's - Flarelines & Degasser Lines — Initial / Initial
- Rig Site Health and Safety Meeting (one/crew/month) — Initial
- C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
- Pre-tour Inspection Before Raising or Lowering — Initial
- Crown Saver Checked — Initial
- Motor Kills checked — Initial

YEAR 99 | MONTH 03 | DAY 17

RIG NO. 48

FUEL @ 8:00

RIG 1.02m³ BOILER Acc — 33cm

WEATHER — TEMPERATURE °C — CURRENT CONDITIONS 0 — WIND DIRECTION — HOBBS 3945991

		O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
LAST CASING		339.7	315.09	107.2	[illegible]	K-55	58	693.60	7.31	700/730
TUBING OR LINER		244.5	222.1	[illegible]	VAM PRO	MN-80	71	964.52	7.31	2500
		244.5	222.1	[illegible]	VAM ACE	MN-80	100	1525.71	7.31	3500

	DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
	127	29	S2	108	158	5"XH	121	9-P-100	NATIONAL	235
	127	29	X2	106	154	5"XH	133	9-P-100	NATIONAL	235
	127	38	X3	101	156	5"XH	168			

21	22	23	24	25	26
SAFETY MTG	SPT 24.25				
	1				

TOTALS: 4 / 12 / 4 / 1

SHALE SHAKER(S) — NO. — TYPE

SCREENS CHANGED ☐ YES ☐ NO

TOP 84 / MIDDLE 84 / BOTTOM 84

RENTALS/SERVICES

	MORN	DAYS	EVE

MORNING TOUR

RELEASED

METRES DRILLED

FROM	TO	DH-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2500				

CIRCULATION PRESSURE	PUMP NO. 1 LINER SIZE (mm)	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE (mm)	PUMP NO. 2 S.P.M.
	152		152	

REDUCED PUMP SPEED: 1400 @ [ ] SPM @ [ ] √3

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE: David Leonard

SOLIDS CONTROL

	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
CENTRIFUGE			

TIME LOG

FROM	TO	ELAP. TIME	CODE (NOC)	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	07:45	7¾	12	Run Csg / Fill Csg every 20 Jts.
07:45	08:00	¼	7	Rig Service
				Circ. Csg. Clean. Cement 7 bbl
				Pump 4m³ Fresh Water Ahead
				Land Csg. 70E
				2337 m
				0.31 m
				926.7 m
				1525.71 m
				3501.17 m

NOTES: √ Crown Saver √ Floor Inspected √ Flarelines Clear √ Alarms

Boiler Blown Down @ 0300, 0700

BOILER HRS RAN 8 | 9 | STACK TEMP 175°C

MAXIMUM EXPERIENCED HOOKLOAD: 186

SAFETY TOPIC

DAY TOUR

RELEASED

METRES DRILLED

FROM	TO	DH-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION PRESSURE	PUMP NO. 1 LINER SIZE (mm)	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE (mm)	PUMP NO. 2 S.P.M.
4000	152	70	152	70

REDUCED PUMP SPEED: [ ] @ [ ] SPM @ [ ]

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE: [illegible]

SOLIDS CONTROL

	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
CENTRIFUGE			

TIME LOG

FROM	TO	ELAP. TIME	CODE (NOC)	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
05:00	07:15	1¼	12	Run Csg.
07:15	07:30	¼	7	Rig Service
07:30	10:00	2½	5	Rig To + Circ Csg.
10:00	11:00	1	18	Slip + Cut Drlg.
11:00	12:00	1	12	Rig Out Circ Head + Run Csg.
12:00	17:00	5	5	Rig To Circ Csg. Prep To Cement.
17:00	17:15	¼	21	Safety Meeting / Prep To Cement.
17:15	20:00	2¾	12	Cement Csg.

NOTES: √ Crown Saver √ Floor Inspected √ Flarelines Clear √ Alarms

Boiler Blown Down @ 0300, 0700

BOILER HRS RAN 12 | 9 | STACK TEMP 204°C

MAXIMUM EXPERIENCED HOOKLOAD: 174

SAFETY TOPIC: KI

EVENING TOUR

RELEASED

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION PRESSURE	PUMP NO. 1 LINER SIZE (mm)	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE (mm)	PUMP NO. 2 S.P.M.

REDUCED PUMP SPEED: [ ] @ [ ] SPM @ [ ]

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE: [illegible]

SOLIDS CONTROL

	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
CENTRIFUGE			

TIME LOG

FROM	TO	ELAP. TIME	CODE (NOC)	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
20:00	20:30	½	12	Cement Csg (Displace w/ Rig Pump)
20:30	21:30	1	12	Tear out Cementers
21:30	23:00	1½	14	Tear out BOP, Set Slips.
23:00	24:00	1	22	Drl. Slips w/ 160 daN. Cut Csg.

NOTES: √ Crown Saver √ Floor Inspected √ Flarelines Clear √ Alarms

Boiler Blown Down @ 2300

BOILER HRS RAN 4 | 4 | STACK TEMP 225°C

MAXIMUM EXPERIENCED HOOKLOAD:

SAFETY TOPIC:

111084

FOLD HERE →

LICENCE NO.: SDL 99

WELL NAME AND NO.: CHEVRON ETAL LIARD K-29 60°30'N 123°30'W

OPERATOR: CHEVRON CANADA RESOURCES LTD

CONTRACTOR: AKITA DRILLING.

SURFACE LOCATION: K-29 60° 30' N 123° 30' W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS (OPR. / R.M.)

(1) Daily Walk Around Inspection — Initial / Initial
(2) Detailed Inspection-Weekly (using checklist) — Initial / Initial
(3) HPB Signs Posted (if required) — Initial / Initial
(4) Well Licensee & Block Diagram Posted — Initial / Initial
(5) Flare Lines Staked — Initial / Initial
(6) BOP Drills Performed — Initial / Initial
(7) Visually Inspect BOP's - Flarelines & Degasser Lines — Initial / Initial

(1) Rig Site Health and Safety Meeting (one/crew/month) — Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
(3) Mast Inspection Before Raising or Lowering — Initial
(4) Crown Saver Checked — Initial
(5) Motor Kills checked — Initial

YEAR 99 | RIG NO. 41

FUEL RIG 1.2K

WEATHER: TEMPERATURE | CURRENT CONDITIONS | WIND DIRE

ICE FOG

TIME - HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV. SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.				
MORN.					2¼	5¼	¼															WASH + BIT			
DAY						4¼	¼		5¼			6½										¼			
EVE.							¼					13¼									¼				
TOTAL																					¼		1½	¼	

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
1			.31 m
1	R.T.Sub		.90 m
5	D.C	228	45.65 m
1	JAR		7.08 m
3	D.C.	228	27.81 m
1	XO		.83 m
12	HWDP		109.71 m
	BHA		192.59 m
			m
99	E-75 D.P.		943.56 m
128	X2-D.P.		1225.03 m
4	X3 D.P.	STANDS	116.07 m
2	X3 D.P.	SINGLES	19.34 m
Single	KELLYDOWN		3.47 m
	TOTAL		2500 m
WT. OF DC			1000 daN
WT. OF STRING		91	1000 daN

BIT RECORD

BIT NO.	#4 RR 2
SIZE (mm)	311
IADC CODE	
MFG.	HUGHES
TYPE	GT-1
SERIAL NO.	479YK
JETS (mm)	3-22.1
DEPTH OUT (m)	2500
DEPTH IN (m)	2500
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE: T_i | T_o | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME		2:00
DENSITY kg/m³		1290
FUNNEL VIS. - (S/L)		75
W.L. (cm³)		
pH		
P.V.T		103.0

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
BARITE BULK	4250 LB

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRD RMR CORE C	ROT R
2500			

LINER SIZE (mm)	S.P.M.
9400	152 90
1400	DA

DEPTH (m)	DEVIATION (°)
BOARD	2500.00
STRAP	2500.12
DIFF	.12

DRILLER SIGNATURE

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour) — BIT RECORD — MUD RECORD — DAY TOUR

(same blank layout as above)

METRES DRILLED

FROM	TO	DRD RMR CORE C	ROT R

DRILLER SIGNATURE

DRILLING ASSEMBLY (At End of Tour) — BIT RECORD — MUD RECORD — EVENING TOUR

(same blank layout as above)

METRES DRILLED

FROM	TO	DRD RMR CORE C	ROT R

DRILLER SIGNATURE

FOLD HERE →

DAILY CHECKS — OPR. / R.M.

- Safety Walk Around Inspection — Initial / Initial
- Posted Inspection-Weekly (using checklist) — Initial / Initial
- Hazards Signs Posted (if required) — Initial / Initial
- Hazardous Location Sketch Diagram Posted — Initial / Initial
- Guy Wire Lines Staked — Initial / Initial
- Pre-Spud / BOP Drills Performed — Initial / Initial
- Daily / Weekly Inspect BOP's - Flarelines & Degasser Lines — Initial / Initial
- Tour Safety Meeting (once/week/month) — Initial
- I.A.D.C. Rig Safety Inspection Checklist (once/month) — Initial
- Derrick Inspection Before Raising or Lowering — Initial
- Sour Gas Sewer Checked — Initial
- Emergency Kits checked — Initial

YEAR 97 | MONTH 03 | DAY 16

RIG NO. 48

FUEL @ 8:00

RIG 124 | BOILER Cam. 33

WEATHER — TEMPERATURE °C: — CURRENT CONDITIONS: 16321 — WIND DIRECTION: — ROAD: 592674

LAST CASING TUBING OR LINER	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
	339.7	315.34	101.2	B.J.T.B.C.S.S.	K-55	56	693.60	7.31	701.30

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
127	29	E2	108	152	5"XH	121	9-P-100	NATIONAL	235
127	29	X2	166	154	5"XH	133	9-P-100	NATIONAL	235
127	38	X3	101	156	5"XH	168			

1 22 23 24 25 26

QTY						
	WASH T. BTM.	Engage Jar Stack Clear Floor.				
	1/4					
		1 1/2	1/4			

TOTALS: 8 / 12

SHALE SHAKER(S): NO. | TYPE — SCREENS CHANGED ☐ YES ☐ NO — TOP 84 / TOP 84 — MIDDLE 84 / MIDDLE 84 — BOTTOM 84 / BOTTOM 84

RENTALS/SERVICES — MOVE | RIG UP | RIG DOWN

MORNING TOUR

RD

MUD BASED

20	
90	
5	
20	

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR'D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2500				

CIRCULATION — PUMP NO. 1 — LINER SIZE (mm) 152 — S.P.M. 90 — PUMP NO. 2 — LINER SIZE (mm) 152 — S.P.M. 80 — 9400

REDUCED PUMP SPEED: 1400 @ WAS @ 43

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
BOARD -	2500.00	
STRAP -	2500.12	
DIFF	.12	

DRILLER'S SIGNATURE: [signature]

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	2:15	2 1/4	6	RUNNING FOR CLEANOUT (STRAP IN)
2:15	2:30	1/4	22	WASH TO BOTTOM (NO FILL)
2:30	04:45	2 1/4	5	CIRCULATE TO CONDITION HOLE.
04:45	05:00	1/4	7	R/S CLOSE ANNULAR PREVENTER 46 SECONDS.
05:00	08:00	3	6	FLOW CHECK / PUMP P.I.L. / HOIST TO RUN CSG / FLOW CHECK @ 5 STDS. / @ 35 STDS.
				- LAY DOWN 2X3 - D.P.

NOTES: ✓ CROWN SAVER / BOP STACK / FLARE LINES / CHAIN GUARDS
Boiler Blow Down @ 0700

HRS. RAN	BOILER pH	STACK TEMP.	MAXIMUM EXPERIENCED HOOKLOAD	SAFETY TOPIC	CAO
8	9.5	Dry	110 000		186

DAY TOUR

RD

OIL BASED

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR'D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION — PUMP NO. 1 — LINER SIZE (mm) — S.P.M. — PUMP NO. 2 — LINER SIZE (mm) — S.P.M.

REDUCED PUMP SPEED: @ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER'S SIGNATURE: [signature]

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
08:00	[illegible]	1 1/4	6	PULL OUT OF HOLE FLOW @ 1400 - 34 STDS.
9:15	11:00	1 3/4	9	SLIP + CUT 18m LINE
11:00	13:00	3	6	PICK UP + LAYDOWN HWDP & DC's
13:00	13:30	1/2	7	R/S SERVICE F.N. BLINDS + TOP PIPE RAMS
13:30	15:30	2	21	SAFETY MEETING: MOVE TO 10-1 HPT, RIG RAT
15:30	20:00	4 1/2	12	RIG TO RUN CASG.

NOTES: ✓ CROWN SAVER / BOP STACK / FLARE LINES / CHAIN GUARDS
Boiler Blow Down @ 14:00

HRS. RAN	BOILER pH	STACK TEMP.	MAXIMUM EXPERIENCED HOOKLOAD	SAFETY TOPIC	CAO
12	9	225			

EVENING TOUR

RD

OIL BASED

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR'D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION — PUMP NO. 1 — LINER SIZE (mm) — S.P.M. — PUMP NO. 2 — LINER SIZE (mm) — S.P.M.

REDUCED PUMP SPEED: @ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER'S SIGNATURE: [signature]

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
20:00	20:15	1/4	21	HELD SAFETY MEETING W/CREW, UNIT FOR RUN CSG.
20:15	21:15	1	12	RUN CSG
21:15	22:45	1 1/2	23	BLOW SEALS ON FILL UP TOOL / TIH 2" TUBING
22:45	23:30	3/4	12	CHANGE TO 3 1/2 DP RAMS
23:30	23:45	1/4	24	CLEAN UP DIVERT AREA R/FLOOR
23:45	24:00	1/4	7	R/S OPEN RAMS TEST CSG RAMS

NOTES: ✓ CROWN SAVER / BOP STACK / FLARE LINES / CHAIN GUARDS

HRS. RAN	BOILER pH	STACK TEMP.	MAXIMUM EXPERIENCED HOOKLOAD	SAFETY TOPIC	CAO
4					146

1110

FOLD HERE →

LICENCE NO.: 50499

WELL NAME AND NO.: CHEVRON ET AL LIARD K-29 60°30'N 123°30'W

OPERATOR: CHEVRON CAN. RES.

CONTRACTOR: AKITA DRILLING LTD

SURFACE LOCATION: K-37 60°30'N 123°30'W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS

	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) H²S Signs Posted (if required)	Initial	Initial
(4) Well Licence & Stick Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually Inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)		Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
(3) Mast Inspection Before Raising or Lowering		Initial
(4) Crown Saver Checked		Initial
(5) Motor Kills checked		Initial

YEAR 74

RIG NO. 42

FUEL

RIG 136 cm

WEATHER: TEMPERATU / CURRENT CONDITION / WIND DIREC / ROAD

TIME-HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	20	21	22	23	24	25
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P	TEST B.O.P	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.			
MORN.							1				8													
DAY											8													
EVE.					1¼	3¾	¼				4¾													
TOTAL																								

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	O.D.	LENGTH
		m
		m
		m
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLYDOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME			
DENSITY kg/m³			
FUNNEL VIS. - (S/L)			
W.L. (cm³)			
pH			

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RMR CORE-C	ROTA R.P.

LINER SIZE (mm)	S.P.M.

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	O.D.	LENGTH
		m
		m
		m
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLYDOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☑ OIL BASED

TIME			
DENSITY kg/m³			
FUNNEL VIS. - (S/L)			
W.L. (cm³)			
pH			

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RMR CORE-C	ROTA R.P.
2500			

LINER SIZE (mm)	S.P.M.
152	

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
2300	

DRILLER'S SIGNATURE

EVENING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	O.D.	LENGTH
		31 m
1	Bit Sub	90 m
5	DC 3.25	45.55 m
1	Top	7.08 m
3	DC 228	27.61 m
1	Rel. Sub	.83 m
12	HWDP	109.36 m
	Run =	192.59 m
9	F-2 DP	945.60 m
123	F-2 DP	1295.03 m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLYDOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	#4 RR 47
SIZE (mm)	311
IADC CODE	
MFG.	Hughes
TYPE	GT-1
SERIAL NO.	V794K
JETS (mm)	3x22.1
DEPTH OUT (m)	3500
DEPTH IN (m)	2500
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☑ OIL BASED

TIME			
DENSITY kg/m³			
FUNNEL VIS. - (S/L)			
W.L. (cm³)			
pH			

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RMR CORE-C	ROTA R.P.

LINER SIZE (mm)	S.P.M.
152	

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

FOLD HERE →

Y CHECKS — OPR. — R.M.

- ...y Walk Around Inspection — Initial — Initial
- ...ated Inspection-Weekly (using checklist) — Initial — Initial
- ...S Signs Posted (if required) — Initial — Initial
- ...el License & Stick Diagram Posted — Initial — Initial
- ...re Lines Staked — Initial — Initial
- ...P Drills Performed — Initial — Initial
- ...ekly Inspect BOP's - Flexibles & Degasser Lines — Initial — Initial
- ...Site Health and Safety Meeting (one/crew/month) — Initial
- ...A.O.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
- ...st Inspection Before Raising or Lowering — Initial
- ...own Saver Checked — Initial
- ...or Kills checked — Initial

YEAR 11 | MONTH 03 | DAY 15

RIG NO. 42 SE

FUEL @ 8:00

RIG 136 cm | BOILER 66C 33...

WEATHER — TEMPERATURE °C — CURRENT CONDITIONS 14004 — WIND DIRECTION — ROAD T 591357

	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
LAST CASING									
TUBING OR LINER	339.7	315.34	10.2	RANGE	K-55	56	663.60	7.21	7130

	DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
	127	29	E	102	152	5"XH	121	9-P-100	NATIONAL	235
	127	29	X2	106	154	5"XH	133	9-P-100	NATIONAL	235
	127	31	X3	101	156	5"XH	165	F-1000	EMSCO	254

	22	23	24	25	26
TY					

TOTALS: 6 / 8 / 8 / 24

SHALE SHAKER(S) — NO. — TYPE — SCREENS CHANGED ☐ YES ☐ NO — TOP 84 — TOP 84 — MIDDLE 84 — MIDDLE 84 — BOTTOM 84 — BOTTOM 84

RENTALS/SERVICES — MORN — DAY — NIGHT

- SECOND BOILER — ☐ — ☐ — ☐
- #3 PUMP 165 mm 141 149 145 Min 24-00 — ☐ — ☐ — ☐
- #2 BOILER FUEL 152 m — ☐ — ☐ — ☐

RD

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED — @ — @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
∞	08:00	8	11	LOG W/SCHLUMBERGER

NOTES:

BOILER — HRS. RAN — STACK TEMP. — MAXIMUM EXPERIENCED HOOKLOAD — SAFE/TOPIC — CREW MEETING

MORNING TOUR

SOLIDS CONTROL

	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

RELEASED

D

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2500				

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
	152		152	

REDUCED PUMP SPEED — 2300 @ 120 — @ — 41

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
08:00	16:00	8	11	LOG W/SCHLUMBERGER RUNS 2 UBI

NOTES: LEAVES LEAKAGE CROWN SAVER CLAMP ANCHOR
BOILER BLOW DOWN @ 0500 0700

BOILER — HRS. RAN 9.5 — STACK TEMP. 225

DAY TOUR

SOLIDS CONTROL

	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

ORD

RELEASED

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
	152		152	

REDUCED PUMP SPEED — @ — @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
1600	2045	4¾	11	LOG W/SCHLUMBERGER 2 UBI'S
2045	2100	¼	7	RIG SERVICE
2100	2345	2¾	1	MAKE UP BIT - RUN IN HOLE - T...
2345	2300	¼	5	DRILL CIRC.
2300	2400	1	6	RUN IN HOLE TO T.D.

NOTES: CROWN SAVER / ANCHOR / EAST HOME CHAIN ANCHOR
BOILER BLOW DOWN @ 1700 2300

BOILER — HRS. RAN 8 — STACK TEMP. 225 — MAXIMUM EXPERIENCED HOOKLOAD — SAFE/TOPIC — CREW MEETING 255

EVENING TOUR

111082

FOLD HERE →

LICENCE NO.: 5D-29 | WELL NAME AND NO.: CHEVRON ET AL LIARD K-29 60°30'N 123°30'W

OPERATOR: Chevron Can. Res. | CONTRACTOR: AKITA DRILLING LTD

SURFACE LOCATION: K-29 60°30'N 123°30'W | UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE: | SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS (OPR. / R.M.)

(1) Daily Walk Around Inspection — R.M. ✓
(2) Detailed Inspection-Weekly (using checklist)
(3) H²S Signs Posted (if required)
(4) Well Licence & Slack Diagram Posted — R.M. ✓
(5) Flare Lines Staked — R.M. ✓
(6) BOP Drills Performed — R.M. ✓
(7) Visually Inspect BOP's - Flarelines & Degasser Lines — R.M. ✓

(1) Rig Site Health and Safety Meeting (one/crew/month) — R.M. ✓
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)
(3) Mast Inspection Before Raising or Lowering
(4) Crown Saver Checked — R.M. ✓
(5) Motor Kills checked — R.M. ✓

RIG NO. 45

FUEL 152 cm

WEATHER — TEMPERATURE — CURRENT CONDITIONS — WIND DIR.

TIME-HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC.	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV. SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.				
MORN.		4¼					¼			½															
DAY						4	¼				6½									1½					
EVE.																									
TOTAL																									

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTH
		.41 m
1½	MOCE / F.S.	12.44 / 5.6m
1½	MONEL / HWDP	242 / 74 m
1	MONEL	9.34 m
5	DC	45.95 m
1	JAR	7.08 m
3	DC	27.81 m
1½	XO / HWDP	623 / 189.71 m
	BHA	281.76 m
99	E-DP	943.50 m
128	X-DP	1225.03 m
3	X3 D.P. STANDS	87.07 m
2	X3 D.P. SINGLES	19.33 m
	KELLYDOWN	3.31 m
	TOTAL	2500 m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	13
SIZE (mm)	311
IADC CODE	5 3 7 X
MFG.	S.T.C.
TYPE	F3P
SERIAL NO.	LW5346
JETS (mm)	3x20.2
DEPTH OUT (m)	2500
DEPTH IN (m)	2389
TOTAL METRES DRILLED (m)	111
TOTAL HOURS RUN	56½

CUTTING STRUCTURE T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.
							TD	1.9

HOLE CONDITION

HOLE DRAG: 6-8↑ 4-6↓
TORQUE AT BOTTOM: 5800-6300
FILL ON BOTTOM (m):

MUD RECORD

MUD TYPE: ☐ WATER BASED ☒ OIL BASED

TIME	0200	0400	0600
DENSITY kg/m³	1275	1275	
FUNNEL VIS. - (S/L)	58	58	
W.L. (cm³)			TRIP
pH			
PVT	103.7	102.9	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRD + RMR CORE-C	ROT R.P.
2485	2500	15	

LINER SIZE (mm)	S.P.M.
6¼ @ 1640	150 85

REDUCED PUMP SPEED: 2300 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
2471	4.5
2484	4.4

DRILLER'S SIGNATURE:

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD		LENGTH
1	BIT		.41 m
1½	MONEL / F.S.		12.44 / 5.6m
1½	MONEL / HWDP		242 / 74 m
1	MONEL		9.34 m
5	D.C.	228	45.55 m
1	JAR		7.08 m
3	D.C.	228	27.81 m
1½	XO / HWDP		623 / 189.71 m
	BHA		281.76 m
99	E2-D.P.		943.50 m
128	X2-D.P.		1225.03 m
3	X3 D.P.	STANDS	87.07 m
2	D.P.	SINGLES	19.33 m
	KELLYDOWN		3.31 m
	TOTAL		2500.00 m
WT. OF DC			1000 daN
WT. OF STRING		100	1000 daN

BIT RECORD

BIT NO.	13
SIZE (mm)	311
IADC CODE	5 3 7 X
MFG.	S.T.C.
TYPE	F3P
SERIAL NO.	LW5346
JETS (mm)	3-22.2
DEPTH OUT (m)	2500
DEPTH IN (m)	2389
TOTAL METRES DRILLED (m)	111
TOTAL HOURS RUN	56½

CUTTING STRUCTURE T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.
4	4	BT	A	F	2	WT	TD	1.9

HOLE CONDITION

HOLE DRAG:
TORQUE AT BOTTOM:
FILL ON BOTTOM (m):

MUD RECORD

MUD TYPE: ☐ WATER BASED ☒ OIL BASED

TIME			
DENSITY kg/m³			
FUNNEL VIS. - (S/L)			
W.L. (cm³)			
pH			

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
MEAS -	14.22.3
Sale -	13.67.3
DIFF -	.55

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRD + RMR CORE-C	ROT R.P.
2500			

LINER SIZE (mm)	S.P.M.
152	

REDUCED PUMP SPEED: 2300 @ WA

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
BOOST	250 3½
[illegible]	[illegible]
[illegible]	TOT

DRILLER'S SIGNATURE:

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD		LENGTH
			m
			m
			m
			m
			m
			m
			m
			m
			m
			m
	D.P.	STANDS	m
	D.P.	SINGLES	m
	KELLYDOWN		m
	TOTAL		m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG:
TORQUE AT BOTTOM:
FILL ON BOTTOM (m):

MUD RECORD

MUD TYPE: ☐ WATER BASED ☐ OIL BASED

TIME			
DENSITY kg/m³			
FUNNEL VIS. - (S/L)			
W.L. (cm³)			
pH			

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRD + RMR CORE-C	ROT R.P.

LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED:

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE:

EVENING TOUR

FOLD HERE →

CHECKS	OPR.	R.M.
Walk Around Inspection	Initial	Initial
ed Inspection-Weekly (using checklist)	Initial	Initial
...rms Posted (if required)	Initial	Initial
...censes & Sick Diagram Posted	Initial	Initial
...Lines Staked	Initial	Initial
...Drills Performed	Initial	Initial
...ly inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
...se Health and Safety Meeting (one/crew/month)		Initial
...D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
...Inspection Before Raising or Lowering		Initial
...n Viewer Checked		Initial
...Kills checked		Initial

YEAR 11 | MONTH 03 | DAY 14

RIG NO. 45NE

FUEL @ 8:00

RIG 158cm | DRILLER 33cm

WEATHER: TEMPERATURE °C; CURRENT CONDITIONS 11:00 7; WIND DIRECTION S 040; ROAD 22cm

	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
LAST CASING									
TUBING OR LINER	339.7	315.24	101.2	Fimpress	K-55	56	693.00	7.31	701.30

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
127	29	E	106	152	5"XH	121	7-P-100	NATIONAL	235
127	29	X2	106	154	5"XH	153	7-P-100	NATIONAL	235
127	38	X2	101	154	5"XH	165	F-1000	EMSCO	254

22 | 23 | 24 | 25 | 26

TOTALS: 12

SHALE SHAKER(S): NO. | TYPE

SCREENS CHANGED ☐ YES ☐ NO

TOP 14 | TOP 14

MIDDLE 14 | MIDDLE 14

BOTTOM 14 | BOTTOM 14

RENTALS/SERVICES

	HOURS	DAYS	CUM
Scald Boiler	8	12	4
#3 Pump	8	12	4
#3 Power End 170cm			

MORNING TOUR

MUD: OIL BASED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2485	2500	15	15	14/15

TIME LOG FROM	TO	HRS	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	00:30	1/2	2	DR'd 311mm HOLE F/2485m - 2487m
00:30	00:45	1/4	10	SURVEY
00:45	04:30	3 3/4	2	DR'd 2487m - 2500m T.D.
04:30	04:45	1/4	10	SURVEY
04:45	05:30	3/4	5	CIRCULATE BOTTOMS UP
05:30	05:45	1/4	7	PICK UP Bottom Pipe Rams F/mud hose c/o
05:45	08:00	2 1/4	6	FLOW / PUMP P.U. P.O.O.H (STRAP OUT)

CIRCULATION: PUMP NO. 1 LINER SIZE (mm) 152 S.P.M. 85; PUMP NO. 2 LINER SIZE (mm) 152 S.P.M. 75

REDUCED PUMP SPEED: 2300 @ SPM @ 41

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2471	4.5	62.9
2484	4.4	62.6

DRILLER SIGNATURE: [signature]

NOTES: √ BRAKES, LINKAGE, CROWN SAVER, CLAMP, ANCHOR; Roller Ring Drill (-) 0300-0700

BOILER HRS: RAN 5 | pH | STACK TEMP 225

MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | CUM

DAY TOUR

MUD: OIL BASED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2500				

TIME LOG FROM	TO	HRS	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
08:00	12:00	4	16	Hoist to Liq. Strap Out / Flow / C 2057m / 6 Stands / C Hwdp. + Out of Hole
12:00	13:30	1 1/2	20	Lay Down Pkg Tools
13:30	13:45	1/4	7	R/S Close Blind Rams Fr: Floor + Tp, Wo/C 6sec
13:45	20:00	6 1/4	11	R/C to Hoc w/ Schlumberger / Log Run #1 SET AMS, AIT, CPIT, EMS, DSI / 1st Log on Bottom @ 17:30 hrs.

CIRCULATION: PUMP NO. 1 LINER SIZE (mm) 152 S.P.M. ; PUMP NO. 2 LINER SIZE (mm) 152 S.P.M.

REDUCED PUMP SPEED: 2300 @ SPM @ 41

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
Board = 2500.36		
Strap = 2500.07		
Diff = 1.10m		

STRAP = 2500.07; BOARD = 2500.00; DIFF: 0.07

DRILLER SIGNATURE: [signature]

NOTES: √ (-Power) Savers, Brakes, Linkage, Fast Line Clamp / Anchor; Boiler Blown Down @ 1100, 1500, 1900

BOILER HRS: RAN 12 | pH 9.5 | STACK TEMP 225°C

MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | CUM 255

EVENING TOUR

MUD: OIL BASED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

TIME LOG FROM	TO	HRS	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
20:00	22:15	2 1/4	11	Finish W/C Schlumberger Run #1
22:15	23:45	1 1/2	11	Rig'd Up BJ
23:45	24:00	1/4	7	C/S

CIRCULATION: PUMP NO. 1 LINER SIZE (mm) S.P.M. ; PUMP NO. 2 LINER SIZE (mm) S.P.M.

REDUCED PUMP SPEED: @ SPM @ SPM

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

NOTES: √ Brakes, Linkage, Crown Saver, Clamp, Anchor; Boiler Rig Down @ 0200

DRILLER SIGNATURE: [signature]

BOILER HRS: RAN 4 | pH 9.4 | STACK TEMP 225

MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | CUM

111081

FOLD HERE →

LICENCE NO.: SD299

WELL NAME AND NO.: CHEVRON ET AL LIARD K-79 60°30'N 125°30W

OPERATOR: CHEVRON CAN. RES.

CONTRACTOR: AKITA DRILLING LTD

SURFACE LOCATION: K-79 60°30'N 125° 30W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS

	OPR.	R.M.
(1) Daily Walk around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) H²S Signs Posted (if required)	Initial	Initial
(4) Well Licence & Slack Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually Inspect BOP's - Flexlines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)	Initial	Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)	Initial	Initial
(3) Mast Inspection Before Raising or Lowering	Initial	Initial
(4) Crown Saver Checked	Initial	Initial
(5) Motor Kills checked	Initial	Initial

YEAR 97 | RIG NO. 42 | FUEL | RIG 304 | TEMPERATURE | CURRENT CONDITIONS | WIND DIRECTION | ROAD

TIME-HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC.	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV. SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.			
MORN.		7 1/4					1/4			1/2														
DAY		11 3/4					1/4			1/2														
EVE.																								
TOTAL																								

DRILLING ASSEMBLY (At End of Tour)

NO.	OD		LENGTH
	BIT		.41 m
1/1	MOTOR/F.S.		10.66/5.56 m
1/1	MONEL/NMDC		8.42/1.99 m
1	MONEL		9.34 m
5	DC	228	45.95 m
1	JAR		7.08 m
3	DC		27.41 m
1/2	XO/HWDP		83/109.71 m
	BHA		221.76 m
99	E-DP		943.50 m
125	HWDP		1035.03 m
1	x3 D.P.	STANDS	9.05 m
YY	x3 D.P.	SINGLES	19.34 m
	KELLY DOWN		9.39 m
	TOTAL		2448 m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	13							
SIZE (mm)	311							
IADC CODE	5	3	7	X				
MFG.	STC							
TYPE	F3P							
SERIAL NO.	LN5346							
JETS (mm)	3x22.2							
DEPTH OUT (m)								
DEPTH IN (m)	2389							
TOTAL METRES DRILLED (m)	59							
TOTAL HOURS RUN	37 1/4							

CUTTING STRUCTURE T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG: L-S.A 4-LW

TORQUE AT BOTTOM: 5000-5700

FILL ON BOTTOM (m):

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	0200	0400	0600
DENSITY kg/m³	1260	1260	1260
FUNNEL VIS. - (S/L)	58	58	56
W.L. (cm³)			
pH			
P.V.	108	151.7	107.6

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
SHALE	1 Bucket

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	CORED FOR CORE-C	ROT. R.P.
2435	2448	13	

LINER SIZE (mm) | S.P.M.

2 1/4" | 152 | 20

REDUCED PUMP SPEED

2100 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
2422	5.2
2432.4	5.3

DRILLER'S SIGNATURE

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD		LENGTH
	BIT		.41 m
1/1	MOTOR/F.S.		10.66/5.56 m
1/1	MONEL/NMDC		8.42/1.99 m
1	MONEL		9.34 m
5	D.C.	228	45.95 m
1	JAR		7.08 m
3	D.C.	228	27.81 m
1/2	XO/HWDP		83/109.71 m
	BHA		221.71 m
99	E-D.P.		943.50 m
125	XO-D.P.		1035.03 m
3	D.P.	STANDS	27.07 m
	D.P.	SINGLES	m
	KELLY DOWN		m
	TOTAL		2477.36 m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	13							
SIZE (mm)	311							
IADC CODE	5	3	7	X				
MFG.	STC							
TYPE	F3P							
SERIAL NO.	LN5346							
JETS (mm)	3-22.2							
DEPTH OUT (m)								
DEPTH IN (m)	2389							
TOTAL METRES DRILLED (m)	88							
TOTAL HOURS RUN	48 1/2							

CUTTING STRUCTURE T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG: L-1DT 2-LW

TORQUE AT BOTTOM: 5656-6300

FILL ON BOTTOM (m):

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	9:00	12:00	15:00
DENSITY kg/m³	1255	1270	1275
FUNNEL VIS. - (S/L)	55	61	60
W.L. (cm³)			
pH			
P.V.	106.3	105.9	105.5

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
LIME	305x
NOWAWET	1 BBL.
CLEAN UP	2 PAILS
SHALE	3 BUCKET

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	CORED FOR CORE-C	ROT. R.P.
2449	2477	29	

LINER SIZE (mm) | S.P.M.

152 | 40

REDUCED PUMP SPEED

3100 @ 59

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
2492.02	5.2
2461.36	4.7

DRILLER'S SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD		LENGTH
	BIT		.41 m
1/1	MOTOR/F.S.		10.66/5.56 m
1/1	MONEL/NMDC		8.42/1.99 m
1	MONEL		9.34 m
5	DC		45.95 m
1	JAR		7.05 m
3	DC		27.81 m
1/2	XO/HWDP		83/109.71 m
	BHA		221.76 m
99	E-DP		943.50 m
125	XO-DP		1035.03 m
3	D.P.	STANDS	27.07 m
	D.P.	SINGLES	m
	KELLY DOWN		7.64 m
	TOTAL		2485 m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	13							
SIZE (mm)	311							
IADC CODE	5	3	7	X				
MFG.	STC							
TYPE	F3P							
SERIAL NO.	LN5346							
JETS (mm)	3x22.2							
DEPTH OUT (m)	—							
DEPTH IN (m)	2389							
TOTAL METRES DRILLED (m)	96							
TOTAL HOURS RUN	52 1/4							

CUTTING STRUCTURE T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG: 1-1DT 4-LW

TORQUE AT BOTTOM: 5400-6300

FILL ON BOTTOM (m):

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	18:00	21:00	24:00
DENSITY kg/m³	1270	1270	1275
FUNNEL VIS. - (S/L)	55	58	58
W.L. (cm³)			
pH			
P.V.	102.4	102.0	102.0

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	CORED FOR CORE-C	ROT. R.P.
2477	2485	8	

LINER SIZE (mm) | S.P.M.

152 | 35

REDUCED PUMP SPEED

2400 @ 42

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

EVENING TOUR

FOLD HERE →

SAFETY CHECKS — OPR. / R.M.

- Daily Walk Around Inspection — Initial / Initial
- Weekly Inspection-Weekly (using checklist) — Initial / Initial
- H2S Signs Posted (if required) — Initial / Initial
- Permit Licenses & Slack Diagram Posted — Initial / Initial
- Overhead Lines Staked — Initial / Initial
- BOP Drills Performed — Initial / Initial
- Monthly Inspect BOP's - Flarelines & Degasser Lines — Initial / Initial
- Daily Site Health and Safety Meeting (one/crew/month) — Initial
- A.O.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
- Pre-Spud Inspection Before Raising or Lowering — Initial
- Crown Saver Checked — Initial
- Gas Buster Kills checked — Initial

YEAR 97 | MONTH 03 | DAY 13

RIG NO. 42

FUEL @ 8:00

RIG 204 | BOILER 33

	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
LAST CASING									
TUBING OR LINER	227.7	215.34	41.2	BUTTRESS	K-55	54	693.40	7.31	701.30

WEATHER	TEMPERATURE °C
	CURRENT CONDITIONS
	WIND DIRECTION
	ROAD

	DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
	127	29	E	108	152	5"XH	131	9-P-100	NATIONAL	235
	127	29	X3	106	154	5"XH	133	9-P-100	NATIONAL	235
	127	39	X3	104	156	5"XH	168	F-1000	EMSCO	254

22	23	24	25	26	TOTALS
					12

SHALE SHAKER(S)

NO. | TYPE

SCREENS CHANGED ☐ YES ☑ NO

TOP 14		TOP 14	
MIDDLE 14		MIDDLE 14	
BOTTOM 14		BOTTOM 14	

RENTALS/SERVICES

	HOURS	DAYS
SECOND BOILER	8	4
#3 PUMP	8	4
#2 BOILER FUEL 193		

MORNING TOUR

OIL BASED

00	00
	1260
	56
2	1076

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRD / CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2435	2448	13	15	14/15

CIRCULATION PRESSURE (kPa) — PUMP NO. 1: LINER SIZE (mm) 152, S.P.M. 90 — PUMP NO. 2: LINER SIZE (mm) 152, S.P.M. 83

REDUCED PUMP SPEED: 2100 @ 90 @ 41

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2427	5.2	69.5
2432.9	5.3	67.1

DRILLER SIGNATURE: [signature]

TIME LOG

FROM	TO	LAP TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	07:15	7¼	2	DRILL 311mm HOLE F/2435m-2448m
07:15	07:30	¼	7	RIG FOR BOTTOM P.PE RAMS C/TOOLS & SEC'L.
07:30	08:00	½	8	SERVICE

111080

FOLD HERE →

LICENCE NO.: SDL-99

WELL NAME AND NO.: CHEVRON ET AL LIARD K-29 60°30'N 123°30W

OPERATOR: CHEVRON CAN. RES.

CONTRACTOR: AKITA DRILLING LTD

SURFACE LOCATION: K-29 60°30'N 123°30W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS

	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) H²S Signs Posted (if required)	Initial	Initial
(4) Well License & Stick Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually Inspect BOP's - Flowlines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)		Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
(3) Mast Inspection Before Raising or Lowering		Initial
(4) Crown Saver Checked		Initial
(5) Motor Kills checked		Initial

YEAR 99

RIG NO. 48

FUEL

RIG 1.79

WEATHER: TEMPERATU / CURRENT CONDITION / WIND DIREC / ROAD

TIME-HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV. SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.			
MORN.		T½					¼			¼														
DAY		11½					¼			¼														
EVE.																								
TOTAL																								

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD (mm)		LENGTH
1			.41 m
1/1	MOTOR/ F.S.		10.66/.56 m
1/1	MONEL/ H.O.S.		8.42/.29 m
1	MONEL		9.34 m
5	DC	228	45.95 m
1	JAR		7.06 m
3	DC	228	27.51 m
1/12	XO/ HWDP		33/109.71 m
	BHA		221.76 m
99	E-DP		943.50 m
126	X-DP		1225.03 m
+ 5	D.P.	STANDS	29.05 m
2	D.P.	SINGLES	19.36 m
	KELLY DOWN		4.35 m
	TOTAL		2414 m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	13
SIZE (mm)	311
IADC CODE	S 3 7 X
MFG.	STC
TYPE	F3P
SERIAL NO.	LH 5346
JETS (mm)	2 x 22.2
DEPTH OUT (m)	
DEPTH IN (m)	2309
TOTAL METRES DRILLED (m)	25
TOTAL HOURS RUN	15

CUTTING STRUCTURE T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG: 4-24 A-Lot

TORQUE AT BOTTOM: 42m-5m0

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	0200	0400	0600
DENSITY kg/m³	1255	1255	1250
FUNNEL VIS. - (S/L)	58	59	59
W.L. (cm³)			
pH			
PVT	113.9	113.4	113.2

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRILLED / CORED	ROT. / R.
2264	2314	10	1
			4

	LINER SIZE (mm)	S.P.M.	
14200	152	55	

REDUCED PUMP SPEED

2300 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
2333	5.5

DRILLER'S SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD (mm)		LENGTH
1			.41 m
1/1	MOTOR/ F.S.		10.66/.56 m
1/1	MONEL/ H.O.S.		8.42/.29 m
1	MONEL		9.34 m
5	D.C.	228	45.95 m
1	JAR		7.08 m
3	D.C.	228	27.81 m
1/12	XO/ HWDP		33/109.71 m
	BHA 221.76		m
99	E-D.P.		943.50 m
128	X-D.P.		1225.03 m
1	D.P.	STANDS	29.05 m
	D.P.	SINGLES	m
5	KELLY DOWN		9.67 m
	TOTAL		2429.01 m
WT. OF DC			1000 daN
WT. OF STRING	99		1000 daN

BIT RECORD

BIT NO.	13
SIZE (mm)	311
IADC CODE	S 3 7 X
MFG.	STC
TYPE	F3P
SERIAL NO.	LH 5346
JETS (mm)	3-22.2
DEPTH OUT (m)	
DEPTH IN (m)	2389
TOTAL METRES DRILLED (m)	40
TOTAL HOURS RUN	26½

CUTTING STRUCTURE T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG: 5-11 ↑ 4-6↓

TORQUE AT BOTTOM: 5071-5417

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	09:00	12:00	15:00
DENSITY kg/m³	1250	1255	1250
FUNNEL VIS. - (S/L)	62	60	60
W.L. (cm³)			
pH			
PVT	112.5	111.9	111

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
SHALE	1 BUCKET

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRILLED / CORED	ROT. / R.
2414	2429	15	1
			4

	LINER SIZE (mm)	S.P.M.	
0.06-14700	152	83	

REDUCED PUMP SPEED

2000 @ 43

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
2403.34	5.5°

DRILLER'S SIGNATURE

EVENING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD (mm)		LENGTH
1			.41 m
1/1	MOTOR/ F.S.		10.66/.56 m
1/1	MONEL/ H.O.S.		8.42/.29 m
1	MONEL		9.34 m
5	DC	228	45.95 m
1	JAR		7.09 m
3	DC	228	27.81 m
1/1	XO/ HWDP		33/109.71 m
	BHA 221.76		m
99	E-DP		943.50 m
128	X-D.P.		1225.03 m
1	D.P.	STANDS	29.05 m
5	D.P.	SINGLES	47.67 m
	KELLY DOWN		9.79 m
	TOTAL		2435 m
WT. OF DC			1000 daN
WT. OF STRING	99		1000 daN

BIT RECORD

BIT NO.	13
SIZE (mm)	311
IADC CODE	S 3 7 X
MFG.	STC
TYPE	F3P
SERIAL NO.	LH 5346
JETS (mm)	3 x 22.2
DEPTH OUT (m)	
DEPTH IN (m)	2389
TOTAL METRES DRILLED (m)	46
TOTAL HOURS RUN	30

CUTTING STRUCTURE T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG: 5-10 ↑ 4-6↓

TORQUE AT BOTTOM: 4200-5700

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	18:00	21:00	24:00
DENSITY kg/m³	1250	1260	1255
FUNNEL VIS. - (S/L)	59	60	60
W.L. (cm³)			
pH			
PVT	110.6	107	103

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRILLED / CORED	ROT. / R.
2429	2435	10	1
			5

	LINER SIZE (mm)	S.P.M.	
0.06-14700	152	83	

REDUCED PUMP SPEED

2400 @ 52

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
2413.01	6.5.3

DRILLER'S SIGNATURE

FOLD HERE →

DAILY CHECKS — OPR. / R.M.

- Daily Walk Around Inspection — Initial / Initial
- Documented Inspection-Weekly (using checklist) — Initial / Initial
- H2S Signs Posted (if required) — Initial / Initial
- Well Licence & Stick Diagram Posted — Initial / Initial
- Flare Lines Staked — Initial / Initial
- BOP Drills Performed — Initial / Initial
- Visually inspect BOP's - Harness & Degasser Lines — Initial / Initial
- Rig Site Health and Safety Meeting (one/crew/month) — Initial
- C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
- Visual Inspection Before Raising or Lowering — Initial
- Crown Saver Checked — Initial
- Ditch Kits checked — Initial

YEAR 99 | MONTH 03 | DAY 13

RIG NO. 48 ELF

FUEL @ 8:00

RIG 1.79 | BOILER HC 33

WEATHER: TEMPERATURE °C; CURRENT CONDITIONS; WIND DIRECTION; ROAD

	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
LAST CASING TUBING OR LINER	339.7	315.24	101.2	BUTRESS	K-55	56	493.60	7.31	701.30

	DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
	127	29	E	108	152	5"XH	121	9-P-100	NATIONAL	254
	127	29	X2	108	152	5"XH	133	9-P-100	NATIONAL	234
	127	38	X3	101	156	5"XH	118	F-1000	EMSCO	254

21 22 23 24 25 26

TOTALS: 12

SHALE SHAKER(S): NO. / TYPE; SCREENS CHANGED ☐ YES ☐ NO; TOP 84 / TOP 84; MIDDLE 14 / MIDDLE 14; BOTTOM 84 / BOTTOM 84

RENTALS/SERVICES

	MORN	CHAN	MIDN
SECOND BOILER	R	12	4
#3 PUMP	B	12	4
#2 BOILER FUEL 2.22			

MORNING TOUR

METRES DRILLED

FROM	TO	DRLD WITH CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2404	2414	10	15	14/15
			5 1/2 HR	22/23

CIRCULATION | PUMP NO.1 | PUMP NO.2

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
12300	152	75	152	75

REDUCED PUMP SPEED: 2300 @ ____ @ 43

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2393	5.5	69.2

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	07:30	7½	2	DRILL 311mm HOLE F/2404m - 2414m
07:30	07:45	¼	7	R/S FUNC. FUNC TOP PIPE RAMS F/MAINT. ASSY.
07:45	08:00	¼	10	SURVEY

TRANSFER 1m³ STARTED 153 FINISHED 2200
4 BBLS SPOT = 2.24m³ FINISHED 2.13m³

NOTES: BROKES, LINKAGE, CROWN, SAVER CLAMP, AIR HOSE
ROUTINE RIG INSP. 0200, 1700

BOILER HRS RAN | pH | STACK TEMP'S | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | ACCP

9 | 9.5 | 225

DAY TOUR

METRES DRILLED

FROM	TO	DRLD WITH CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2414	2429	15	15	15

CIRCULATION | PUMP NO.1 | PUMP NO.2

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
2 @ 14700	152	83	152	80

REDUCED PUMP SPEED: 2000 @ 43 @ 2400

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2403.24	5.5°	68.5 AZM

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
08:00	11:00	3	2	DRILL 311mm HOLE w/WATER F/2414 - 2419
11:00	11:15	¼	7	R/S FUNC BTM PIPE RAMS C/MAN DIC SSEC
11:15	11:30	¼	10	SURVEY
11:30	22:00	10½	2	DRILL 311mm HOLE w/mud F/2419 - 2429

Fail transfer to Pit Start 1.79m Finish 1.93m

NOTES: ✓ NOSE, FLT LINE CHN'S / BRAKE LINKAGE / AIR SAVER
Boiler Blown Down @ 1100, 1500, 1900

BOILER HRS RAN | pH | STACK TEMP'S | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | ACCP

12 | | | 110 000 | FALLS - VISUAL | 4/4

EVENING TOUR

METRES DRILLED

FROM	TO	DRLD WITH CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2429	2435	6	15	4/15

CIRCULATION | PUMP NO.1 | PUMP NO.2

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
2 @ 14700	152	83	152	80

REDUCED PUMP SPEED: 2400 @ 41 @ ____

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2413.01	6.5.3	69.4

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
2:00	23:30	3½	2	DRILL 311mm HOLE F/2429m - 2435m
23:30	23:45	¼	7	R/S FUNC BTM RAMS F/MAINT IN SSEC C/L
23:45	24:00	¼	10	SURVEY

NOTES: ✓ BROKES, LINKAGE, CROWN SAVER CLAMP, AIR LINE
BOILER RIG INSP. 2200

BOILER HRS RAN | pH | STACK TEMP'S | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | ACCP

4 | 7.5 | 225

111079

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LICENCE NO.: SOL-99
WELL NAME AND NO.: CHEVRON ET AL LIARD K-29 60°30'N 123°30'W
OPERATOR: CHEVRON CAN. RES.
CONTRACTOR: AKITA DRILLING LTD
SURFACE LOCATION: K-29-60°30'N 123°30'W
UNIQUE ID.:
SIGNATURE OF OPERATOR'S REPRESENTATIVE:
SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS

	OPR. Initial	R.M. Initial
(1) Daily Walk Around Inspection		L
(2) Detailed Inspection-Weekly (using checklist)		
(3) HPS Signs Posted (if required)		
(4) Well Licence & Slack Diagram Posted		
(5) Flare Lines Staked		
(6) BOP Drills Performed		
(7) Visually inspect BOP's - Flarelines & Degasser Lines		
(1) Rig Site Health and Safety Meeting (one/crew/month)		
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		
(3) Mast Inspection Before Raising or Lowering		
(4) Crown Saver Checked		
(5) Motor Kills checked		

YEAR 99 MO. 02
RIG NO. 48
FUEL
RIG 1.32
WEATHER: TEMPERATURE; CURRENT CONDITIONS; WIND DIRECT.; ROAD

TIME-HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.				
MORN.						5	1/4													2½		W/SMTH TO REP. BOP		1/4	
DAY		4				3½	1/4			1/4										3		1			
EVE.																									
TOTAL																									

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTHS
	BIT	.41 m
1/1	MONEL/F.S.	10.66/.56 m
1/1	MONEL/H.O.S.	8.42/.99 m
1	MONEL	9.34 m
5	DC	45.95 m
1	JAR	7.08 m
3	DC	27.81 m
1	X/O	.83 m
12	HWDP	109.71 m
	BHA	221.76 m
99	E-DP	943.50 m
	D.P. STANDS	m
	D.P. SINGLES	m
	KELLYDOWN	m
	TOTAL	m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.		12	13
SIZE (mm)		311	311
IADC CODE		447	537X
MFG.		REED	SMITH
TYPE		EHP44H	F3P
SERIAL NO.		LN3675	LN5346
JETS (mm)		3x22.2/1x17.5	3x22.2
DEPTH OUT (m)		2589	
DEPTH IN (m)		2356	2389
TOTAL METRES DRILLED (m)		33	
TOTAL HOURS RUN		17	

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION
HOLE DRAG
TORQUE AT BOTTOM
FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
TR-PRECIPD	
CALC	13.21
MEAS.	13.34
DIFF	.13

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
CENTRIFUGE				
CENTRIFUGE				

METRES DRILLED

FROM	TO	DRD RMRY CORE-C	ROT R.P.
2389			

LINER SIZE (mm)	S.P.M.
152	

REDUCED PUMP SPEED @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTHS
	BIT	.41 m
1/1	MONEL/F.S.	10.66/.56 m
1/1	MONEL/H.O.S.	8.42/.99 m
1	MONEL	9.34 m
5	D.C. 22X	45.95 m
1	JAR	7.08 m
3	D.C.	27.81 m
1	XO	.83 m
12	HWDP	109.71 m
	BHA	221.76 m
99	E-D.P.	943.50 m
128	X3 DP D.P. STANDS	1225.03 m
	D.P. SINGLES	m
X3 DP	KELLYDOWN	41.71 m
	TOTAL	m
WT. OF DC		1000 daN
WT. OF STRING	97	1000 daN

BIT RECORD

BIT NO.		13	
SIZE (mm)		311	
IADC CODE		537X	
MFG.		STC.	
TYPE		F3P	
SERIAL NO.		LN5346	
JETS (mm)		3-22.2	
DEPTH OUT (m)			
DEPTH IN (m)		2389	
TOTAL METRES DRILLED (m)		6	
TOTAL HOURS RUN		4	

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION
HOLE DRAG 10-12T 3-6W
TORQUE AT BOTTOM 5161-5532
FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE ☐ WATER BASED ☑ OIL BASED

TIME	17:00	19:00
DENSITY kg/m³	1255	1250
FUNNEL VIS. - (S/L)	65	67
W.L. (cm³)		
pH		
OIL/WATER	115.	115.7

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
CENTRIFUGE				
CENTRIFUGE				

METRES DRILLED

FROM	TO	DRD RMRY CORE-C	ROT R.P.
2389	2395	6	

LINER SIZE (mm)	S.P.M.
152	85

REDUCED PUMP SPEED @ SPM

2400		

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
2374.3	5.4

DRILLER'S SIGNATURE

EVENING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTHS
	BIT	.41 m
1/1	MONEL/F.S.	10.66/.56 m
1/1	MONEL/H.O.S.	8.42/.99 m
1	MONEL	9.34 m
5	DC	45.95 m
1	JAR	7.08 m
3	DC	27.81 m
1	X/O	.83 m
12	HWDP	109.71 m
99	BHA	221.76 m
99	E-DP	943.50 m
128	X3 D.P. STANDS	1225.03 m
2	X3 D.P. SINGLES	19.56 m
	KELLYDOWN	4.03 m
	TOTAL	2404 m
WT. OF DC		1000 daN
WT. OF STRING	98	1000 daN

BIT RECORD

BIT NO.		13	
SIZE (mm)		311	
IADC CODE		537X	
MFG.		STC	
TYPE		F3P	
SERIAL NO.		LN5346	
JETS (mm)		3 X 22.2	
DEPTH OUT (m)			
DEPTH IN (m)		2389	
TOTAL METRES DRILLED (m)		15	
TOTAL HOURS RUN		7½	

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION
HOLE DRAG 10-20T 4-6W
TORQUE AT BOTTOM 4500-5000
FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE ☐ WATER BASED ☑ OIL BASED

TIME	20:00	2200	2400
DENSITY kg/m³	1245	1245	1245
FUNNEL VIS. - (S/L)	64	63	62
W.L. (cm³)			
pH			
OIL/WATER	115.0	115.0	114.6

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
CENTRIFUGE				
CENTRIFUGE				

METRES DRILLED

FROM	TO	DRD RMRY CORE-C	ROT R.P.
2395	2404	9	

LINER SIZE (mm)	S.P.M.
152	85

REDUCED PUMP SPEED @ SPM

2400		43

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
2389	5.7

DRILLER'S SIGNATURE

FOLD HERE →

DAILY CHECKS	OPR.	R.M.
Daily Walk Around Inspection	Initial	Initial
Documented Inspection-Weekly (using checklist)	Initial	Initial
H2S Signs Posted (if required)	Initial	Initial
Well Licensee & Stick Diagram Posted	Initial	Initial
Flare Lines Staked	Initial	Initial
BOP Drills Performed	Initial	Initial
Visually Inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
Pason Site Health and Safety Meeting (one/crew/month)		Initial
C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
Derrick Inspection Before Raising or Lowering		Initial
Crown Saver Checked		Initial
Gas Buster Kills checked		Initial

YEAR 97 | MONTH 03 | DAY 11

RIG NO. 48

FUEL @ 8:00

RIG 1.32 | BOILER 660.32

WEATHER: TEMPERATURE °C; CURRENT CONDITIONS Blob; WIND DIRECTION ROAD. <2<4L1

LAST CASING TUBING OR LINER	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
	339.7	315.34	101.2	BUTTRESS	K-55	46	693.60	7.31	701.30

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
127	27	E	108	152	5"XH	01	9-P-100	National	235
127	27	X	106	152	5"XH	53	7-P-100	National	235
127	32	X	101	156	5"XH	165	F-1000	Emsco	254

21	22	23	24	25	26
SAFETY MTG.	Monthly Tuesday Safety Drill				
	1/4				
	1				

TOTALS: 8 / 12

SHALE SHAKER(S): NO. | TYPE

SCREENS CHANGED ☐ YES ☐ NO

TOP 84 | TOP 84

MIDDLE 84 | MIDDLE 84

BOTTOM 84 | BOTTOM 84

RENTALS/SERVICES

	MORN	AFTERN	EVE
Second Boiler	8	12	4
#3 Pump	8	12	4
Crown Boiler Install			

MORNING TOUR

MUD BASED

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2389				

CIRCULATING PRESSURE (kPa) | PUMP NO. 1: LINER SIZE (mm) 152, S.P.M. | PUMP NO. 2: LINER SIZE (mm) 152, S.P.M.

REDUCED PUMP SPEED @ kPa @ S.P.M.

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	01:00	1	6	P.O.O.H. Flow off of Hole
01:00	01:15	1/4	7	R/S Fdg. Build Pads F/Floor Rig Crew
01:15	01:30	1/4	23	BOP Drill While Out of Hole. Well Secured Crown Saver Checked
01:30	02:30	1	20	Make up Bit Scribe Motor Install Mud.
02:30	04:00	1 1/2	6	R.I.H. To 700m Test Mud
04:00	04:45	3/4	20	Test M.W.D. Not Working
04:45	07:15	2 1/2	6	Flow / Pump Pill P.O.O.H. For M.W.D. Flow / No Hump Out of Hole
07:15	08:00	3/4	20	Rebuild Mud
				- Clean Suction Screens - Circ. Kill Line.
				Transfer 3m³ To Rig Tank Stick 104cm To 132cm

NOTES: ✓ Brakes, Linkage, Crown Saver Clamp, Anchor / 400 - 38 To 353 @ 01:00 Boiler Rental Drilling 01:00 03:00 07:00

HRS. RAN	BOILER: PH	STACK TEMP.	MAXIMUM EXPERIENCED HOOKLOAD	SAFETY TOPIC
8	95	205		

DAY TOUR

MUD BASED

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2389	2395	6	Rot 15	14/15
			Slide 100	15/20

CIRCULATING PRESSURE 05:14500 / 24:5200 (kPa) | PUMP NO. 1: LINER SIZE (mm) 152, S.P.M. 85 | PUMP NO. 2: LINER SIZE (mm) 152, S.P.M. 85

REDUCED PUMP SPEED 2400 @ S.P.M. @ 44

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2374.3	5.4	55.4

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
08:00	11:00	3	20	Rebuild mud + Circulate through Kill Line.
11:00	14:30	3 1/2	6	R.I.H. / Test Motor 750 / @ 1270 Inside
14:30	15:30	1	22	Wash To Bottom. / No Fill.
15:30	15:45	1/4	10	Survey
15:45	16:00	1/4	7	R/S Close Btm Pipe Rams @ Floor Ok Hose.
16:00	20:00	4	2	Drill 311 Hole w/ Motor Fr: 2389 - 2395
				Start Finish
				Fuel transfer Rig 132 cm 153 cm
				11m³ total Boiler 49 cm 240 cm

NOTES: ✓ Brakes, Linkage, Crown Saver / Anchor / Pit Line Clamp. Boiler Rental Drilling 11:00 15:00 19:00

HRS. RAN	BOILER: PH	STACK TEMP.	MAXIMUM EXPERIENCED HOOKLOAD	SAFETY TOPIC	
12	9.5	225	110	Flash Paint.	46

EVENING TOUR

MUD BASED

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2395	2404	9	15	14/15
			Slide	21/22

CIRCULATING PRESSURE 21500 (kPa) | PUMP NO. 1: LINER SIZE (mm) 152, S.P.M. 85 | PUMP NO. 2: LINER SIZE (mm) 152, S.P.M. 85

REDUCED PUMP SPEED 2400 @ S.P.M. 43 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2389	5.7	122

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
20:00	23:30	3 1/2	2	Drill 311mm Hole F/2395m - 2404m
23:30	23:45	1/4	7	R/S Fdg. Motor F/ Floor Ok Hose Ok
23:45	24:00	1/4	10	Survey

NOTES: ✓ Brakes, Linkage, Crown Saver Clamp, Anchor. Boiler Rental Drilling 19:00 23:00

HRS. RAN	BOILER: PH	STACK TEMP.	MAXIMUM EXPERIENCED HOOKLOAD	SAFETY TOPIC	
4	9.5	225	110,000		

111078

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LICENCE NO.: SD 97

WELL NAME AND NO.: CHEVRON ET AL LIARD K-27 60° 30'N 123° 30'W

OPERATOR: CHEVRON CAN. RES.

CONTRACTOR: AKITA DRILLING LTD

SURFACE LOCATION: K-27 60° 30'N 123° 30'W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS — OPR. / R.M.

(1) Daily Walk Around Inspection — Initial / Initial
(2) Detailed Inspection-Weekly (using checklist) — Initial / Initial
(3) H²S Signs Posted (if required) — Initial / Initial
(4) Well Licence & Slick Diagram Posted — Initial / Initial
(5) Flare Lines Staked — Initial / Initial
(6) BOP Drills Performed — Initial / Initial
(7) Visually inspect BOP's - Flexibles & Degasser Lines — Initial / Initial

(1) Rig Site Health and Safety Meeting (one/crew/month) — Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
(3) Mast Inspection Before Raising or Lowering — Initial
(4) Crown Saver Checked — Initial
(5) Motor Kills checked — Initial

YEAR 97 — RIG NO. 48 — FUEL — RIG .99 — WEATHER — TEMPERAT — CURRENT CONDITIO — WIND DIRE — ROAD

TIME-HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC.	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV. SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.			
MORN.		7 3/4					1/4																	
DAY		8 1/4					1/4			1														
EVE.																								
TOTAL																								

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD (mm)		LENGTH (m)
1/1	MOTOR F.S.		.41 / 1046/.56
1/1	MONEL M.C.S.		8427/.99
1	MONEL		9.34
5	DC		45.95
1	JAR		7.08
3	DC		27.81
1	XO		.83
12	HWDP		109.71
	BHA		221.76
99	E-DP		943.50
42	DP	STANDS	1205.87
	DP	SINGLES	
	KELLYDOWN		9.44
	TOTAL		2370
WT. OF DC			1000 daN
WT. OF STRING	92		1000 daN

BIT RECORD

BIT NO.	12
SIZE (mm)	311
IADC CODE	4 4 7
MFG.	REED
TYPE	EHP44H
SERIAL NO.	NN3675
JETS (mm)	2x22/1x17.5
DEPTH OUT (m)	
DEPTH IN (m)	2356
TOTAL METRES DRILLED (m)	14
TOTAL HOURS RUN	8 3/4

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG 3-4↑ 3-6↓

TORQUE AT BOTTOM 4900-5100

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE ☐ WATER BASED ☑ OIL BASED

TIME	0200	0400	0600
DENSITY kg/m³	1245	1240	1245
FUNNEL VIS. - (S/L)	71	70	65
W.L. (cm³)			
pH			
DST	119.6	119.5	119.3

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
LIME	35 SX
SHALE	4 BUCKETS

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD / RMR / CORED	CORE #
2359	2370	11	1

LINER SIZE (mm)	S.P.M.
152	95

REDUCED SPEED

	@	
2400		

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD (mm)		LENGTH (m)
1	MOTOR F.S.		.41 / 1046/.56
1/1	MONEL M.C.S.		8427/.99
1	MONEL		9.34
5	DC	228	45.95
1	JAR		7.08
3	D.C.	228	27.81
1	XO		.83
12	HWDP		109.71
	BHA		221.76
99	E2-D.P.		943.50
42	X2 D.P.	STANDS	1205.87
X	D.P.	SINGLES	9.44
Single	KELLYDOWN		4.29
	TOTAL		2385.00
WT. OF DC			1000 daN
WT. OF STRING	97		1000 daN

BIT RECORD

BIT NO.	12
SIZE (mm)	311
IADC CODE	4 4 7
MFG.	REED
TYPE	EHP44H
SERIAL NO.	NN3675
JETS (mm)	2-22.2/1-17.5
DEPTH OUT (m)	2389
DEPTH IN (m)	2356
TOTAL METRES DRILLED (m)	33
TOTAL HOURS RUN	17

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG 3-8↑ 3-6↓

TORQUE AT BOTTOM 5105-6147

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE ☐ WATER BASED ☑ OIL BASED

TIME	09:00	12:00	15:00
DENSITY kg/m³	1255	1245	1245
FUNNEL VIS. - (S/L)	65	68	67
W.L. (cm³)			
pH			
DST	118.1	116.2	115.9

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
BULK BARITE	4250 LBS

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD / RMR / CORED	CORE #
2370	2389	19	1

LINER SIZE (mm)	S.P.M.
152	95

REDUCED SPEED

	@	
2600		

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
2355.13	4.9

DRILLER'S SIGNATURE

EVENING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD (mm)		LENGTH (m)

D.P.	STANDS	
D.P.	SINGLES	
KELLYDOWN		
TOTAL		
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG

TORQUE AT BOTTOM

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	18:00		
DENSITY kg/m³			
FUNNEL VIS. - (S/L)			
W.L. (cm³)			
pH			

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD / RMR / CORED	CORE #

LINER SIZE (mm)	S.P.M.

REDUCED SPEED

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

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DAILY CHECKS

	OPR. Initial	R.M. Initial
Walk Around Inspection	JT	✓
Detailed Inspection-Weekly (using checklist)		
H2S Signs Posted (if required)		
Mud Licence & Slick Diagram Posted		
Flare Lines Staked		
BOP Drills Performed		
Weekly Inspect BOP's - Flarelines & Degasser Lines		
Safety Health and Safety Meeting (one/crew/month)		
Rig A.D.D.C, Rig Safety Inspection Checklist (one/rig/month)		
Pre-Start Inspection Before Raising or Lowering		✓
Blowdown Sewer Checked		✓
Choke Manifold Kills checked		

YEAR 97 | MONTH 03 | DAY 10

RIG NO. 48

FUEL @ 8:00

RIG .99 | BOILER 45.0

WEATHER: TEMPERATURE °C; CURRENT CONDITIONS 42/14; WIND DIRECTION; ROAD CONDITIONS FAIR

LAST CASING / TUBING OR LINER	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
	339.7	315.34	101.2	BUTTRESS	K-55	56	673.60	7.31	701.30

	DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
1	127	29	E	108	152	5"XH	121	9-P-100	NATIONAL	235
2	127	29	X	108	152	5"XH	133	7-P-100	NATIONAL	235
3	127	38	X	101	146	5"XH	118	F-1000	EMSCO	254

TOTALS: 8

SHALE SHAKER(S): NO. | TYPE

SCREENS CHANGED ☐ YES ☑ NO

	TOP	MIDDLE	BOTTOM
	89	89	89
	89	89	89

RENTALS/SERVICES

	MOW	DAYS	
SECOND BOILER	8	12	4
#3 PUMP	8	12	4
#2 BOILER FUEL 89			

MORNING TOUR

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2359	2370	11	15	13/14

CIRCULATION | PUMP NO. 1 LINER SIZE (mm) 152 S.P.M. 85 | PUMP NO. 2 LINER SIZE (mm) 152 S.P.M. 85

REDUCED PUMP SPEED: 24m @ @ 43

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	HOURS	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	01:15	1¼	2	Drill 311mm Hole F/2359m - 2360m
01:15	01:30	¼	7	R/S Func. Top P.P. Rams F/Main Loc.
01:30	08:00	6½	2	Drill 311mm Hole F/2360m - 2370m
				Fuel Transfer Start 52cm 400 Start 1.0m³
				@ 06:00 99cm 49m³

NOTES: Drawworks, Kelly Cock, Saver, Clamp, Anchor. Boiler Rotation 1100 0700

HRS RAN	BOILER	STACK TEMP	MAXIMUM EXPERIENCED HOOKLOAD	SAFE TOPIC	CASING
8	9.5	225	97mm		495

DAY TOUR

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2370	2389	19	15	14/15

CIRCULATION | PUMP NO. 1 LINER SIZE (mm) 152 S.P.M. 85 | PUMP NO. 2 LINER SIZE (mm) 152 S.P.M. 85

REDUCED PUMP SPEED: 24m @ 42 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2355.13	4.9°	49.2 Azm.

DRILLER SIGNATURE

TIME LOG

FROM	TO	HOURS	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
08:00	16:15	8¼	2	Drill 311mm Hole w/Motor F/2370-2389
16:15	16:30	¼	7	R/S Close Annular Ea. Main Loc. (5 Secs)
16:30	17:30	1	10	Service Time & Rig Repair Drilling.
17:30	18:30	1	5	Circulate Bottoms up
18:30	20:00	1½	6	Flow C/Pump Pill / Flow C 5 Stds /
				Rig 402
				Fuel transfer start 102cm 49m³
				finish 125cm 38m³
				-Greased Crown Blocks, -Repaired Line Shaft.

NOTES: Boiler Plant Down @ 1100 - 1500, 1900. Anchor.

HRS RAN	BOILER	STACK TEMP	MAXIMUM EXPERIENCED HOOKLOAD	SAFE TOPIC	CASING
12	9.5	275 °C	105,000		495

EVENING TOUR

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION | PUMP NO. 1 LINER SIZE (mm) S.P.M. | PUMP NO. 2 LINER SIZE (mm) S.P.M.

REDUCED PUMP SPEED: @ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	HOURS	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
2:00	22:15	2¼	2	R.O.B.N. Flow J/D 35 Stds (Losses
22:15	22:30	¼	7	R/S Func. Lower Pipe Rams F/Main Loc.
22:30	23:15	¾	20	Work on Top Drive
23:15	24:00	¾	2	R.O.B.H. Flow J/D 11 Stds
				F

NOTES: Drawworks, Kelly Cock, Saver, Clamp, Anchor

HRS RAN	BOILER	STACK TEMP	MAXIMUM EXPERIENCED HOOKLOAD	SAFE TOPIC	CASING
4	9.5	225			

111076

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LICENCE NO.: SDL 99

WELL NAME AND NO.: CHEVRON ET AL LIARD K-29 60°30'N 123°30'W

OPERATOR: CHEVRON CAN RES.

CONTRACTOR: AKITA DRILLING LTD

SURFACE LOCATION: K-29 60°30'N 123°30'W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS

	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Derailed Inspection-Weekly (using checklist)	Initial	Initial
(3) HPS Signs Posted (if required)	Initial	Initial
(4) Well Licensee & Stick Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually Inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)		Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
(3) Mast Inspection Before Raising or Lowering		Initial
(4) Crown Saver Checked		Initial
(5) Motor Kills checked		Initial

YEAR 90 | RIG NO. 42 | FUEL | RIG 240 | WEATHER: TEMPERATURE | CURRENT CONDITIONS | WIND DIRECTION | ROAD

TIME-HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.			
MORN.		7½					¼			¼											Lay Down Pc	Change S.T	B.O.P. Drill	
DAY																								
EVE.																								
TOTAL																								

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
	OD		.41 m
1/1	MONEL/F.S.		10.46/.56 m
1/1	MONEL/H.O.S.	BA2	8.42/.99 m
1	MONEL		9.34 m
5	DC		45.96 m
1	JAR		7.08 m
3	DC		27.59 m
1	X/O		.83 m
12	HWDP		109.71 m
	RHA		221.55 m
99	E-DP		993.50 m
41	X2 D.P.	STANDS	1177.34 m
2	D.P.	SINGLES	18.96 m
	KELLY DOWN		5.35 m
	TOTAL		2356 m
WT. OF DC			1000 daN
WT. OF STRING		92	1000 daN

BIT RECORD

BIT NO.	11
SIZE (mm)	311
IADC CODE	537
MFG.	REED
TYPE	EHP53A
SERIAL NO.	LK4965
JETS (mm)	2-12.7/1-11.5
DEPTH OUT (m)	
DEPTH IN (m)	2291
TOTAL METRES DRILLED (m)	65
TOTAL HOURS RUN	40

CUTTING STRUCTURE T1	To	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	1-3↑ 2-4↓
TORQUE AT BOTTOM	48m-5m
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	02:00	04:00	06:00
DENSITY kg/m³	1050	1255	1245
FUNNEL VIS. - (S/L)	64	63	64
W.L. (cm³)			
pH			
HTT	123.6	123.3	123.0

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
Silt	2 Fixes

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD RIH CORE-C	ROT R.P.
2348	2356	8	1

LINER SIZE (mm)	S.P.M.
152	85

REDUCED PUMP SPEED

2200 @ 42

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
2335.9	4.4

DRILLER'S SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
1	OD		.41 m
1/1	MONEL/F.S.		10.46/.56 m
1/1	MONEL/H.O.S.		8.42/.99 m
1	MONEL		9.34 m
5	DC	228	45.95 m
1	JAR		7.08 m
3	DC	228	27.81 m
1	XO		.83 m
12	HWDP		109.71 m
	RHA		221.76 m
	D.P.	STANDS	m
	D.P.	SINGLES	m
	KELLY DOWN		m
	TOTAL		m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	11	12
SIZE (mm)	311	311
IADC CODE	537	447
MFG.	REED	REED
TYPE	EHP53A	EHP44H
SERIAL NO.	LK4965	NN3675
JETS (mm)	2-12.7/1-11.5	2-12.7/1-11.5
DEPTH OUT (m)	2356	
DEPTH IN (m)	2291	
TOTAL METRES DRILLED (m)	65	
TOTAL HOURS RUN	40	

CUTTING STRUCTURE T1	To	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.
2	6	BT	0	F	4	WT	TD	1.6

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME			
DENSITY kg/m³			
FUNNEL VIS. - (S/L)			
W.L. (cm³)			
pH			

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
BOILER BLOW DOWN	
@ 17:00 + @ 23:00	42

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD RIH CORE-C	RO R.P.
2356			

LINER SIZE (mm)	S.P.M.
152	

REDUCED PUMP SPEED

2200 @ 42

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
MEAS-	13.35 m
Calc -	12.98 m
	.47 m

DRILLER'S SIGNATURE

EVENING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
	OD		.41 m
1/1	MONEL/F.S.		10.46/.56 m
1/1	MONEL/H.O.S.		8.42/.99 m
1	MONEL		9.34 m
5	DC		45.95 m
1	JAR		7.08 m
3	DC		27.81 m
1	XO		.83 m
12	HWDP		109.71 m
	RHA	BHA	221.71 m
99	E-DP		993.50 m
41	X2 D.P.	STANDS	1177.34 m
2	D.P.	SINGLES	12.96 m
	KELLY DOWN		2.56 m
	TOTAL		2359 m
WT. OF DC			1000 daN
WT. OF STRING		92	1000 daN

BIT RECORD

BIT NO.	12
SIZE (mm)	311
IADC CODE	447
MFG.	REED
TYPE	EHP44H
SERIAL NO.	NN3675
JETS (mm)	2x12.7/1x11.5
DEPTH OUT (m)	
DEPTH IN (m)	2356
TOTAL METRES DRILLED (m)	3
TOTAL HOURS RUN	1

CUTTING STRUCTURE T1	To	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	1-3↑ 2-4↓
TORQUE AT BOTTOM	5.8m
FILL ON BOTTOM (m)	0

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME			24:00
DENSITY kg/m³			1245
FUNNEL VIS. - (S/L)			78
W.L. (cm³)			
pH			121.2

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD RIH CORE-C	ROT R.P.
2356	2359	3	15

LINER SIZE (mm)	S.P.M.
152	82

REDUCED PUMP SPEED

@

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

FOLD HERE →

DAILY CHECKS	OPR.	R.M.
Safety Walk Around Inspection	Initial	Initial
Completed Inspection-Weekly (using checklist)	Initial	Initial
H2S Signs Posted (if required)	Initial	Initial
Permit License & Stack Diagram Posted	Initial	Initial
Flare Lines Staked	Initial	Initial
BOP Drills Performed	Initial	Initial
Visually Inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
Daily Site Health and Safety Meeting (one/crew/month)		Initial
I.A.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
Derrick Inspection Before Raising or Lowering		Initial
Crown Saver Checked		Initial
Ram Choke Kills checked		Initial

YEAR 89 | MONTH 03 | DAY 07

RIG NO. 4Rix

FUEL @ 8:00

RIG .20 | ROAD .23

WEATHER: TEMPERATURE °C; CURRENT CONDITIONS; WIND DIRECTION; ROAD

LAST CASING TUBING OR LINER	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
	339.7	315.4	10.7	BUTTRESS	K-55	8	102.60	7.31	701.3

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOLJT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
127	29	E	108	152	5"XH	121	9-P-100	NATIONAL	255
127	31	X2	106	152	5"XH	135	9-P-100	NATIONAL	235
127	38	X2	101	152	5"XH	168	F-1000	EMSCO	254

21 22 23 24 25 26

SAFETY TOPIC					
	Hay Down Rig	Change BIT	ROP Drill		

TOTALS 8

SHALE SHAKER(S)

NO. | TYPE

SCREENS CHANGED ☐ YES ☐ NO

TOP 84 | TOP 84

MIDDLE 84 | MIDDLE 84

BOTTOM 84 | BOTTOM 84

RENTALS/SERVICES

	MORN	EDAY	EVE
Second Boiler Hot	8	12	4
#3 Pump	8	12	4
#3 Boiler Fuel 1.21			

MORNING TOUR

MUD BASED

00	06:00
55	1245
	64
13	123.0

METRES DRILLED

FROM	TO	DRILL RM.R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2348	2356	8	15	14/15
			45	14/30

CIRCULATION | PUMP NO.1 | PUMP NO.2

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
1624m	152	85	152	85

REDUCED PUMP SPEED

2200 @ 42 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2335.9	4.4	34.8

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	07:30	7½	2	Drill 311mm Hole F/2348m - 2356m
07:30	07:45	¼	7	R/S Fish Lower Pipe Rams F/ Floor Leak C/O
07:45	08:00	¼	10	Survey F/E Attempt Drilling

NOTES: Brakes, Linkage (Rod) Sand Clamp Failure; Roller Bowl Drilling 2000 0-00

All Crews Safe

HRS. RAN	BOILER	STACK TEMP.	MAXIMUM EXPERIENCED HOOKLOAD	SAFE TOPIC	DAILY
8	7.5	225	110 tonnes		495

DAY TOUR

MUD BASED

08:00	12:00
00	1400
55	1500
64	1515
	1730
123.0	

METRES DRILLED

FROM	TO	DRILL RM.R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2356				

CIRCULATION | PUMP NO.1 | PUMP NO.2

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
	152		152	

REDUCED PUMP SPEED

2200 @ 42 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
MEAS -	13.35 m	S
CALC -	12.98 m	S
	.47 m	Diff.

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
08:00	12:00	¼	6	Flow / Pump Pill / Flow 5 Stds / Flow 40 Stds. POOH DP + Out of Hole.
12:00	14:00	2	22	(Hay Down All 9" D.C.)
14:00	15:00	1	23	Change Out BIT + Check Mud
15:00	15:15	¼	7	R/S Close Blind Rams F/ Floor + Manifold Leak
15:15	17:30	2¼	6	Make up BIT, Strap D.C. + Pick up 2 D.C. + Run in 2HA
17:30	17:45	¼	24	Hold B.O.P. Drill / Crew into Proper Mode Well Secured in 80 Seconds
17:45	18:15	½	6	Run in to 735m
18:15	18:30	¼	25	Test BOP
18:30	19:15	¾	9	Slip Cut 18m of Drilling Line.

NOTES: V Brakes, Linkage (Rod) Sand Clamp Failure / Fast Line Repair / Anchor

19:15	20:00	¾	6	Run in w/ BIT #12

HRS. RAN	BOILER	STACK TEMP.	MAXIMUM EXPERIENCED HOOKLOAD	SAFE TOPIC	DAILY
12	9.5	225°			495

EVENING TOUR

MUD BASED

	2400
	1745
	78
	121.2

METRES DRILLED

FROM	TO	DRILL RM.R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2356	2359	3	15	12/15

CIRCULATION | PUMP NO.1 | PUMP NO.2

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
1624m	152	82	152	88

REDUCED PUMP SPEED

@ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
20:00	21:45	1¾	6	R.T.H. To 1225m Test m.w.d. 1750m. Pull to 705m
21:45	22:00	¼	7	R/S Fish Tool Rams F/Floor Leak C/O
22:00	23:00	1	5	Wash F/2285m - 2356m (No Fill)
23:00	24:00	1	2	Drill 311mm Hole F/2356m - 2359m

NOTES: V Brakes, Linkage (Rod) Sand Clamp Failure; Brake Band Drilling

DRILLER SIGNATURE

HRS. RAN	BOILER	STACK TEMP.	MAXIMUM EXPERIENCED HOOKLOAD	SAFE TOPIC	DAILY

111075

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LICENCE NO.: SDL-99

WELL NAME AND NO.: CHEVRON ET AL LAND K-29 62° 30'N, 123° 30'W

OPERATOR: CHEVRON CANADA RESOURCES LTD

CONTRACTOR: ARKTA DRILLING LTD

SURFACE LOCATION: K-29 62° 30'N, 123° 30'W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS (OPR. / R.M.)

(1) Daily Walk Around Inspection
(2) Detailed Inspection-Weekly (using checklist)
(3) H²S Signs Posted (if required)
(4) Well Licensee & Stick Diagram Posted
(5) Flare Lines Staked
(6) BOP Drills Performed
(7) Visually Inspect BOPs - Flarelines & Degasser Lines

(1) Rig Site Health and Safety Meeting (one/crew/month)
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)
(3) Mast Inspection Before Raising or Lowering
(4) Crown Saver Checked
(5) Motor Kills checked

YEAR 94 | RIG NO. 122 | FUEL | TEMPERATURE | CURRENT CONDITIONS | WIND DIRECTION | ROAD

WEATHER

TIME-HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	PROD. & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC.	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P	TEST B.O.P	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.			
MORN.		7½					¼			¼														
DAY		7½					¼			¼														
EVE.		7½					¼			¼														
TOTAL																								

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.		OD mm	LENGTH m
			.41
1	MONEL/FLT SUB	206	.56
1	MONEL MDS.	242	8.56
1	MONEL		9.34
5	DC	228	45.96
1	JAR		7.08
3	DC	228	27.59
1	XO		.83
12	HWDP		109.71
	BHA		221.55
99	FS DP		943.50
40	NC DP	STANDS	1146.71
	DP	SINGLES	
	KELLYDOWN		.66
	TOTAL		2324
WT. OF DC			1000 daN
WT. OF STRING		91	1000 daN

BIT RECORD

BIT NO.	11
SIZE (mm)	311
IADC CODE	537
MFG.	REED
TYPE	EHP53A
SERIAL NO.	LK4965
JETS (mm)	2-22.2/1-17.5
DEPTH OUT (m)	
DEPTH IN (m)	2291
TOTAL METRES DRILLED (m)	33
TOTAL HOURS RUN	17½

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG: 1-4↑ 0-4↓
TORQUE AT BOTTOM: 5000 FT lbs.
FILL ON BOTTOM (m):

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

	02:00	04:00	06:00
TIME			
DENSITY kg/m³	1235	1230	1230
FUNNEL VIS. - (S/L)	72	71	70
W.L. (cm³)			
pH			
PVT	119.1	118.8	118.3

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
BUCKETS DEF SOLE	3 BUCKETS

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLG RWR CORE/C	ROP R
2310	2324	14	9.3

CIRCULATION

	LINER SIZE (mm)	S.P.M.
ON 16500	152	85

REDUCED PUMP SPEED

2700 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
2307.30	3.2

DRILLER'S SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.		OD mm	LENGTH m
			.41
1/2	MONEL/F.S.	206	1.56
1/2	MONEL/M.D.S.	242	8.77
1	MONEL		9.39
5	DC		45.16
1	JAR		7.08
3	DC		27.59
1	XO		.83
12	HWDP		109.71
	BHA		221.55
99	F-DP		943.50
41	XC D.P.	STANDS	1177.34
	D.P.	SINGLES	
	KELLYDOWN		5.64
	TOTAL		2337.
WT. OF DC			1000 daN
WT. OF STRING		91	1000 daN

BIT RECORD

BIT NO.	11
SIZE (mm)	311
IADC CODE	537
MFG.	REED
TYPE	EHP53A
SERIAL NO.	LK4965
JETS (mm)	2x22.2/1x17.5
DEPTH OUT (m)	
DEPTH IN (m)	2291
TOTAL METRES DRILLED (m)	47
TOTAL HOURS RUN	25

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG: 1-5↑ 1-5↓
TORQUE AT BOTTOM: 4000-4800
FILL ON BOTTOM (m):

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

	09:00	12:00	15:00
TIME			
DENSITY kg/m³	1230	1200	1200
FUNNEL VIS. - (S/L)	69	69	70
W.L. (cm³)			
pH			
PVT	119.7	119.6	125.4

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
LIME	465 KG
DIESEL FUEL	2.1 BBL
WATER	10 m³
	FRESH MIX

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLG RWR CORE/C	ROP R
2324	2338	14	14

CIRCULATION

	LINER SIZE (mm)	S.P.M.
ON 16400	152	85

REDUCED PUMP SPEED

2300 @ 42

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
2316.9	3.4

DRILLER'S SIGNATURE

EVENING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.		OD mm	LENGTH m
1			.41
1/2	MONEL/F.S.	206	1.56
1/2	MONEL/M.D.S.	242	1.99
1	MONEL		9.34
5	DC	228	45.96
1	JAR		7.08
3	DC	228	27.59
1	XO		.83
12	HWDP		109.71
	BHA		221.55
99	F.D.P.		943.50
41	XC D.P.	STANDS	1177.34
	D.P.	SINGLES	
	KELLY DOWN		5.64
	TOTAL		2344.00
WT. OF DC			1000 daN
WT. OF STRING		92	1000 daN

BIT RECORD

BIT NO.	11
SIZE (mm)	311
IADC CODE	537
MFG.	REED
TYPE	EHP53A
SERIAL NO.	LK4965
JETS (mm)	2-22.2/1-17.5
DEPTH OUT (m)	
DEPTH IN (m)	2291
TOTAL METRES DRILLED (m)	57
TOTAL HOURS RUN	32½

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG: 5-4 up 2-5 Down
TORQUE AT BOTTOM: 4764-6531
FILL ON BOTTOM (m):

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

	18:00	21:00	24:00
TIME			
DENSITY kg/m³	1240	1235	1245
FUNNEL VIS. - (S/L)	67	68	67
W.L. (cm³)			
pH			
PVT	124.3	124.7	124.4

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
DIESEL FUEL	2 BBL
BARITE	6 MT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLG RWR CORE/C	ROP R
2338	2348	10	10

CIRCULATION

	LINER SIZE (mm)	S.P.M.
ON 16500	152	85

REDUCED PUMP SPEED

3500 @ 101

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
2326.4	3.9

DRILLER'S SIGNATURE

FOLD HERE →

DAILY CHECKS — OPR. / R.M.

Daily Walk Around Inspection — Initial / Initial
Detailed Inspection-Weekly (using checklist) — Initial / Initial
H2S Signs Posted (if required) — Initial / Initial
Well Licensee & Stick Diagram Posted — Initial / Initial
Flare Lines Staked — Initial / Initial
BOP Drills Performed — Initial / Initial
Visually Inspect BOP's - Flarelines & Degasser Lines — Initial / Initial

Rig Site Health and Safety Meeting (one/crew/month) — Initial
C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
Pre-Inspection Before Raising or Lowering — Initial
Crown Saver Checked — Initial
Flare Kills checked — Initial

YEAR: 07 | MONTH: 03 | DAY: 04
RIG NO.: 24
FUEL @ 8:00
RIG: 122 | BOILER: 32

WEATHER: TEMPERATURE °C; CURRENT CONDITIONS; WIND DIRECTION; ROAD

	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
LAST CASING									
TUBING OR LINER	339.7	315.54	101.2	BUTTRESS	K-55	36	69366	7.31	701.30

	DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
21	127	29	E	108	152	5"XH	121	GP100	NATIONAL	334
22	127	29	X2	106	152	5"XH	133	GP100	NATIONAL	334
23	127	36	X5	101	156	5"XH	160	F-[illegible]	F[illegible]	254
24										
25										
26										

TOTALS: 8 / 8 / 8

SHALE SHAKER(S): NO. / TYPE
SCREENS CHANGED ☐ YES ☑ NO
TOP 54 / TOP 54
MIDDLE 54 / MIDDLE 54
BOTTOM 54 / BOTTOM 54

RENTALS/SERVICES

	MORN	DAY	EVE
SECOND BOILER	8	12	4
#3 PUMP	8	12	4
FUEL FOR #3 BOILER @ 1600 — 1.57			

MORNING TOUR

RECORD — OIL BASED

FROM	TO
7:00	06:00
6:30	1230
1	7.0
8.8	118.3

SOLIDS CONTROL

	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2310	2334	14	85	12/14

CIRCULATION PRESSURE (kPa): 16500
PUMP NO.1: LINER SIZE (mm) 152; S.P.M. 85
PUMP NO.2: LINER SIZE (mm) 152; S.P.M. 85
REDUCED PUMP SPEED: 2700 @ [ ] @ 60

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2307.30	3.2	22.8

DRILLER SIGNATURE: [signature]

TIME LOG

FROM	TO	ELAPS. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	07:30	7½	2	Drill 311mm Hole w/motor Fr: 2310 – 2334
07:30	07:45	¼	7	Rig Service & Ram Pipes @ Floor 6sec C/O
07:45	08:00	¼	10	Survey @ Hour Drilling

NOTES: / Crown Saver, Clamp, Brakes, Action, Boiler Blow Down @ 3:00 & 4:00

BOILER HRS: RAN 8 | ph 9.5 | STACK TEMP 205
MAXIMUM EXPERIENCED HOOKLOAD:
SAFETY TOPIC:
CREW: 4

DAY TOUR

RECORD — OIL BASED

FROM	TO
8:00	15:00
7:00	12:00
1	7.0
11.0	125.4

SOLIDS CONTROL

	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2329	2338	14	14	14/15

CIRCULATION PRESSURE (kPa): 16500
PUMP NO.1: LINER SIZE (mm) 152; S.P.M. 85
PUMP NO.2: LINER SIZE (mm) 152; S.P.M. 85
REDUCED PUMP SPEED: 2300 @ 42 @ [ ]

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2316.9	3.4	27.8

DRILLER SIGNATURE: [signature]

TIME LOG

FROM	TO	ELAPS. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
08:00	12:00	4	2	Drill 311mm Hole 2334m – 2338m
12:00	12:15	¼	7	RIS. Inc. Adjust Ldg F/Floor 16sec C/O
12:15	12:30	¼	10	Survey
12:30	16:00	3½	2	Drill F/2338m – 2338m

NOTES: / Brakes, Linkage, Crown Saver, Clamp, Air Hose, Boiler Blow Down @ 10:00, 14:00

BOILER HRS: RAN 8 | ph 9.5 | STACK TEMP 205
MAXIMUM EXPERIENCED HOOKLOAD: 91000
SAFETY TOPIC:
CREW: 5

EVENING TOUR

RECORD — OIL BASED

FROM	TO
00	24:00
5	1245
	6.7
9.7	124.4

SOLIDS CONTROL

	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2338	2348	10	14	14/16

CIRCULATION PRESSURE (kPa): 16500
PUMP NO.1: LINER SIZE (mm) 152; S.P.M. 85
PUMP NO.2: LINER SIZE (mm) 152; S.P.M. 85
REDUCED PUMP SPEED: 3500 @ [ ] @ 57

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2326.4	3.9°	32 Azm.

DRILLER SIGNATURE: [signature]

TIME LOG

FROM	TO	ELAPS. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
16:00	19:00	3	2	Drill 311mm Hole w/Motor Fr: 2338-2342
19:00	19:15	¼	7	R/S Close Top Pipe Rams F/Floor 0/C 6sec
19:15	19:30	¼	10	Survey
19:30	24:00	4½	2	Drill 311mm Hole w/Motor Fr: 2342-2348

NOTES: / Crown Saver, Brake Linkage, Fastline Clamp, Air Hose, Boiler Blow Down @ 1800, 2200

BOILER HRS: RAN 8 | ph 9.5 | STACK TEMP 225°C
MAXIMUM EXPERIENCED HOOKLOAD: 100000
SAFETY TOPIC:
CREW: 4 1/2

111074

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LICENCE NO.: SDL-99

WELL NAME AND NO.: CHEVRON FINAL LAND K-29 60°30'N, 123°30'W

OPERATOR: CHEVRON CANADA RESOURCES LTD

CONTRACTOR: AKITA DRILLING LTD

SURFACE LOCATION: K-29 60°30'N 123°30W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS — OPR. RM

(1) Daily Walk Around Inspection — Initial
(2) Detailed Inspection-Weekly (using checklist) — Initial
(3) H²S Signs Posted (if required) — Initial
(4) Well License & Stick Diagram Posted — Initial
(5) Flare Lines Staked — Initial
(6) BOP Drills Performed — Initial
(7) Visually inspect BOP's - Flarelines & Degasser Lines — Initial

(1) Rig Site Health and Safety Meeting (one/crew/month) — Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
(3) Mast Inspection Before Raising or Lowering — Initial
(4) Crown Saver Checked — Initial
(5) Motor Kills checked — Initial

YEAR 92
RIG NO. 4
FUEL
RIG 1457
WEATHER: TEMPERATURE, CURRENT CONDITIONS, WIND DIRECTION, ROAD

TIME-HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC.	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV. SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.				
MORN.						5¾	1/4													2					
DAY		6½				3¾	1/4																		
EVE.		3¾					1/4			1/4															
TOTAL																									

DRILLING ASSEMBLY (At End of Tour)

NO.	OD		LENGTH
			.41 m
1/1	MOTOR	FLOAT SUB	9.46 m
1/1	MONEL	L.S.	8.48 .59 m
1	MONEL		9.34 m
5	DC	228	45.96 m
1	SAK		7.08 m
3	DC	228	27.54 m
1	Y/D		.83 m
12	HWDP		109.71 m
	BHA	=	221.55 m
99	E-DP		943.50 m
	D.P.	STANDS	m
	D.P.	SINGLES	m
	KELLY DOWN		m
	TOTAL		m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	10	11
SIZE (mm)	311	311
IADC CODE		537
MFG.	REED	REED
TYPE	HP62A	EHP53A
SERIAL NO.	mn9034	LK4965
JETS (mm)	2x14/1-17.5	2x22/1-17.5
DEPTH OUT (m)	2291	
DEPTH IN (m)	2246	2291
TOTAL METRES DRILLED (m)	45	
TOTAL HOURS RUN	14¾	

CUTTING STRUCTURE T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.
2	2	FC	A	E	I	N	PR	3.0

HOLE CONDITION

HOLE DRAG
TORQUE AT BOTTOM
FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME			
DENSITY kg/m³			
FUNNEL VIS. - (S/L)			
W.L. (cm³)			
pH			

MUD MATERIALS ADDED — SOLIDS CONTROL

PRODUCT	AMOUNT X UNIT

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

MORNING TOUR

METRES DRILLED

FROM	TO	DRLD ROT CORE-C	ROT R.

CIRCULATION

PUMP	LINER SIZE (mm)	S.P.M.	% EFF.

REDUCED PUMP SPEED @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
Hole Full	
CALC	13.64
MEAS	13.27
DIF.	.54

DRILLER'S SIGNATURE

DAY TOUR

METRES DRILLED

FROM	TO	DRLD ROT CORE-C	ROT R.
2291	2304	13	

CIRCULATION

PUMP	LINER SIZE (mm)	S.P.M.	% EFF.
1 1600	152	85	

REDUCED PUMP SPEED 2705 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

BIT RECORD

BIT NO.	11
SIZE (mm)	311
IADC CODE	537
MFG.	REED
TYPE	EHP53A
SERIAL NO.	LK4965
JETS (mm)	2x22/1-17.5
DEPTH OUT (m)	
DEPTH IN (m)	2291
TOTAL METRES DRILLED (m)	13
TOTAL HOURS RUN	10

CUTTING STRUCTURE T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG 3-5↑ 3-5↓
TORQUE AT BOTTOM 4600-4900
FILL ON BOTTOM (m) 0

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	15⁰⁰	17⁰⁰	19⁰⁰
DENSITY kg/m³	1230	1230	1235
FUNNEL VIS. - (S/L)	76	72	72
W.L. (cm³)			
pH			
PVT	121.4	121.2	120.8

MUD MATERIALS ADDED — SOLIDS CONTROL

PRODUCT	AMOUNT X UNIT
Lime	20 SX
4 BIX KETS SHALE	

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

DRILLING ASSEMBLY (At End of Tour)

NO.	OD		LENGTH
			.41 m
1/1	MOTOR	FLOAT SUB	9.46 m
1/1	MONEL	L.S.	8.48 .59 m
1	MONEL		9.34 m
5	DC	228	45.96 m
1	SAK		7.08 m
3	DC	228	27.54 m
1	Y/D		.83 m
12	HWDP		109.71 m
	BHA	=	221.55 m
99	E-DP		943.50 m
39	D.P.	STANDS	1119.98 m
2	D.P.	SINGLES	19.16 m
	KELLY DOWN		2.58 m
	TOTAL		2304.19 m
WT. OF DC			1000 daN
WT. OF STRING		90	1000 daN

BIT RECORD

BIT NO.	11
SIZE (mm)	311
IADC CODE	537
MFG.	REED
TYPE	EHP53A
SERIAL NO.	LK4965
JETS (mm)	2x22/1-17.5
DEPTH OUT (m)	
DEPTH IN (m)	2291
TOTAL METRES DRILLED (m)	13
TOTAL HOURS RUN	10

CUTTING STRUCTURE T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG ↑1-4 ↓0-4
TORQUE AT BOTTOM 4725 ft-lbs.
FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	20:30	2300	
DENSITY kg/m³	1235	1230	
FUNNEL VIS. - (S/L)	73	72	
W.L. (cm³)			
pH			
PVT	121.1	120.2	

MUD MATERIALS ADDED — SOLIDS CONTROL

PRODUCT	AMOUNT X UNIT

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

EVENING TOUR

METRES DRILLED

FROM	TO	DRLD ROT CORE-C	ROT R.
2304	2310	6	
2288.2	29		

CIRCULATION

PUMP	LINER SIZE (mm)	S.P.M.	% EFF.
2 1600	152	85	

REDUCED PUMP SPEED 2705 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

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DAILY CHECKS — OPR. / R.M.

- Daily Walk Around Inspection — Initial ___ / Initial ___
- Documented Inspection-Weekly (using checklist) — Initial ___ / Initial ___
- H2S Signs Posted (if required) — Initial ___ / Initial ___
- Well Location & Stick Diagram Posted — Initial ___ / Initial ___
- Flare Lines Staked — Initial ___ / Initial ___
- BOP Drills Performed — Initial ___ / Initial ___
- Visually inspect BOP's - Flarelines & Degasser Lines — Initial ___ / Initial ___
- Pre-Tour Safety Meeting (one/crew/month) — Initial ___
- A.D.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial ___
- Derrick Inspection Before Raising or Lowering — Initial ___
- Blowdown Sewer Checked — Initial ___
- Escape Lines Kits checked — Initial ___

YEAR 96 | MONTH 03 | DAY 07

RIG NO. 4 BMF

FUEL @ 8:00

RIG 1147 | BOILER 32

WEATHER

TEMPERATURE °C	
CURRENT CONDITIONS	
WIND DIRECTION	
ROAD	

LAST CASING TUBING OR LINER	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
	339.7	315.34	101.2	Baycs	K-55	36	6936.0	7.31	701.31

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
127	50.1	E	108	152	5" XH	121	Gardner 7B1W	National	254
127	87	X-2	106	152	5" XH	133	Gardner 8-P100	National	254
127	38	X-3	101	156	5" XH	111	Gardner F-1000	Failure	254

21 | 22 | 23 | 24 | 25 | 26

TOTALS: 8

SHALE SHAKER(S)

NO. | TYPE

SCREENS CHANGED ☐ YES ☑ NO

TOP	TOP
MIDDLE 84	MIDDLE 84
BOTTOM 84	BOTTOM 84

RENTALS/SERVICES

	NOON	MIDNIGHT	24 HRS
Shaker Screens	8	12	4
3 Cone	8	12	4
Fuel For #2 Boiler 1.9C			

MORNING TOUR

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION | PUMP NO. | PUMP NO.

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED @ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
Hole Full		
Calc	12.64	
Mag	13.23	
Dec.	.59	

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.
00:00	05:45	5¾	1
05:45	06:00	1/4	7
06:00	15:00	9	20

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

- Pull Out Of Hole From @ 2271m Stand 14 Stds. 230m + Out Of Hole
- Rig Service Fan Belts @ Hose + Main Eng. 1/4
- Complete Dist Manual

NOTES
- Crown Saver Brakes Linkage Check Anchor
- Boiler From Down @ 15:00 16:00

HRS RAN	BOILER psi	STACK TEMP.	MAXIMUM EXPERIENCED HOOKLOAD	SAFETY CLIMB
9	105	225		530 kPa

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

RECORD

OIL BASED

0	1900
30	1235
	72
1.2	1208

DAY TOUR

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2291	230A	13	15	13

CIRCULATION | PUMP NO. | PUMP NO.

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
	152	85	152	85

REDUCED PUMP SPEED 27.0 @ @ 60

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.
08:00	09:00	1	20
09:00	12:45	3¾	6
12:45	13:15	½	5
13:15	19:45	6½	2
19:45	20:00	¼	7

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

- Pick Up New Motor, Remove Stabs, Sleeve & Install Lock Sleeve Screw Motor & Install M.W.D.
- Make Up Bit #11 & R.I.H. Test M.W.D. @ 75 Dri. 1250m. 1750m R.T.J. To 2275m
- Wash F/2275m - 2291m (No Fill)
- Drill 311mm Hole F/2291m - 2304m
- Pick Four Top Pipe Rams Loose C/O F/Manl

NOTES
- Brakes, Linkage, Check Saver Clamp Anchor
- Blow Down @ 11:00 15:00 19:00 HRS / Transfer 1m³ Diesel / Water

HRS RAN	BOILER psi	STACK TEMP.	MAXIMUM EXPERIENCED HOOKLOAD	SAFETY CLIMB
10	95	225°C		

RECORD

OIL BASED

2300	
30	
.2	

EVENING TOUR

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2304	2310	6	15	12/13

CIRCULATION | PUMP NO. | PUMP NO.

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
	150	85	152	85

REDUCED PUMP SPEED 27.0 @ @ 60

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2288.2	2.7	25.3

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.
20:00	23:30	3½	2
23:30	23:45	¼	7
23:45	01:00	1¼	10

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

- Drill 311mm Hole W/Motor F/2304m - 2310
- Rig Service Fan Hydraulic & Main Hose C/O
- Survey For Above Drilling

NOTES
- Crown Saver Brakes Linkage Check Anchor
- Boiler Blow Down @

HRS RAN	BOILER psi	STACK TEMP.	MAXIMUM EXPERIENCED HOOKLOAD	SAFETY CLIMB
4	98	225°		487

111073

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LICENCE NO.: SDL-99

WELL NAME AND NO.: Chevron Et Al Lindo K-29 60° 30' N, 123° 30' W

OPERATOR: Chevron Canada Resources Ltd

CONTRACTOR: Akita Drilling Ltd

SURFACE LOCATION: K-29 60° 30' N, 123° 30' W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS — OPR. R.M.

(1) Daily Walk Around Inspection — Initial — Initial
(2) Detailed Inspection-Weekly, (using checklist) — Initial — Initial
(3) H²S Signs Posted (if required) — Initial — Initial
(4) Well License & Slick Diagram Posted — Initial — Initial
(5) Flare Lines Staked — Initial — Initial
(6) BOP Drills Performed — Initial — Initial
(7) Visually Inspect BOP's - Flarelines & Degasser Lines — Initial — Initial

(1) Rig Site Health and Safety Meeting (one/crew/month) — Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
(3) Mast Inspection Before Raising or Lowering — Initial
(4) Crown Saver Checked — Initial
(5) Motor Kills checked — Initial

YEAR 94 MO 7
RIG NO. 45
FUEL
RIG 702
WEATHER: TEMPERATURE; CURRENT CONDITIONS; WIND DIRECTION; ROAD 56

TIME - HRS

CODE NO.	1 OPER.	2 RIG UP & TEAR DOWN	3 DRILL ACTUAL	4 REAMING	5 CORING	6 COND. MUD & CIRC	7 TRIPS	8 RIG SERVICE	9 REPAIR RIG	10 CUT OFF DRILL LINE	11 DEV SURVEY	12 WIRE LINE LOGS	13 RUN CASE & CEMENT	14 WAIT ON CEMENT	15 NIPPLE UP B.O.P	16 TEST B.O.P.	17 DRILL STEM TEST	18 PLUG BACK	19 SQUEEZE CEMENT	20 FISHING	21 DIR. WORK	22 SAFETY MTG.	23	24	25
MORN.						7¼		¼																	
DAY			7½			2¾	1¼	¼			¼														
EVE.																									
TOTAL																									

DRILLING ASSEMBLY (At End of Tour)

NO.		OD	LENGTH
1	BIT		.41 m
1/1	MOTOR / F.S.	6.66/6.51	6.51 m
1	MONEL / M.W.D.	8¼	9.99 m
1	MONEL		9.34 m
5	DC	228	45.96 m
1	JAR		7.08 m
3	DC	228	27.59 m
1	H/O		.83 m
12	HWDP		109.71 m
	BHA =		221.55 m
99	E-DP		993.50 m
38	x2 D.P.	STANDS	1091.26 m
2	x2 D.P.	SINGLES	19.15 m
	KELLYDOWN		.54 m
	TOTAL		2276 m
WT. OF DC			1000 daN
WT. OF STRING		90	1000 daN

BIT RECORD

BIT NO.	10
SIZE (mm)	311
IADC CODE	
MFG.	Reed
TYPE	HP62A
SERIAL NO.	MM9034
JETS (mm)	2x19/1x17.5
DEPTH OUT (m)	
DEPTH IN (m)	2216
TOTAL METRES DRILLED (m)	30
TOTAL HOURS RUN	7¼

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG

TORQUE AT BOTTOM

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	02:00	04:00	06:30
DENSITY kg/m³	1050	1065	1075
FUNNEL VIS. - (S/L)	71	71	75
W.L. (cm³)			
pH			
PVT	112.9	114.6	116.1

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER: HOURS RUN | INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE: HOURS RUN | INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROT R.P.
2276			

CIRCULATION: PUMP NO. | LINER SIZE (mm) | S.P.M.

137.2 | 152 | 55

REDUCED PUMP SPEED: 2400 @ 45

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER SIGNATURE

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.		OD	LENGTH
1	BIT		.91 m
1/1	MOTOR / F.S.	6¾	6.54 m
1/1	MONEL / M.W.D.	8¼	8.99 m
1	MONEL		9.34 m
5	DC	228	45.96 m
1	JAR		7.08 m
3	DC	228	27.59 m
1	H/O		.83 m
12	HWDP		109.71 m
	BHA =		221.55 m
99	E-DP		993.50 m
39	x2 D.P.	STANDS	1119.98 m
X	x2 D.P.	SINGLES	9.58 m
	KELLYDOWN		5.97 m
	TOTAL		2291 m
WT. OF DC			1000 daN
WT. OF STRING		90	1000 daN

BIT RECORD

BIT NO.	10
SIZE (mm)	311
IADC CODE	
MFG.	Reed
TYPE	HP62A
SERIAL NO.	MM9034
JETS (mm)	2x19/1x17.5
DEPTH OUT (m)	
DEPTH IN (m)	2246
TOTAL METRES DRILLED (m)	45
TOTAL HOURS RUN	14¾

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG 2-5 3-6

TORQUE AT BOTTOM 4800-5000

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	1000	1200	1400
DENSITY kg/m³	1115	1160	1175
FUNNEL VIS. - (S/L)	75	75	77
W.L. (cm³)			
pH			
PVT	121.0	124.0	125.1

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
80T	BARITE
4 BUCKETS	SHALE

SOLIDS CONTROL

DESILTER: HOURS RUN | INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE: HOURS RUN | INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROT R.P.
2276	2291	15	15

CIRCULATION: PUMP NO. | LINER SIZE (mm) | S.P.M.

1450 | 152 | 85

REDUCED PUMP SPEED: 2900 @ 43

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
2291	3.0

DRILLER SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.		OD	LENGTH
1	BIT		.41 m
1/1	MOTOR / F.S. - SUB	6¾	6.54 m
1/1	MONEL / M.W.D.	8¼	8.99 m
1	MONEL		9.34 m
5	DC	228	45.96 m
1	JAR		7.08 m
3	DC	228	27.59 m
1	H/O		.83 m
12	HWDP		109.71 m
	BHA =		221.55 m
99	E-DP		743.50 m
39	x2 D.P.	STANDS	1119.98 m
1	x2 D.P.	SINGLES	9.58 m
	KELLYDOWN		5.97 m
	TOTAL		2291 m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	10
SIZE (mm)	311
IADC CODE	
MFG.	Reed
TYPE	HP62A
SERIAL NO.	MM9034
JETS (mm)	2x19/1x17.5
DEPTH OUT (m)	
DEPTH IN (m)	2246
TOTAL METRES DRILLED (m)	45
TOTAL HOURS RUN	14¾

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG

TORQUE AT BOTTOM

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	1800	2200	
DENSITY kg/m³	1230	1245	
FUNNEL VIS. - (S/L)	74	74	
W.L. (cm³)			
pH			
	1256	123.3	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER: HOURS RUN | INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE: HOURS RUN | INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROT R.P.

CIRCULATION: PUMP NO. | LINER SIZE (mm) | S.P.M.

15100 | 152 | 85

REDUCED PUMP SPEED: @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER SIGNATURE

EVENING TOUR

FOLD HERE →

DAILY CHECKS — OPR. / R.M.

Daily Walk Around Inspection — Initial / Initial
Required Inspection-Weekly (using checklist) — Initial / Initial
H2S Signs Posted (if required) — Initial / Initial
Well License & Stick Diagram Posted — Initial / Initial
Flare Lines Staked — Initial / Initial
BOP Drills Performed — Initial / Initial
Quarterly Inspect BOP's - Flarelines & Degasser Lines — Initial / Initial

Rig Site Health and Safety Meeting (one/crew/month) — Initial
A.D.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
Weekly Inspection Before Hoisting or Lowering — Initial
Crown Saver Checked — Initial
Choke Kills checked — Initial

YEAR 14 | MONTH 03 | DAY 02

RIG NO. 4/5 UF

FUEL @ 8:00

RIG 702 | BOILER 22

WEATHER

TEMPERATURE °C	
CURRENT CONDITIONS	-34.35
WIND DIRECTION	
ROAD	SLIPPERY

LAST CASING TUBING OR LINER

O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
339.70	315.34	104.2	Baroess	K-55	36	693.60	7.31	701.30

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
127	49	E	108	152	5"XH	121	9" Duplex	National	235
142	89	X	106	152	5"XH	133	9" Duplex	National	235
102	36	X	131	151	5"XH	11	F-1000	Emsco	254

SHALE SHAKER(S)

NO. | TYPE

SCREENS CHANGED ☐ YES ☐ NO

TOP 84 | TOP 84
MIDDLE 84 | MIDDLE 84
BOTTOM 84 | BOTTOM 84

RENTALS/SERVICES

	MON	TOUR	LEVEL
Steam Boiler	8	12	4
#3 Comp.	8	12	4
Fuel #2 Rubber Tire			

TOTALS: 8 / 12

MORNING TOUR

OIL BASED ☑

00	05:30
65	1075
1	75
1.6	116.1

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2076				

CIRCULATION PRESSURE (kPa) | PUMP NO.1 LINER SIZE (mm) | PUMP NO.1 S.P.M. | PUMP NO.2 LINER SIZE (mm) | PUMP NO.2 S.P.M.

13700	152	55	152	55

REDUCED PUMP SPEED

24100	@	45	@	

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE	NPT	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	07:45	7¾	5		Circ Clean Mud (Mix Barite) Circ out Gas
					Drill Shake
07:45	0800	¼	7		Rig Service

NOTES: Crown Saver Brakes Linkage Crown Alarm
Bring Rig Diesel @ 7:00 & 6:00

BOILER HRS RAN | gal/hr | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | CASING

8 | 9.5 | 225

DAY TOUR

OIL BASED ☑

0	1400
0	1175
5	77
4.0	125.1

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2276	2291	15	15	3/15
			Slide	5/16

CIRCULATION PRESSURE (kPa) | PUMP NO.1 LINER SIZE (mm) | PUMP NO.1 S.P.M. | PUMP NO.2 LINER SIZE (mm) | PUMP NO.2 S.P.M.

14500	152	85	152	85

REDUCED PUMP SPEED

24m	@	43	@	

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2291.	3.0	40.2

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE	NPT	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
0800	1015	2¼	5		Circ. Gold Mud (Mix Barite) Circ out Gas
1015	1400	3¾	2		Drill 311mm Hole f/2276m - 2285m
1400	1415	¼	10		Survey
1415	1600	3¾	2		Drill f/2285m - 2291m
1800	1830	½	5		Circ. & mix P.U.
1830	1845	¼	7		R/S Func. Annular f/Floor 16sec c/l
1845	2000	1¼	6		Flow ck. Pump P.U. P.O.O.H. Flow ck Stands

NOTES: Crown Saver Brakes Linkage Crown Alarm
Rig Repair Diesel @ 10:00 15:00 19:00 HRS

BOILER HRS RAN | gal/hr | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | CASING

12 | 9.5 | 225°

EVENING TOUR

OIL BASED ☑

:00	
45	
4	
8.3	

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION PRESSURE (kPa) | PUMP NO.1 LINER SIZE (mm) | PUMP NO.1 S.P.M. | PUMP NO.2 LINER SIZE (mm) | PUMP NO.2 S.P.M.

15100	152	85	152	85

REDUCED PUMP SPEED

	@		@	

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE	NPT	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
2000	2145	1¾	6		Pull Out of Hole Flow ck Every Stands -
					@ 1716m Run Back To Btm No Fill -
2145	2345	2	5		Circ Btms Up
2345	0100	1¼	7		Rig Service Fix Iron Roughneck Leak f/s

NOTES: Crown Saver Brakes + Linkage Crown Alarm

BOILER HRS RAN | gal/hr | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | CASING

4 | | | | | 57°

111072

FOLD HERE →

DAILY CHECKS	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) HPS Signs Posted (if required)	Initial	Initial
(4) Well Licenses & Stick Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)		Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
(3) Mast Inspection Before Raising or Lowering		Initial
(4) Crown Saver Checked		Initial
(5) Motor Kills checked		Initial

YEAR 99 | RIG NO. 4

FUEL

RIG 160

WEATHER: TEMPERATURE | CURRENT CONDITIONS | WIND DIRECTION | ROAD

LICENCE NO.: SDL-99

WELL NAME AND NO.: K-29, 60°30'N 123°30'W CHEVRON ET AL LIARD

OPERATOR: CHEVRON CANADA RESOURCES LTD

CONTRACTOR: H.A. DRILLING LTD

SURFACE LOCATION: K-29 60°30'N, 123°30"W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

TIME - HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV. SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.			
MORN.					1/2	6	1/4		3/4											1/2				
DAY		7 1/4			3	1 1/4	1/4			1/4														
EVE.					3 1/4		1/4																	
TOTAL																								

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTH
		.41 m
1	STRING STAB	1.36 m
1	MONEL	8.42 m
1	MONEL	9.34 m
5	DC	45.96 m
1	JAR	7.08 m
3	DC	27.59 m
1	XO	.83 m
12	HWDP	109.71 m
	BHA	221.55 m
99	FS DP	943.50 m
	D.P. STANDS	m
	D.P. SINGLES	m
	KELLYDOWN	m
	TOTAL	m
	WT. OF DC	1000 daN
	WT. OF STRING	1000 daN

BIT RECORD

BIT NO.	9	37.10
SIZE (mm)	311	311
IADC CODE	517B	
MFG.	SEC	REED
TYPE	GS54F	HP62A
SERIAL NO.	730870	MM9034
JETS (mm)	2-11-12.5	2-9 11-12.5
DEPTH OUT (m)	2241	
DEPTH IN (m)	2133	2241
TOTAL METRES DRILLED (m)	115	
TOTAL HOURS RUN	18.5	

CUTTING STRUCTURE

T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.
5	8	BT	A	F	2	CI	TG	1.1

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME			
DENSITY kg/m³			
FUNNEL VIS. - (S/L)			
W.L. (cm³)			
pH			

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
SHALE TR	13 SACKS
TOTAL	5.11

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

MORNING TOUR

METRES DRILLED

FROM	TO	DRILL RMR CORE-C	ROT R.P.

CIRCULATING

LINER SIZE (mm)	S.P.M.
KJ	

REDUCED PUMP SPEED @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER SIGNATURE

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTH
		.41 m
1/1	MOTOR/F.S.	10.44/1.36 m
1/1	MONEL/NM.S.	842/.99 m
1	MONEL	9.34 m
5	DC	45.96 m
1	JAR	7.08 m
3	DC	27.59 m
1	XO	.83 m
12	HWDP	109.71 m
	BHA	221.55 m
99	E-DP	943.50 m
39	D.P. STANDS	1110.41 m
1	D.P. SINGLES	.54 m
	KELLYDOWN	2276 m
	TOTAL	1000 daN
	WT. OF DC	1000 daN
	WT. OF STRING	1000 daN

BIT RECORD

BIT NO.	10	
SIZE (mm)	311	
IADC CODE		
MFG.	REED	
TYPE	HP62A	
SERIAL NO.	MM9034	
JETS (mm)	2x14/1x15	
DEPTH OUT (m)		
DEPTH IN (m)	2246	
TOTAL METRES DRILLED (m)	30	
TOTAL HOURS RUN	7 1/4	

CUTTING STRUCTURE

T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	2-4↑ 2-4↓
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	6

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME		12:00	17:00
DENSITY kg/m³		1030	1030
FUNNEL VIS. - (S/L)		62	79
W.L. (cm³)			
pH			
MUD		10.5 L	11.2 L

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
LIME	205X
INVERMUL	5 m³ FLUID
OIL	
BARITE	
SPOTTING MIX	
TOTAL	

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
12	1010	1010	1750

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRILL RMR CORE-C	ROT R.P.
2246	2276	30	15
			41

CIRCULATING

LINER SIZE (mm)	S.P.M.
SLICK 142	150

REDUCED PUMP SPEED @ 43

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
1259.5	4.0

DRILLER SIGNATURE

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTH
		.41 m
1/1	MOTOR/FLOAT SUB	10.44/.51 m
1/1	MONEL/N.M.S.	842/.99 m
1	MONEL	9.34 m
5	DC	45.96 m
1	JAR	7.08 m
3	DC	27.59 m
1	XO	.83 m
12	HWDP	109.71 m
	BHA	221.55 m
99	E-DP	943.50 m
35	22 D.P. STANDS	1091.26 m
	D.P. SINGLES	15.15 m
	KELLYDOWN	.54 m
	TOTAL	2276 m
	WT. OF DC	1000 daN
	WT. OF STRING	1000 daN

BIT RECORD

BIT NO.	10	
SIZE (mm)	311	
IADC CODE		
MFG.	REED	
TYPE	HP62A	
SERIAL NO.	MM9034	
JETS (mm)	2x14/1x15	
DEPTH OUT (m)		
DEPTH IN (m)	2246	
TOTAL METRES DRILLED (m)	30	
TOTAL HOURS RUN	7 1/4	

CUTTING STRUCTURE

T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	19:00	21:00	24:00
DENSITY kg/m³	1020	1015	1030
FUNNEL VIS. - (S/L)	72	70	70
W.L. (cm³)			
pH			
MUD	11.0 L	11.3	11.4

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
INV. EMUL.	
BULK BARITE	1070 kg

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

EVENING TOUR

METRES DRILLED

FROM	TO	DRILL RMR CORE-C	ROT R.P.

CIRCULATING

LINER SIZE (mm)	S.P.M.
5400	152

REDUCED PUMP SPEED @ 42

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER SIGNATURE

FOLD HERE →

DAILY CHECKS — OPR. / R.M.

- Daily Walk Around Inspection — Initial / Initial
- Required Inspection-Weekly (using checklist) — Initial / Initial
- H2S Signs Posted (if required) — Initial / Initial
- Well Licensee & Stack Diagram Posted — Initial / Initial
- Berm Lines Staked — Initial / Initial
- BOP Drills Performed — Initial / Initial
- Visually inspect BOP's - Flarelines & Degasser Lines — Ini al / Initial
- Pre Spud Health and Safety Meeting (one/crew/month) — Initial
- A.D.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
- Derrick Inspection Before Raising or Lowering — Initial
- Crown Saver Checked — Initial
- Motor Kills checked — Initial

YEAR 97 | MONTH 03 | DAY 05

RIG NO. 415 116

FUEL @ 8:00

RIG 1.600 | BOILER 20

WEATHER

	TEMPERATURE °C
	CURRENT CONDITIONS
	WIND DIRECTION
	ROAD

	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
LAST CASING									
TUBING OR LINER	339.7	315.54	1.12	Baker	K-55	36	693.60	7.31	701.30

	DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
	127	29	[illegible]	103	152	5"XH	121	9P100	NATIONAL	231
	127	29	[illegible]	106	154	5"XH	133	9P100	NATIONAL	234
	127	34	[illegible]	101	154	5"XH	160	F-1000	F-MUD	251

TOTALS: 8 / 12 / 41

SHALE SHAKER(S)

NO. | TYPE

SCREENS CHANGED ☐ YES ☐ NO

TOP	84	TOP	84
MIDDLE	84	MIDDLE	84
BOTTOM	84	BOTTOM	84

RENTALS/SERVICES

	MORNING	DAY	EVENING
Shale Shaker	8	12	4
Trip Tank	8	12	4
Fuel Flow Meter			
1.17			

MORNING TOUR

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION PRESSURE (kPa)

PUMP NO.1 LINER SIZE (mm)	PUMP NO.1 S.P.M.	PUMP NO.2 LINER SIZE (mm)	PUMP NO.2 S.P.M.
140		152	

REDUCED PUMP SPEED @ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
0000	0230	2½	C	Pull out Flow @ 700, 230m + out of Hole
0230	0300	½	24	Change Bit + ✓ MWD.
0300	0315	¼	7	Rig Service Fix Runout Fuel Line
0315	0545	2½	C	Run in Hole to 700m
0545	0700	½	C	Break Circ + Test MWD
0700	0700	¾	9	Slip + Cut 18m
0700	0800	1	2	Run to Hole

NOTES: Crown Saver, Blocks + Hook Chk'd + Appr. Boiler Brought Down. 2.5 hrs

HRS. RAN 8 | BOILER [illegible] | STACK TEMP. 224 | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC

MUD RECORD

OIL BASED ☐

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

DAY TOUR

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2246	2276	30	15	13/14
			40-50	10/12

CIRCULATION PRESSURE 1450 kPa

PUMP NO.1 LINER SIZE (mm)	PUMP NO.1 S.P.M.	PUMP NO.2 LINER SIZE (mm)	PUMP NO.2 S.P.M.
152	85	152	85

REDUCED PUMP SPEED 2100 @ 40 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2259.5	4.0	52.1

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
0800	0815	¼	6	DTH To 1500m Test
0815	0830	¼	5	Break Circ & Test M.W.D.
0830	0930	1	6	Run To 2190m
0930	1015	¾	5	Wash To Bottom (No Fill) Ver Pipe Head Bottom Pressure
1015	1445	4½	2	Drill 3½" Hole F/2246m - 2276m
1445	1545	1	5	Flow Chk Prior to out Trips
1545	1630	¾	2	Drill F/2276m - 2276m
1630	1930	1	5	Flow Chk Pull Out
1930	1945	¼	7	O/S For Hydraulic Leak on Mud Pump
1945	2000	¼	10	Service / Repair Drawworks

Trouble Shoot Hydraulic Leak on Mud Pump

NOTES: Boiler Fuel Start 1090cm Finish 756cm, 3m3 / Rig Start 152 cm, Finish 233 cm, 15m3 Boiler Brought On Line @ 10:00 1400, 18:00 HRS

HRS. RAN 12 | BOILER 9.5 | STACK TEMP. 225°C | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC

MUD RECORD

OIL BASED ☐

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
1700	1620	1750

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

EVENING TOUR

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION PRESSURE (kPa) 5400

PUMP NO.1 LINER SIZE (mm)	PUMP NO.1 S.P.M.	PUMP NO.2 LINER SIZE (mm)	PUMP NO.2 S.P.M.
152	55	152	55

REDUCED PUMP SPEED 2100 @ 40 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAPSED TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
1800	2345	3¾	5	Flow Chk Pull out Hole + M. Bit
2345	2400	¼	7	Rig Service Fix Leak on Line

NOTES: Rig Service Rate = Lube Oil Add Boiler Fuel Tk. Drained

HRS. RAN 4 | BOILER 9.5 | STACK TEMP. 225 | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC

111071

FOLD HERE →

LICENCE NO.: SDL 99

WELL NAME AND NO.: CHEVRON ETAL LIARD K-29 60°30'N 123°30'W

OPERATOR: CHEVRON CANADA RESOURCES LTD

CONTRACTOR: AK-74 DRILLING LTD

SURFACE LOCATION: K29 60°30'N 123° 30'W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS (OPR. / R.M.)

(1) Daily Walk Around Inspection
(2) Detailed Inspection-Weekly (using checklist)
(3) HPS Signs Posted (if required)
(4) Well License & Stick Diagram Posted
(5) Flare Lines Staked
(6) BOP Drills Performed
(7) Visually Inspect BOP's - Flarelines & Degasser Lines

(1) Rig Site Health and Safety Meeting (one/crew/month)
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)
(3) Mast Inspection Before Raising or Lowering
(4) Crown Saver Checked
(5) Motor Kills checked

YEAR 94
RIG NO. 4
FUEL
RIG 1991
WEATHER: TEMPERATU / CURRENT CONDITIONS / WIND, DIRE / ROAD

TIME-HRS

CODE NO.	1 OPER.	2 RIG UP & TEAR DOWN	3 DRILL ACTUAL	4 REAMING	5 CORING	6 COND. MUD & CIRC	7 TRIPS	8 RIG SERVICE	9 REPAIR RIG	10 CUT OFF DRILL LINE	11 DEV SURVEY	12 WIRE LINE LOGS	13 RUN CASE & CEMENT	14 WAIT ON CEMENT	15 NIPPLE UP B.O.P.	16 TEST B.O.P.	17 DRILL STEM TEST	18 PLUG BACK	19 SQUEEZE CEMENT	20 FISHING	21 DIR. WORK	22 SAFETY MTG.	23	24	25
	MORN.		7½					¼			½												T.C.O.P. ½			
	DAY		10½					¼			1											¼			
	EVE.					1	2½	½																	
	TOTAL																								

DRILLING ASSEMBLY (At End of Tour)

NO.	OD (mm)		LENGTH
1			.41 m
1	MONEL	F.S.	10.66 .56 m
1	MONEL	H.O.S.	8.43 .99 m
1	MONEL		9.34 m
5	DC	228	45.96 m
1	JAC		7.08 m
3	DC		27.59 m
1	X/O		.83 m
12	HWDP		109.71 m
		RHA =	221.55 m
99	E-DP		943.50 m
55	x2 D.P.	STANDS	1005.07 m
2	x2 D.P.	SINGLES	19.15 m
	KELLY DOWN		m
	TOTAL		2189.27 m
WT. OF DC			1000 daN
WT. OF STRING		91	1000 daN

BIT RECORD

BIT NO.	9
SIZE (mm)	311
IADC CODE	5 1 7 6
MFG.	SEC
TYPE	GS84F
SERIAL NO.	730870
JETS (mm)	2x16/1-17.5
DEPTH OUT (m)	—
DEPTH IN (m)	2133
TOTAL METRES DRILLED (m)	56
TOTAL HOURS RUN	8

CUTTING STRUCTURE: T, | T_o | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG: ↑ 1-4 ↓ 1-3
TORQUE AT BOTTOM: 6100 - 6500 I=165
FILL ON BOTTOM (m): —

MUD RECORD — MORNING TOUR

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	02:00	04:00	06:00
DENSITY kg/m³	1020	1025	1020
FUNNEL VIS. - (S/L)	85	86	85
W.L. (cm³)			
pH			
PVT	111.8	113.3	120.1

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
INVERT	10m³ FROM
PREMIX TO ACTIVE	
INVERT	10m³ FROM
400 BBL	TO PREMIX

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
8	1025	1015	1690

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED — MORNING TOUR

FROM	TO	DRLG RMR CORE-C	ROT R.P.
2139	2197	50	5½

CIRCULATION

LINER SIZE (mm)	S.P.M.	SIZE
152	85	

REDUCED PUMP SPEED

@	
2200	

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
2144.50	4.5

DRILLER'S SIGNATURE

DRILLING ASSEMBLY (At End of Tour)

NO.	OD (mm)		LENGTH
			41 m
½	MONEL	F.S.	10.66 .56 m
½	MONEL	H.O.S.	8.43 .99 m
1	MONEL		9.34 m
5	DC		45.96 m
1	JAC		7.08 m
3	DC		27.59 m
1	X/O		.83 m
12	HWDP		109.71 m
		RHA	221.55 m
39	E-DP		443.50 m
37	x2 D.P.	STANDS	1052.53 m
2	x2 D.P.	SINGLES	19.16 m
	KELLY DOWN		22.82 m
	TOTAL		2246 m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	9
SIZE (mm)	311
IADC CODE	5 1 7 6
MFG.	SEC
TYPE	GS84F
SERIAL NO.	730870
JETS (mm)	2x19/1x17.5
DEPTH OUT (m)	
DEPTH IN (m)	2133
TOTAL METRES DRILLED (m)	113
TOTAL HOURS RUN	18½

CUTTING STRUCTURE: T, | T_o | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG: 2-4↑ 2-4↓
TORQUE AT BOTTOM: 5200-6300
FILL ON BOTTOM (m):

MUD RECORD — DAY TOUR

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	0900	1200	1500
DENSITY kg/m³	1025	1050	1035
FUNNEL VIS. - (S/L)	81	79	80
W.L. (cm³)			
pH			
	117.7	111.3	114.1

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
	25x
INVERT	
FACTANT	C7

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED — DAY TOUR

FROM	TO	DRLG RMR CORE-C	ROT R.P.
2189	2246	57	15

CIRCULATION

LINER SIZE (mm)	S.P.M.	SIZE
152	85	

REDUCED PUMP SPEED

@	
2400	60

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
2175	5.3
2200	12.6
2221	5.8
2230	5.6

DRILLER'S SIGNATURE

DRILLING ASSEMBLY (At End of Tour)

NO.	OD (mm)		LENGTH
			m
			m
			m
			m
			m
			m
			m
			m
			m
			m
	D.P.	STANDS	m
	D.P.	SINGLES	m
	KELLY DOWN		m
	TOTAL		m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	9
SIZE (mm)	311
IADC CODE	5 1 3 R
MFG.	SEC
TYPE	GS84F
SERIAL NO.	730870
JETS (mm)	2x19/1-17.5
DEPTH OUT (m)	
DEPTH IN (m)	2133
TOTAL METRES DRILLED (m)	113
TOTAL HOURS RUN	18.3

CUTTING STRUCTURE: T, | T_o | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr. — 6.1

HOLE CONDITION

HOLE DRAG:
TORQUE AT BOTTOM:
FILL ON BOTTOM (m):

MUD RECORD — EVENING TOUR

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	1200		
DENSITY kg/m³	1025		
FUNNEL VIS. - (S/L)	80		
W.L. (cm³)			
pH			
	111.8		

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED — EVENING TOUR

FROM	TO	DRLG RMR CORE-C	ROT R.P.

CIRCULATION

LINER SIZE (mm)	S.P.M.	SIZE
152	85	

REDUCED PUMP SPEED

@	

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

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CHECKS — OPR. Initial ____ R.M. Initial ____

- Walk Around Inspection — Initial ____ Initial ____
- Inspection-Weekly (using checklist) — Initial ____ Initial ____
- Signs Posted (if required) — Initial ____ Initial ____
- Licenses & Stick Diagram Posted — Initial ____ Initial ____
- Lines Staked — Initial ____ Initial ____
- Drills Performed — Initial ____ Initial ____
- Daily Inspect BOP's - Flarelines & Degasser Lines — Initial ____ Initial ____
- Site Health and Safety Meeting (crew/month) — Initial ____
- C.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial ____
- Inspection Before Raising or Lowering — Initial ____
- Sewer Checked — Initial ____
- Kills checked — Initial ____

YEAR 94 | MONTH 03 | DAY 04

RIG NO. 44 nc

FUEL @ 8:00

RIG 19F1 | BOILER 27

WEATHER

	°C
TEMPERATURE	
CURRENT CONDITIONS	
WIND DIRECTION	
ROAD	

	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
LAST CASING	339.7	315.34	101.2	Buttress	K-55	36	693.60	7.31	701.30
TUBING OR LINER									

	DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
	177	29	E	108	152	5" XH	121	9 PUMP	NATIONAL	234
	127	29	X	106	152	5" XH	133	9 PUMP	NATIONAL	234
	127	36	X	101	156	5" XH	116	F 1000	EMSCO	254

	22	23	24	25	26
	KCl Polymer				
	Mud				

TOTALS: 5 | 12 | 4

SHALE SHAKER(S) NO. ____ TYPE ____

SCREENS CHANGED ☐ YES ☐ NO

	TOP	TOP
	94	84
	MIDDLE 84	MIDDLE 84
	BOTTOM 84	BOTTOM 84

RENTALS/SERVICES

	MORN	DAY	EVE
Service Boiler	8	12	4
#2 Pump	8	12	4
Fuel For #2 Boiler 154			

DAY TOUR

MUD BASED

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
1025	1015	1690

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2139	2187	50	K 75	12/15
			S 100	12/15

CIRCULATION PRESSURE (kPa): 14402

PUMP NO. 1 LINER SIZE (mm)	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE (mm)	PUMP NO. 2 S.P.M.
152	85	152	85

REDUCED PUMP SPEED: 2200 @ 60 @ 60

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2144.50	4.5	55.7

DRILLER SIGNATURE: Mud

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
06:00	07:45	1¾	2	Drill 311mm Hole U/Mower F/ 2139m - 2160m
07:45	08:00	¼	7	Rig Service Fun T. Pipes @ Floor base c/o
08:00	08:15	¼	22	Service T/C Drive Install Counter Balance Ram.
08:15	07:45	4½	2	Drill 311mm Hole W/Mower F/ 2160m - 2187m
07:45	08:00	¼	10	Surveys For Above Drilling.

NOTES: JC Loan Saver, Bearest Lubricate Pumps Annular Preventer Function Test @ 4:20 & 7:00

BOILER HRS. RAN: 4 | pH: 9.5 | STACK TEMP.: 225 | MAXIMUM EXPERIENCED HOOKLOAD: 95 | SAFETY TOPIC: Drill

DAY TOUR

MUD BASED

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2189	2246	57	15	14
			90	14/16

CIRCULATION PRESSURE (kPa): 18500

PUMP NO. 1 LINER SIZE (mm)	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE (mm)	PUMP NO. 2 S.P.M.
152	85	152	85

REDUCED PUMP SPEED: 2400 @ 60 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2175	5.3	72
2202	5.6	60.6
2221	5.8	60.7
2230	5.6	60.7

DRILLER SIGNATURE: Jim Johnson

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
08:00	11:00	1	2	Drill 311mm Hole F/ 2187m - 2193m
11:00	11:15	¼	21	Safety Inspections Meeting
11:15	18:45	9½	2	Drill 311mm Hole F/ 2193m - 2246m
18:45	19:00	¼	7	Rig Func Lower Pipe Rams F/ Floor base c/o
19:00	20:00	1	10	Surveys For Above Drilling

NOTES: Brakes, Lights, Cab Heater, Air Horn. Rig Inspection 11:00, 15:00, 19:00

BOILER HRS. RAN: 12 | pH: 7.5 | STACK TEMP.: 225 | MAXIMUM EXPERIENCED HOOKLOAD: | SAFETY TOPIC:

EVENING TOUR

MUD BASED

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION PRESSURE (kPa): 11790

PUMP NO. 1 LINER SIZE (mm)	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE (mm)	PUMP NO. 2 S.P.M.
152	85	152	85

REDUCED PUMP SPEED: @ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE: Mud

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
20:00	21:00	1	5	Circ. Btms Up Prior To TOH
21:00	23:45	2¾	6	Flow Ck 2245m - Pull On Offline Tite @ 2134m.
				1120m - 740m - 330m - Hole Slick Last 15m From
				Stand Out
23:45	24:00	¼	9	Rig Service Fun Btm Holes

NOTES: Mon. Safety, Brakes, Lights, Cab & Horn

BOILER HRS. RAN: 4 | pH: | STACK TEMP.: | MAXIMUM EXPERIENCED HOOKLOAD: | SAFETY TOPIC:

111070

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LICENCE NO.: SDL-99

WELL NAME AND NO.: CHEVRON ETAL LIARD K-29 (60°30'N, 123°30'W)

OPERATOR: CHEVRON CANADA RESOURCES LTD

CONTRACTOR: AKITA DRILLING LTD

SURFACE LOCATION:

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS — OPR. / R.M.

(1) Daily Walk Around Inspection — Initial / Initial
(2) Detailed Inspection-Weekly (using checklist) — Initial / Initial
(3) H²S Signs Posted (if required) — Initial / Initial
(4) Well License & Slick Diagram Posted — Initial / Initial
(5) Flare Lines Staked — Initial / Initial
(6) BOP Drills Performed — Initial / Initial
(7) Visually Inspect BOP's - Flowlines & Degasser Lines — Initial / Initial

(1) Rig Site Health and Safety Meeting (one/crew/month) — Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
(3) Mast Inspection Before Raising or Lowering — Initial
(4) Crown Saver Checked — Initial
(5) Motor Kills checked — Initial

YEAR 94
RIG NO. 48
FUEL
RIG 95
WEATHER
TEMPERATU
CURRENT CONDITIONS
WIND DIR
ROAD

MORNING TOUR

TIME — CODE NO. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC.	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV. SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.	
MORN.				4	1	0½	½			½											HOLE WORK Rectifier	
DAY																						
EVE.																						
TOTAL																						

DRILLING ASSEMBLY (At End of Tour)

NO.		OD mm	LENGTH m
3			41 m
1/1	MOUSE / ES		N66 51 m
1/1	MONEL / MS	228	8.42 99 m
1	MONEL		9.34 m
5	DC	228	45.96 m
1	JAR		7.08 m
3	DC	228	27.59 m
1	X/O		83 m
12	HWDP		109.71 m
	BHA =		221.55 m
99	F2 DP		943.50 m
33	x3 D.P.	STANDS	947.54 m
2	x2 D.P.	SINGLES	19.16 m
	KELLYDOWN		1.71 m
	TOTAL		2133 m
WT. OF DC			1000 daN
WT. OF STRING	90		1000 daN

BIT RECORD

BIT NO.	8
SIZE (mm)	311
IADC CODE	5 1 7
MFG.	HUGHES
TYPE	GT-20
SERIAL NO.	111074M
JETS (mm)	2x19 / 1-17.5
DEPTH OUT (m)	2133
DEPTH IN (m)	1820
TOTAL METRES DRILLED (m)	313
TOTAL HOURS RUN	52 3/4

CUTTING STRUCTURE T1	To	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.
3	3	BT	H	F	I	CT	TD	59

HOLE CONDITION

HOLE DRAG: 1-3↑ 1-2↓
TORQUE AT BOTTOM: 5700 - 5600
FILL ON BOTTOM (m):

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

	02:00	04:00	06:00
TIME			
DENSITY kg/m³	1015		
FUNNEL VIS. - (S/L)	85		
W.L. (cm³)			
pH			
PVT m³	118.9		

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
8	1015	1010	1190

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD / RMR CORE-C	ROT / R
2114	2133	19	5 1/

CIRCULATION

LINER SIZE (mm)	S.P.M.
11700	152 85

REDUCED PUMP SPEED

2100 @ 60

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
2057.4	3.5
2116.2	3.5

DRILLER'S SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.		OD mm	LENGTH m
			41 m
1/1	MONEL / ES		N66/46 m
1/1	MONEL / MS		8.42/.99 m
1	MONEL		9.34 m
5	DC		45.96 m
1	JAR		7.08 m
3	DC		27.59 m
1	X/O		.83 m
12	HWDP		109.71 m
	BHA =		221.55 m
			m
	D.P.	STANDS	m
	D.P.	SINGLES	m
	KELLYDOWN		m
	TOTAL		m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	9
SIZE (mm)	311
IADC CODE	5 1 7 B
MFG.	SEC. RTC
TYPE	GSR4F
SERIAL NO.	730870
JETS (mm)	2x19 / 1x17.5
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T1	To	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG
TORQUE AT BOTTOM
FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

	TRIP RECORD
TIME	
DENSITY kg/m³	MEAS. 1150
FUNNEL VIS. - (S/L)	CALC. 1193
W.L. (cm³)	DIFF. -.05
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD / RMR CORE-C	ROT / R

CIRCULATION

LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

EVENING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.		OD mm	LENGTH m
1			41 m
1/1	MONEL / ES		N66 56 m
1/1	MONEL / MS		8.42/.99 m
1	MONEL		9.34 m
5	DC	228	45.96 m
1	JAR		7.08 m
3	DC	228	27.59 m
1	X/O		.83 m
12	HWDP		109.71 m
	BHA =		221.55 m
99	F-DP		943.50 m
33	x3 D.P.	STANDS	947.94 m
2	x2 D.P.	SINGLES	19.16 m
	KELLYDOWN		1.71 m
	TOTAL		2134 m
WT. OF DC			1000 daN
WT. OF STRING	90		1000 daN

BIT RECORD

BIT NO.	9
SIZE (mm)	311
IADC CODE	5 1 7 B
MFG.	SEC.
TYPE	GSR4F
SERIAL NO.	730870
JETS (mm)	2-19 / 1-17.5
DEPTH OUT (m)	—
DEPTH IN (m)	2133
TOTAL METRES DRILLED (m)	6
TOTAL HOURS RUN	3/4

CUTTING STRUCTURE T1	To	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG: 2-4↑ 1-5↓
TORQUE AT BOTTOM: —
FILL ON BOTTOM (m): Ø

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

	23:00
TIME	
DENSITY kg/m³	1015
FUNNEL VIS. - (S/L)	86
W.L. (cm³)	
pH	
	113.4

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD / RMR CORE-C	ROT / R
2133	2139	6	1

CIRCULATION

LINER SIZE (mm)	S.P.M.
13500	152 85

REDUCED PUMP SPEED

2500 @ 62

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

FOLD HERE →

Y CHECKS — OPR. / R.M.

- ...y Walk Around Inspection — Initial ___ / Initial ___
- ...cked Inspection-Weekly (using checklist) — Initial ___ / Initial ___
- ...S Signs Posted (if required) — Initial ___ / Initial ___
- ...el License & Stock Diagram Posted — Initial ___ / Initial ___
- ...ne Lines Staked — Initial ___ / Initial ___
- ...P Drills Performed — Initial ___ / Initial ___
- ...kly Inspect BOP's - Flexlines & Degasser Lines — Initial ___ / Initial ___
- ...g Site Health and Safety Meeting (one/crew/month) — Initial ___
- ...A O.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial ___
- ...st Inspection Before Raising or Lowering — Initial ___
- ...own Saver Checked — Initial ___
- ...or Kills checked — Initial ___

YEAR 94 | MONTH 03 | DAY 03

RIG NO. 48

FUEL @ 8:00

RIG 95 | FUEL 22

WEATHER

	°C
TEMPERATURE	
CURRENT CONDITIONS	
WIND DIRECTION	
ROAD	

LAST CASING TUBING OR LINER	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
	339.7	315.34	101.2	BUTRESS	K-55	36	693.60	7.31	701.30

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
127	29	E	108	152	5" XH	121	9-PUMP	NATIONAL	234
127	29	X2	106	152	5" XH	133	9-PUMP	NATIONAL	234
127	38	X3	101	156	5" XH	11	F-1000	EMSCO	254

	22	23	24	25	26
TY / D	FULL WELDE ROSWIL				

TOTALS: 8

SHALE SHAKER(S)

NO. | TYPE

SCREENS CHANGED ☐ YES ☑ NO

TOP	84	TOP	84
MIDDLE	84	MIDDLE	84
BOTTOM	84	BOTTOM	84

RENTALS/SERVICES

	MORN	DAY	EVE
SECOND BOILER	3	12	4
#3 PUMP	8	12	4
#2 BOILER FUEL 191			

RD

METRES DRILLED

FROM	TO	DRILL RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2114	2133	19	K 15	13/14
			S 120	14/11

CIRCULATION PRESSURE (kPa) | PUMP NO. 1: LINER SIZE (mm) | S.P.M. | PUMP NO. 2: LINER SIZE (mm) | S.P.M.

11700	152	85	152	95

REDUCED PUMP SPEED: @ 60 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2057.4	3.5	79.5
2116.2	3.9	90.3

DRILLER SIGNATURE: L. A. Johnson

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
0000	0400	4	2	DRLG 311mm HOLE W/MOTOR FR: 2114m - 2133m.
0400	0415	1/4	10	SURVEY FOR ABOVE DRILLING.
0415	0430	1/4	7	RIG SERVICE FOR MAINTENANCE @ MAIN HOISTS.
0430	0530	1	5	CIRC. BTMS UP
0530	0800	2 1/2	6	PULL OUT OF HOLE FLOW @ 2130m, 2026m, 1067m. 15 min Each

NOTES: WEEKLY SAFETY, BRAKES & LINKAGE, CROWN SAVER, CLAMP & ANCHOR. BOILER BLOW DOWNS @ 1:00, 4:30

HRS: RAN	BOILER pH	STACK TEMP	MAXIMUM EXPERIENCED HOOKLOAD	SAFETY TOPIC
8	9.5	225°C		

DAY TOUR

METRES DRILLED

FROM	TO	DRILL RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION PRESSURE (kPa) | PUMP NO. 1: LINER SIZE (mm) | S.P.M. | PUMP NO. 2: LINER SIZE (mm) | S.P.M.

REDUCED PUMP SPEED: @ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE:

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
0800	1145	3 3/4	6	P.O.O.H. FLOW @ 700m. HWDP OUT OF HOLE
1145	1200	1/4	7	R/S FUNC. BLIND RAMS & MANUAL FLOOR VALVE
1200	1230	1/2	20	PULL WEAR BUSHING SET TEST PLUG
1230	1630	4	15	PRESS TEST CHOKE LINES, BLIND RAMS, UPPER & LOWER PIPE RAMS, ALL VALVES & HYDRAULIC VALVE MANIFOLD TO 35/70 MPa. FUNC TEST ACCUMULATOR
1630				
1630	1715	3/4	20	MAKE UP BIT #9 STRAP DRILL STRING & P.U. M.W.D.
1715	2300	5 3/4	6	R.I.H. TEST M.W.D. @ 795m
				Transfer 26.5 m³ Diesel Fuel From Tank Farm to Rig Tank Start @ 8Hrs Stop @ 20 Hrs

NOTES: BRAKES, LINKAGE, CROWN SAVER, CLAMP & ANCHOR. BOILER BLOW DOWN @ 9:00, 13:00, 17:00 HRS

HRS: RAN	BOILER pH	STACK TEMP	MAXIMUM EXPERIENCED HOOKLOAD	SAFETY TOPIC
10	9.5	225°C		

ORD

METRES DRILLED

FROM	TO	DRILL RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2133	2134	6	K 15	
			S 120	15

CIRCULATION PRESSURE (kPa) | PUMP NO. 1: LINER SIZE (mm) | S.P.M. | PUMP NO. 2: LINER SIZE (mm) | S.P.M.

15500	152	85	152	85

REDUCED PUMP SPEED: @ 62 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE:

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
1900	2145	2 1/4	1	RUN IN HOLE T. BTM
				T. 11.5m FLOW @ BRAKE CIRC @ 2085m - FLOW @ BEGIN CIRC
2145	2300	1 1/4	5	WASH T. BTM FR: 2085m - 2133m NO FILL CIRC. OUT TRIP GAS
2300	2315	1/4	21	SAFETY MEETING / OPERATIONS MEETING.
2315	2400	3/4	2	DRILL 311mm HOLE W/MOTOR FR: 2133m - 2139m.

NOTES: WEEKLY SAUNA, BRAKES & LINKAGE, CLAMP & ANCHOR. BOILER BLOW DOWN @ 2030, 2245

HRS: RAN	BOILER pH	STACK TEMP	MAXIMUM EXPERIENCED HOOKLOAD	SAFETY TOPIC
4	9.5	225		

DRILLER SIGNATURE:

MORNING TOUR / DAY TOUR / EVENING TOUR

SOLIDS CONTROL

OIL BASED

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
1015	1010	1990

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

WATER BASED

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

ORD

OIL BASED

10	
5	
5.4	

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

2080

111069

FOLD HERE →

LICENCE NO.: SDL 99 | WELL NAME AND NO.: CHEVRON ET AL LIARD K-29, 60°30'N 123°30'W

OPERATOR: CHEVRON CANADA RESOURCES LTD | CONTRACTOR: AKITA DRILLING LTD

SURFACE LOCATION: K29 60°30'N 123°30'W | UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE: | SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS (OPR. / R.M.)

(1) Daily Walk Around Inspection
(2) Detailed Inspection-Weekly (using checklist)
(3) HPS Signs Posted (if required)
(4) Well Licence & Stick Diagram Posted
(5) Flare Lines Staked
(6) BOP Drills Performed
(7) Visually Inspect BOP's - Flarelines & Degasser Lines

(1) Rig Site Health and Safety Meeting (one/crew/month)
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)
(3) Mast Inspection Before Raising or Lowering
(4) Crown Saver Checked
(5) Motor Kills checked

RIG NO. 4 | FUEL RIG 137 | WEATHER: TEMPERATURE / CURRENT CONDITIONS / WIND DIRECTION / ROAD

TIME - HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV. SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.			
MORN.		7¼					1/4			1/2												FLOW ✓	BOP DRILL	
DAY		10¾					1/4			3/4											1/4	1/4	1/4	
EVE.		3¾					1/4														1/4		1/4	
TOTAL																								

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	DESCRIPTION	OD	LENGTH
1	BIT		41 m
1/1	Motor	Dyna-Drill	10.06/51.6 m
1/1	MWD		8.42/94.02 m
1	Monel		9.34 m
5	DC	228	45.96 m
1	Jar		7.08 m
3	DC	228	29.59 m
1	X/O		.83 m
12	HWDP		109.71 m
	BHA		221.55 m
99	E-DP		943.50 m
32 x2	D.P.	STANDS	961.75 m
1 x2	D.P.	SINGLES	5.57 m
	KELLYDOWN		m
	TOTAL		2192.80 m
WT. OF DC			1000 daN
WT. OF STRING	89		1000 daN

BIT RECORD

BIT NO.	8
SIZE (mm)	311
IADC CODE	5 1 7
MFG.	HUGHES
TYPE	GT-20
SERIAL NO.	L110YM
JETS (mm)	2x9 1x11 1x13
DEPTH OUT (m)	—
DEPTH IN (m)	1820
TOTAL METRES DRILLED (m)	372
TOTAL HOURS RUN	35½

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG: ↑1-3 ↓0-2
TORQUE AT BOTTOM: 4620 – 5900
FILL ON BOTTOM (m): —

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	02:00	04:00	06:00
DENSITY kg/m³	1000	10:10	1005
FUNNEL VIS. - (S/L)	84	80	83
W.L. (cm³)			
pH			
PVT m³	121.4	120.1	118.5

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
Mica Fine	8 sx 5

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
8	1000	995	1890

METRES DRILLED

FROM	TO	DRILL / CORE	ROT. / R.P.
1985	2036	41	

CIRCULATION

LINER SIZE (mm)	S.P.M.
152	85

REDUCED POWER SPEED

@	
1900	60

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
1972.5	3.8
2001.2	3.7

DRILLER'S SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	DESCRIPTION	OD	LENGTH
1	BIT		.41 m
1/1	MOTOR	F.S.	10.06/1.56 m
1/1	MWD	4¾ F.S.	8.42/.77 m
1	MONEL		9.34 m
5	DC	228	45.96 m
1	JAR		7.08 m
3	DC	228	29.59 m
1	X/O		.83 m
12	HWDP		109.71 m
	BHA		221.55 m
99	E-DP		943.50 m
33	D.P.	STANDS	919.30 m
X	D.P.	SINGLES	7.38 m
	KELLYDOWN	Saver	.75 m
	TOTAL		2065 m
WT. OF DC			1000 daN
WT. OF STRING	90		1000 daN

BIT RECORD

BIT NO.	8
SIZE (mm)	311
IADC CODE	5 1 7
MFG.	HUGHES
TYPE	GT-20
SERIAL NO.	L104M
JETS (mm)	2x9 1x11 1x13
DEPTH OUT (m)	—
DEPTH IN (m)	1820
TOTAL METRES DRILLED (m)	245
TOTAL HOURS RUN	45 3/4

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG: ↑1-3 ↓1-3
TORQUE AT BOTTOM: 5100-5600
FILL ON BOTTOM (m):

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	10:00	14:00	18:00
DENSITY kg/m³	1010	1015	1025
FUNNEL VIS. - (S/L)	76	80	81
W.L. (cm³)			
pH			
PVT	117.0	114.5	111.2

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
—	6 ? —

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
12	1015	1005	1850

METRES DRILLED

FROM	TO	DRILL / CORE	ROT. / R.P.
2026	2035	59	

CIRCULATION

LINER SIZE (mm)	S.P.M.
152	85

REDUCED POWER SPEED

@	
1700	

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
2030	3.4
2049	3.4
2058	3.5

DRILLER'S SIGNATURE

EVENING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	DESCRIPTION	OD	LENGTH
1	BIT		.41 m
1/1	MOTOR	F.S.	10.06/1.56 m
1/1	MWD	4¾ F.S.	8.42/.77 m
1	Monel		9.34 m
5	DC	228	45.96 m
1	JAR		7.08 m
3	DC	228	29.59 m
1	X/O		.83 m
12	HWDP		109.71 m
	BHA =		221.55 m
99	E-DP		943.50 m
33	D.P.	STANDS	947.74 m
	D.P.	SINGLES	m
	KELLYDOWN		m
	TOTAL		2112.99 m
WT. OF DC			1000 daN
WT. OF STRING	C.O.		1000 daN

BIT RECORD

BIT NO.	8
SIZE (mm)	311
IADC CODE	5 1 7
MFG.	HUGHES
TYPE	GT-20
SERIAL NO.	L104M
JETS (mm)	2x9 1x11 1x13
DEPTH OUT (m)	—
DEPTH IN (m)	1820
TOTAL METRES DRILLED (m)	291
TOTAL HOURS RUN	49

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG: ↑1-3 ↓0-2
TORQUE AT BOTTOM: 5600 FILLS
FILL ON BOTTOM (m):

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	21:00	24:00	
DENSITY kg/m³	1020	1015	
FUNNEL VIS. - (S/L)	86	84	
W.L. (cm³)			
pH			
PVT m³	109.2	119.7	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
INVERT	10 m³
INVERT	25 m³
FROM 400 BBL TO	
PREMIX	

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
4	1020	1010	1925

METRES DRILLED

FROM	TO	DRILL / CORE	ROT. / R.P.
2035	2119	26	

CIRCULATION

LINER SIZE (mm)	S.P.M.
152	85

REDUCED POWER SPEED

@	
2500	60

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
2077.80	3.7

DRILLER'S SIGNATURE

FOLD HERE →

DAILY CHECKS

	OPR.	R.M.
Daily Walk Around Inspection	Initial	Initial
Detailed Inspection-Weekly (using checklist)	Initial	Initial
H2S Signs Posted (if required)	Initial	Initial
Well License & Stick Diagram Posted	Initial	Initial
Fuse Lines Staked	Initial	Initial
BOP Drills Performed	Initial	Initial
Visually inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
Rig Site Health and Safety Meeting (one/crew/month)		Initial
C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
Derrick Inspection Before Raising or Lowering		Initial
Crown Saver Checked		Initial
Motor Kills checked		Initial

YEAR 91 | MONTH 03 | DAY 02

RIG NO. 48 mr

FUEL @ 8:00

RIG 137 | BOILER 32

WEATHER: TEMPERATURE °C; CURRENT CONDITIONS; WIND DIRECTION; ROAD

	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
LAST CASING	339.7	315.34	103.2	BUTTRESS	K-55	36	693.60	7.31	701.30
TUBING OR LINER									

	DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
	127	29	E	108	152	5" XH	121	9-P100	NATIONAL	234
	127	29	X	106	152	5" XH	133	9-P100	NATIONAL	234
	127	38	X	101	156	5" XH	11	F-1000	F[illegible]	254

21	22	23	24	25	26
SAFETY TOPIC	FLOW	BOP Drill			
4	1/4	3/4			
		1/4			

TOTALS: 8 / 12

SHALE SHAKER(S)

NO. | TYPE

SCREENS CHANGED ☐ YES ☑ NO

	TOP	TOP
	84	84
MIDDLE	84	84
BOTTOM	84	84

RENTALS/SERVICES

	WORKING	STAND-BY	DOWN
Second Boiler	8	12	4
#3 Pump	8	12	4
Boiler #2 Fuel @ 8:00			
719			

RECORD

OIL BASED

00	06:00
10	1005
0	83
1	118.5

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
1000	995	1890

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

MORNING TOUR

METRES DRILLED

FROM	TO	DRLG FOR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
1995	2036	41	15	13/14
			70	14/15

CIRCULATION PRESSURE (kPa) | PUMP NO. 1 LINER SIZE (mm) | S.P.M. | PUMP NO. 2 LINER SIZE (mm) | S.P.M.

12000	152	85	152	85

REDUCED PUMP SPEED

1900 @ 60 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
1972.5	3.8	62.3
2001.2	3.7	56.1

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
06:00	07:15	1¼	2	Drill 311 mm Hole w/motor. F/ 1995m - 2036m
07:15	07:30	¼	7	Rig Service Fcn T/C Wire @ Floor, Grease Blks
07:30	08:00	½	10	Service Rig Above Drilling

NOTES: Crown Saver, Brakes & Linkage, Clamp & Anchor. Rig Inspection 7A:00 ✓ 4:00 ✓ 7:00

HRS. RAN	BOILER (psi)	STACK TEMP?	MAXIMUM EXPERIENCED HOOKLOAD	SAFETY TOPIC	H2S?
8	19	225			

OIL BASED

00	18:00
	10[illegible]
	81
5	111.4

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
1015	1000	1830

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

DAY TOUR

METRES DRILLED

FROM	TO	DRLG FOR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2026	2095	59	15	12/14
			110	14/16

CIRCULATION PRESSURE (kPa) | PUMP NO. 1 LINER SIZE (mm) | S.P.M. | PUMP NO. 2 LINER SIZE (mm) | S.P.M.

11700	152	85	152	85

REDUCED PUMP SPEED

1700 @ @ 43

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2030	3.4	63.6
2049	3.4	57.5
2068	3.5	61.7

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
08:00	08:45	¾	2	Drill 311 mm Hole F/2026m - 2090m
08:45	09:00	¼	22	Flow ✓
09:00	11:00	2	2	Drill F/2090m - 2041m
11:00	11:15	¼	21	Safety/Operations Meeting
11:15	11:45	½	2	Drill F/2041m - 2045m
11:45	12:00	¼	23	BOP Drill Well Secured Crown Position 63 sec
12:00	17:15	5¼	2	Drill F/2045m - 2074m
17:15	17:30	½	7	Rig Svc Annular F/Floor 14 sec ✓
17:30	19:15	1¾	2	Drill F/2074m - 2085m
19:15	20:00	¾	10	Service Rig Prior to Drilling

NOTES: Crown Saver, Brakes, Linkage, Clamp, Anchor, Broken Crown Blocks. Boiler Blow Down 1600, 1400, 1800

HRS. RAN	BOILER (psi)	STACK TEMP?	MAXIMUM EXPERIENCED HOOKLOAD	SAFETY TOPIC	H2S?
12	9.0	225°C		BOP Drill	

OIL BASED

00	2400
0	1015
	84
2	119.7

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
1020	1080	1825

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

EVENING TOUR

METRES DRILLED

FROM	TO	DRLG FOR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
2085	2114	29	15	13/14
			100	13/14

CIRCULATION PRESSURE (kPa) | PUMP NO. 1 LINER SIZE (mm) | S.P.M. | PUMP NO. 2 LINER SIZE (mm) | S.P.M.

11400	152	85	152	85

REDUCED PUMP SPEED

2100 @ (m) @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
2077.90	3.7	75.6

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
20:00	20:15	¼	21	Safety Operations Meeting
20:15	20:30	¼	23	BOP Drill - Fire Drill - Well Sec. 90 sec.
20:30	23:45	3¼	2	Drill 311 mm Hole w/motor F/ 2085m - 2114m.
23:30	23:45	¼	7	Rig Service Fcn Trip Pipe Floor Grease ✓
23:45	24:00	¼	10	Service Rig Above Drilling.

NOTES: Crown Saver, Brakes & Linkage Clamp & Anchor. Boiler Blow Down

HRS. RAN	BOILER (psi)	STACK TEMP?	MAXIMUM EXPERIENCED HOOKLOAD	SAFETY TOPIC	H2S?
4	10	224°		Rig Drill	

111068

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LICENCE NO.: SDL 99

WELL NAME AND NO.: CHEVRON ET AL LIARD K-29 60°30'N 123°30'W

OPERATOR: CHEVRON CANADA RESOURCES LTD

CONTRACTOR: ALITA DRILLING

SURFACE LOCATION: K-29 60°30'N 123°30'W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS — OPR. Initial — R.M. Initial

(1) Daily Walk Around Inspection
(2) Detailed Inspection-Weekly (using checklist)
(3) H²S Signs Posted (if required)
(4) Well Licence & Stick Diagram Posted
(5) Flare Lines Staked
(6) BOP Drills Performed
(7) Visually Inspect BOP's - Flarelines & Degasser Lines

(1) Rig Site Health and Safety Meeting (one/crew/month)
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)
(3) Mast Inspection Before Raising or Lowering
(4) Crown Saver Checked
(5) Motor Kills checked

YEAR 99
RIG NO. 4
FUEL
RIG 105
WEATHER: TEMPERATURE / CURRENT CONDITIONS / WIND DIRECTION / ROADS

TIME-HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV. SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.		
MORN.		Th					1/4			1/4													
DAY																							
EVE.		7					1/4			1/2											1/4		
TOTAL																							

DRILLING ASSEMBLY (At End of Tour)

NO.		OD mm	LENGTH m
1			.41
1	motor		10.66/56
1	Mwd/L.S./H.O.S.		8.0/.99
1	Monel		9.34
5	DC	229	45.96
1	JAR		7.08
3	DC	228	27.59
1	XO		.83
12	H.W.D.P.		109.71
	BHA		221.55
99	F-G D.P.		943.50
25	X2 D.P.	STANDS	717.99
X	D.P.	SINGLES	9.59
SINGLE	KELLYDOWN		2.37
	TOTAL		1895.00
WT. OF DC		1000 daN	
WT. OF STRING	87	1000 daN	

BIT RECORD

BIT NO.	8
SIZE (mm)	311
IADC CODE	517
MFG.	HUGHES
TYPE	GT20
SERIAL NO.	WJ10YM
JETS (mm)	2-19/1-17.5
DEPTH OUT (m)	—
DEPTH IN (m)	1820
TOTAL METRES DRILLED (m)	75
TOTAL HOURS RUN	14

CUTTING STRUCTURE T1	To	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	2-3 ↑ 0-3↓
TORQUE AT BOTTOM	H379- S263
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	2:00	4:00	6:00
DENSITY kg/m³	1000	1000	1000
FUNNEL VIS. - (S/L)	85	86	47
W.L. (cm³)			
pH			
PVT	109.3	108.5	107.6

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
8	9000	990	1660

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	ROP m/hr	CORE-C	ROT R
1853	1895	42		R

CIRCULATION: PRESSURE (kPa) | PUMP NO. | LINER SIZE (mm) | S.P.M.

PUMP NO.	LINER SIZE (mm)	S.P.M.
12460	152	95

REDUCED PUMP SPEED: 2400 @ 61

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
1857.45	4.5

DRILLER'S SIGNATURE:

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.		OD mm	LENGTH m
1			.41
1	motor		10.66/56
1	mwd/L.S.		8.02/.99
1	Monel		9.34
5	DC	228	45.96
1	JAR		7.08
3	DC	228	27.59
1	XO		.83
12	H.W.D.P.		109.71
	BHA		221.55
99	F-G D.P.		943.50
21	X2 D.P.	STANDS	746.71
2	X2 D.P.	SINGLES	19.88
	KELLYDOWN		
	TOTAL		1937
WT. OF DC		1000 daN	
WT. OF STRING	88	1000 daN	

BIT RECORD

BIT NO.	8
SIZE (mm)	311
IADC CODE	517
MFG.	HUGHES
TYPE	GT20
SERIAL NO.	W10YM
JETS (mm)	2-19/1-17.5
DEPTH OUT (m)	—
DEPTH IN (m)	1820
TOTAL METRES DRILLED (m)	117
TOTAL HOURS RUN	21¼

CUTTING STRUCTURE T1	To	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	2-3 ↑ 1-3 ↓
TORQUE AT BOTTOM	4200 - 5200 Ft lbs
FILL ON BOTTOM (m)	—

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	09:00	12:00	15:00
DENSITY kg/m³	995	995	995
FUNNEL VIS. - (S/L)	85	80	78
W.L. (cm³)			
pH			
PVT m³	106.8	127.1	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
INVERT	20 m³
INVERT	40 m³ FROM
400 TO	PREMIX
16 BAGS	MICA FINE
5 PAILS	VERSATHIN

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
8	995	995	2005

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	ROP m/hr	CORE-C	ROT R
1895	1937	42		R

CIRCULATION: PRESSURE (kPa) | PUMP NO. | LINER SIZE (mm) | S.P.M.

PUMP NO.	LINER SIZE (mm)	S.P.M.
12300	152	85

REDUCED PUMP SPEED: 1900 @ 60

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
1886.2	4.4
1915	4.2

DRILLER'S SIGNATURE:

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.		OD mm	LENGTH m
1			.41
1	motor/F.S.		10.66/56
1	mwd/L.S.		8.02/.99
1	Monel		9.34
5	DC	228	45.96
1	JAR		7.08
3	DC	228	27.59
1	XO		.83
12	H.W.D.P.		109.71
	BHA		221.55
99	F-G D.P.		943.50
21	X2 D.P.	STANDS	746.71
2	X2 D.P.	SINGLES	19.88
	KELLYDOWN		
	TOTAL		1937
WT. OF DC		1000 daN	
WT. OF STRING	88	1000 daN	

BIT RECORD

BIT NO.	8
SIZE (mm)	311
IADC CODE	517
MFG.	HUGHES
TYPE	GT20
SERIAL NO.	W10YM
JETS (mm)	2x19/1x17.5
DEPTH OUT (m)	—
DEPTH IN (m)	1820
TOTAL METRES DRILLED (m)	117
TOTAL HOURS RUN	21¼

CUTTING STRUCTURE T1	To	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	2-3 ↑ 1-3 ↓
TORQUE AT BOTTOM	4200 - 5200 Ft lbs
FILL ON BOTTOM (m)	—

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	09:00	12:00	15:00
DENSITY kg/m³	995	995	995
FUNNEL VIS. - (S/L)	85	80	78
W.L. (cm³)			
pH			
PVT m³	106.8	127.1	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
INVERT	20 m³
INVERT	40 m³ FROM
400 TO	PREMIX
16 BAGS	MICA FINE
5 PAILS	VERSATHIN

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
8	995	995	2005

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	ROP m/hr	CORE-C	ROT R
1937	1985	48		R

CIRCULATION: PRESSURE (kPa) | PUMP NO. | LINER SIZE (mm) | S.P.M.

PUMP NO.	LINER SIZE (mm)	S.P.M.
12300	152	85

REDUCED PUMP SPEED: 1600 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
1943.8	3.7
1953	3.8

DRILLER'S SIGNATURE:

EVENING TOUR

FOLD HERE →

DAILY CHECKS

	OPR.	R.M.
Daily Walk Around Inspection	Initial	Initial
Detailed Inspection-Weekly (using checklist)	Initial	Initial
H2S Signs Posted (if required)	Initial	Initial
Permit Licenses & Block Diagram Posted	Initial	Initial
Flare Lines Staked	Initial	Initial
BOP Drills Performed	Initial	Initial
Visually Inspect BOPs - Flarelines & Degasser Lines	Initial	Initial
Rig Site Health and Safety Meeting (one/crew/month)		Initial
C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
Pre-Tour Inspection Before Raising or Lowering		Initial
Crown Saver Checked		Initial
Rotary Kills checked		Initial

YEAR 99 | MONTH 03 | DAY 01

RIG NO. 418

FUEL @ 8:00

RIG 105 cm | BOILER 125 cm

WEATHER: TEMPERATURE -35°C; CURRENT CONDITIONS 26000; WIND DIRECTION; ROADS: Frozen

LAST CASING TUBING OR LINER	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
	339.7	315.34	101.2	BUTRESS	K-55	36	1693.60	7.31	701.30

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
127	29	E	108	152	5"XH	121	9-P-100	NATIONAL	235
127	29	X2	106	152	5"XH	133	9-P-100	NATIONAL	235
127	38	X3	101	156	5"XH	110	F-1000	ENSCO	254

21 22 23 24 25 26

TOTAL 8 4

SHALE SHAKER(S) NO. TYPE

SCREENS CHANGED ☐ YES ☐ NO

TOP 84 | TOP 84

MIDDLE 84 | MIDDLE 84

BOTTOM 84 | BOTTOM 84

RENTALS/SERVICES

	MORN	NOON	NIGHT
Second Boiler	8	12	4
#3 Pump	8	12	4

MORNING TOUR

MUD BASED

6:00	6:00
1000	1000
47	47
10.5	1076

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
9000	990	1680

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLG MKR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
1853	1855	42	R 111	14/15
			S 100	14/15

CIRCULATION PRESSURE	LINER SIZE (mm)	S.P.M.	PUMP PRESSURE	LINER SIZE (mm)	S.P.M.
12460	152	95		152	95

REDUCED PUMP SPEED: 2400 @ 61 @ 18 CO

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
1857.45	4.5	69.9

DRILLER'S SIGNATURE: Garth Lane

TIME LOG

FROM	TO	ELAPSED TIME	CODE NO.
00:00	03:15	3¼	2
03:15	03:30	¼	7
03:30	07:45	4½	2
07:45	08:00	¼	10

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

- Drill 311mm Hole w/Motor Fr: 1853-1873
- R/S Circ Btms Up Pull Conn C Man O/C Conn C
- Drill 311mm Hole w/Motor Fr. 1873-1895
- Surveys For Above Drilling.

NOTES: √ Crown Saver / Brake Linkage / Cat Line Chain / Anchor Twice This Tour

BOILER HRS RAN 8 | STACK TEMP 95 | BLACKTOP 725°C | MAXIMUM EXPERIENCED HOOKLOAD 90 mo | 2181

DAY TOUR

MUD BASED

15:00	15:00
995	995
78	78
7.1	

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
995	995	2005

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLG MKR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
1895	1937	42	R 115	14/15
			S 100	14/15

CIRCULATION PRESSURE	LINER SIZE (mm)	S.P.M.	PUMP PRESSURE	LINER SIZE (mm)	S.P.M.
13100	152	85		152	85

REDUCED PUMP SPEED: 1900 @ 62 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
1896.2	4.4	72.3
1915	4.2	73.3

DRILLER'S SIGNATURE:

TIME LOG

FROM	TO	ELAPSED TIME	CODE NO.
08:00	15:15	7¼	2
15:15	15:30	¼	7
15:30	16:00	½	10

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

- Drill 311mm Hole Fr: 1895m - 1937m.
- Rig Service Fcn Hydril & Main Hoist C/L
- Surveys For Above Drilling

NOTES: √ Crown Saver, Brake Linkage, Chain & Anchor. Driller Blowouts 900, 1300, 1500

BOILER HRS RAN 8 | STACK TEMP 225°C | MAXIMUM EXPERIENCED HOOKLOAD 440 00 | 2150

EVENING TOUR

MUD BASED

23:00	23:00
1616	1616
77	77
12.5	1225

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
990	1000	1996

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLG MKR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
1937	1975	48	15	14/15
			100	14/15

CIRCULATION PRESSURE	LINER SIZE (mm)	S.P.M.	PUMP PRESSURE	LINER SIZE (mm)	S.P.M.
11200	152	95		152	95

REDUCED PUMP SPEED: 1500 @ @ 42

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
1943.8	3.7	70.9
1963	3.8	70.4

DRILLER'S SIGNATURE:

TIME LOG

FROM	TO	ELAPSED TIME	CODE NO.
16:00	16:45	¾	2
16:45	17:00	¼	21
17:00	17:15	2¼	2
17:15	17:30	¼	9
17:30	17:45	¼	10
17:45	23:45	4	2
23:45	24:00	¼	10

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

- Drill 311mm Hole F/1937m-1943m
- Safety Meeting
- Drill F/1943m-1959m
- R/S Flare Top 2.7 Rams F/Manual 6 Sec C/L
- Survey @ 1943m
- Drill F/1959m-1975m
- Survey

NOTES: √ Crown Saver, Brake Linkage, Chain & Anchor. Rig Test Pull

BOILER HRS RAN 7½ | STACK TEMP 225 | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY MEETINGS | 2182

111067

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LICENCE NO.: SDL 99

WELL NAME AND NO.: CHEVRON ET AL HAIDA K-29 60° 30' N 133° 30' W

OPERATOR: CHEVRON CANADA RESOURCES LTD

CONTRACTOR: AKITA DRILLING.

SURFACE LOCATION: K-29 60° 30' N 133° 30' W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS — OPR. / R.M.

(1) Daily Walk Around Inspection — Initial / Initial 10
(2) Detailed Inspection-Weekly (using checklist) — Initial / Initial
(3) H²S Signs Posted (if required) — Initial / Initial
(4) Well License & Slot Diagram Posted — Initial / Initial
(5) Flare Lines Staked — Initial / Initial
(6) BOP Drills Performed — Initial / Initial
(7) Visually inspect BOP's - Flarelines & Degasser Lines — Initial / Initial

(1) Rig Site Health and Safety Meeting (one/crew/month) — Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
(3) Mast Inspection Before Raising or Lowering — Initial
(4) Crown Saver Checked — Initial
(5) Motor Kills checked — Initial

YEAR 99

RIG NO. 139

FUEL

WEATHER — TEMPERATURE / CURRENT CONDITIONS / WIND DIRECTION

ROAD

TIME HRS — CODE NO.

OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV. SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.
MORN.		3½			1	5½	¼														
DAY		3	1¼			6	¼		¾											½	¼
EVE.		3½					¼			¼											
TOTAL		10	1¼		1	9¼	¾		¾	¼										½	¼

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
1			.41 m
1	Motor	1/5	10.06/.54m
1	Monel	Hole Sub	8.40/.99m
1	Flange		9.34 m
5	D.C.	228	45.96m
1	JAR		7.08m
3	D.C.	228	27.59m
1	XO		.83 m
12	HWDP	127	109.71 m
	BHA		221.55m
99	E2-D.P.		943.50m
22	x2 D.P.	STANDS	631.81 m
XX	D.P.	SINGLES	15.14 m
	KELLY DOWN		4.00 m
	TOTAL		1820.00m
WT. OF DC			1000 daN
WT. OF STRING		86	1000 daN

BIT RECORD

BIT NO.	7
SIZE (mm)	311
IADC CODE	537B
MFG.	Security
TYPE	FS86F
SERIAL NO.	725280
JETS (mm)	3-19.
DEPTH OUT (m)	1820
DEPTH IN (m)	1518
TOTAL METRES DRILLED (m)	302
TOTAL HOURS RUN	42

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION: HOLE DRAG 2-3T 2-3L; TORQUE AT BOTTOM 4500 - 6420; FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☐ WATER BASED ☐ OIL BASED

TIME	2:00	4:00	6:00
DENSITY kg/m³	990	990	T
FUNNEL VIS. - (S/L)	71	62	
W.L. (cm³)			R
pH			
PVT	119.8	118.1	P

MUD MATERIALS ADDED — SOLIDS CONTROL

PRODUCT	AMOUNT X UNIT
V.G. 69	40 sx
Lime	20 sx
VERSA HRP	1 DRL
BARITE	35 sx

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
8	990	990	1440

MORNING TOUR

METRES DRILLED

FROM	TO	DBO RMR CORE C	ROT R.R.
1803	1820	17	

LINER SIZE (mm)	S.P.M.
152	90

3000 @ TAC

DEPTH (m) / DEVIATION (°)

DRILLER'S SIGNATURE

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
1			.41 m
1	Motor	1/5	10.06/.54m
1	Monel	Hole Sub	8.40/.99m
1	Flange		9.34 m
5	DC	228	45.96m
1	JAR		7.08 m
3	D.C.	228	27.59m
1	XO		.83 m
12	HWDP		109.71m
	BHA		221.55m
99	E2-D.P.		943.50m
23	D.P.	STANDS	640.51m
1	D.P.	SINGLES	9.57 m
	KELLY DOWN		m
	TOTAL		1835.13 m
WT. OF DC			1000 daN
WT. OF STRING		86	1000 daN

BIT RECORD

BIT NO.	7	8
SIZE (mm)	311	311
IADC CODE	537B	
MFG.	Sec.	Hughes
TYPE	FS86F	GT-20
SERIAL NO.	725280	W104M
JETS (mm)	3x19	2x19/1-175
DEPTH OUT (m)	1820	
DEPTH IN (m)	1518	1820
TOTAL METRES DRILLED (m)	302	15
TOTAL HOURS RUN	42	3

CUTTING STRUCTURE: T1 3 | To B | MDC BT | LOC A | B F | Gage 8mm | ODC 51 | Reason Pulled TD | Total Run m/hr. 7.2

HOLE CONDITION: HOLE DRAG 2-3T 1-3L; TORQUE AT BOTTOM 4100 - 4400; FILL ON BOTTOM (m) 0

MUD RECORD

MUD TYPE: ☐ WATER BASED ☐ OIL BASED

TIME		18:00	
DENSITY kg/m³	T	985	
FUNNEL VIS. - (S/L)	R	85	
W.L. (cm³)	I		
pH	P		
PVT m³		114.2	

MUD MATERIALS ADDED — SOLIDS CONTROL

PRODUCT	AMOUNT X UNIT

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
12	985	975	1560

DAY TOUR

METRES DRILLED

FROM	TO	DBO RMR CORE C	ROT R.R.
1820	1835	15	

LINER SIZE (mm)	S.P.M.
152	85

1900 @ TAC

DEPTH (m) / DEVIATION (°)

Hole Full TAC = 1.0°
MEAS. = 1.0°
DIF = 4°

DRILLER'S SIGNATURE

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
1			.41 m
1	Motor	1/5	10.06/.54m
1	Monel	Hole Sub	8.40/.99m
1	Flange		9.34 m
5	DC	228	45.96m
1	JAR		7.08 m
3	DC	228	27.59m
1	XO		.83 m
12	HWDP		109.71 m
	BHA		221.55m
99	E2-D.P.		943.50m
23	x2 D.P.	STANDS	660.51m
XX	D.P.	SINGLES	15.14 m
	KELLY DOWN		9.30 m
	TOTAL		1853.00m
WT. OF DC			1000 daN
WT. OF STRING		86	1000 daN

BIT RECORD

BIT NO.	8
SIZE (mm)	311
IADC CODE	
MFG.	Hughes
TYPE	GT-20
SERIAL NO.	W104M
JETS (mm)	2-19/1-175
DEPTH OUT (m)	
DEPTH IN (m)	1820
TOTAL METRES DRILLED (m)	33
TOTAL HOURS RUN	6½

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION: HOLE DRAG 2-3T 0-3L; TORQUE AT BOTTOM 4300 - 4687; FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	20:00	22:00	24:00
DENSITY kg/m³	995	1000	
FUNNEL VIS. - (S/L)	86	86	
W.L. (cm³)			
pH			
PVT	112.9	111.7	111.2

MUD MATERIALS ADDED — SOLIDS CONTROL

PRODUCT	AMOUNT X UNIT

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
4			

EVENING TOUR

METRES DRILLED

FROM	TO	DBO RMR CORE C	ROT R.R.
1835	1853	18	

LINER SIZE (mm)	S.P.M.
152	85

2200 @ TAC

DEPTH (m) / DEVIATION (°)

1819.13 — 4.8°

DRILLER'S SIGNATURE

FOLD HERE →

DAILY CHECKS

	OPR.	R.M.
Safety Walk Around Inspection	Initial	Initial
Scaffold Inspection-Weekly (using checklist)	Initial	Initial
H2S Signs Posted (if required)	Initial	Initial
Well License & Block Diagram Posted	Initial	Initial
Flare Lines Staked	Initial	Initial
BOP Drills Performed	Initial	Initial
Monthly Inspect BOPs + Flarelines & Degasser Lines	Initial	Initial
Rig Site Health and Safety Meeting (once/crew/month)	Initial	
C.A.O.D.C. Rig Safety Inspection Checklist (once/rig/month)	Initial	
Derrick Inspection Before Raising or Lowering	Initial	Initial
Crown Saver Checked	Initial	Initial
Rotor Kits checked	Initial	

YEAR 99 | MONTH 02 | DAY 28

RIG NO. 45

FUEL @ 8:00

RIG 139 m | BOILER 1.2 m

WEATHER: TEMPERATURE 33 cm °C; CURRENT CONDITIONS 1271; WIND DIRECTION; ROAD S-556137

	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG. HEAD (m)	SET AT (m)
LAST CASING	339.7	315.34	101.2	B&TROSS	K-55	56	693.60	7.31	701.30
TUBING OR LINER									

	OD/OP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
	127	29	E	105	152	5"XH	121	9-P-100	NATIONAL	235
	127	29	X2	106	152	5"XH	133	9-P-100	NATIONAL	235
	127	36	X3	101	156	5"XH	160	F-1000	EMSCO	254

21	22	23	24	25	26
Bit TY TO					

TOTAL: 8 / 12. / 4 / 24

SHALE SHAKER(S) NO. | TYPE

SCREENS CHANGED ☐ YES ☑ NO

	TOP	MIDDLE	BOTTOM
	84	24	24
	TOP	MIDDLE	BOTTOM
	44	84	52

RENTALS/SERVICES

	MONTH	DAY	TOUR
Second Boiler	8	12	4
#3 Pump	8	12	4

MORNING TOUR

METRES DRILLED

FROM	TO	DRLD/RMVD CORE-C	ROTARY R.P.M.	W/ ON BIT (1000 daN)
1803	1820	17	R 15	8/12
			S 100	12/13

	LINER TYPE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
1818-1920	152	90	152	80

REDUCED PUMP SPEED: 3000 @ 1AC @ 61

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE: [signature]

TIME LOG

FROM	TO	HRS	CODE
00:00	02:45	2 3/4	2
02:45	03:00	1/4	7
03:00	02:45	3/4	2
03:45	04:45	1	5
04:45	08:00	3 1/4	6

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

DRILL 311mm HOLE W/MOTOR & BIT FR: 1803-1816
R/S CLOSE T.P. PIPE RAMS & FLOOR O/C SLEC
DRILL 311mm HOLE W/MOTOR & BIT FR: 1816-1820
CIRCULATE BOTTOMS UP & SAMPLE.
FLOW ✓ PUMP PILL / HOIST 5 STDS. / FLOW ✓
@ 30 STDS

NOTES: CROWN SAVER ✓ BRAKE / SURFACE ✓ FAST LINE CLAMP ✓ ANCHOR
Boiler Plain Down @ 0100, 0200, 0700

BOILER HRS RAN	STACK TEMP	MAXIMUM EXPERIENCED FLOOR LOAD	SAFETY DROPS
8 11	325C		

DAY TOUR

METRES DRILLED

FROM	TO	DRLD/RMVD CORE-C	ROTARY R.P.M.	W/ ON BIT (1000 daN)
1820	1820	43	K	0/1
1820	1835	15	K 15	12

	LINER TYPE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
1820-1920	152	85	152	85

REDUCED PUMP SPEED: 1900 @ 61 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
Hole Full	CALC.: 10.82	
	MEAS.: 11.31	
	DIF.: 49	

DRILLER SIGNATURE: [signature]

TIME LOG

FROM	TO	HRS	CODE
05:00	09:45	1 3/4	6
09:45	10:00	1/4	20
10:00	12:15	2 1/4	6
12:15	12:30	1/4	20
12:30	13:15	3/4	9
13:15	13:30	1/4	7
13:30	13:45	1/4	21
13:45	15:45	2	6
15:45	17:00	1 1/4	3
17:00	20:00	3	2
-			

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

PULL OUT FLOW ✓ TO BOP / OUT OF HOLE 15m / FAN
✓ MWD - CHANGE BIT FU BUOYS @ FLOOR & MAIN
MAKE UP BIT + RUN IN HOLE FROM @ 304.74
TEST MWD @ 740m.
SLIP + CUT 14m.
RIG SERVICE FU. BOP PULL @ FLOOR. LOC C/O
SAFETY MEETING
RUN IN HOLE T. 1780m.
REAM T. BTM. FR: 1750m - 1817m FROM - 1817m R&R
DRILL 311mm HOLE W/MWD FR: 1820m - 1835m

NOTES: ✓ CROWN SAVER, BRAKES + LINKAGE, CLAMP + ANCHOR
Boiler Blown Down @ 13:00, 17:00, 19:00

BOILER HRS RAN	STACK TEMP	MAXIMUM EXPERIENCED FLOOR LOAD	SAFETY DROPS
12 10	225C		2280

EVENING TOUR

METRES DRILLED

FROM	TO	DRLD/RMVD CORE-C	ROTARY R.P.M.	W/ ON BIT (1000 daN)
1835	1853	18	R 14	13/15
			S 100	12/13

	LINER TYPE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
1818-1920	152	85	152	85

REDUCED PUMP SPEED: 2200 @ 1AC @ 60

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
1819.13	4.8°	59.6

DRILLER SIGNATURE: [signature]

TIME LOG

FROM	TO	HRS	CODE
20:00	22:00	2	2
22:00	22:15	1/4	7
22:15	22:45	1/2	2
22:45	24:00	1/4	10

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

DRILL 311mm HOLE W/MOTOR FR: 1835-1844
R/S CLOSE ANNULAR FR: FLOOR O/C 14SEC.
DRILL 311mm HOLE W/MOTOR FR: 1844-1853
SURVEY FOR ABOVE DRILLING.

NOTES: ✓ CROWN SAVER ✓ FAST LINE CLAMP ✓ ANCHOR ✓ CROWN SAVER
Boiler Plain Down @ 21:30

BOILER HRS RAN	STACK TEMP	MAXIMUM EXPERIENCED FLOOR LOAD	SAFETY DROPS
4 10	225C	54.00	2181

111066

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LICENCE NO.: SDL99

WELL NAME AND NO.: CHEVRON ETAL LIARD K-29 60° 30'N 123° 30'W

OPERATOR: CHEVRON CANADA RESOURCES LTD.

CONTRACTOR: AKITA DRILLING, LTD.

SURFACE LOCATION: K-29 60° 30'N 123° 30'W.

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS

	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) HPS Signs Posted (if required)	Initial	Initial
(4) Well Licence & Stack Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually Inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (once/crew/month)		Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (once/rig/month)		Initial
(3) Mast Inspection Before Raising or Lowering		Initial
(4) Crown Saver Checked		Initial
(5) Motor Kills checked		Initial

RIG NO. 99 / RIG NO. 48

FUEL

RIG 1176

WEATHER: TEMPERATURE / CURRENT CONDITIONS / WIND DIRECTION / ROADS

TIME-HRS

CODE NO	1 OPER.	2 RIG UP & TEAR DOWN	3 DRILL ACTUAL	4 REAMING	5 CORING	6 COND. MUD & CIRC	7 TRIPS	8 RIG SERVICE	9 REPAIR RIG	10 CUT OFF DRILL LINE	11 DEV SURVEY	12 WIRE LINE LOGS	13 RUN CASE & CEMENT	14 WAIT ON CEMENT	15 NIPPLE UP B.O.P.	16 TEST B.O.P.	17 DRILL STEM TEST	18 PLUG BACK	19 SQUEEZE CEMENT	20 FISHING	21 DIR. WORK	22 SAFETY MTG.
MORN.			7¼					¼			½											
DAY			11					¼			¾											
EVE.			2½					¼			¼											
TOTAL			21¾					1¼			1½											

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
1			.41 m
1	motor	6.5	1046/.56m
1	Monel	H.S.	1143/.59m
1	Monel		9.34 m
5	D.C.	228	45.96m
1	JAR		7.04m
3	D.C.	228	27.59 m
1	XO		.83 m
12	HWDP		109.71 m
	BHA		221.55m
99	F2-D.P.		943.50m
18	x2 D.P.	STANDS	516.49m
	D.P.	SINGLES	m
	KELLY DOWN		m
	TOTAL		1681.94 m
WT. OF DC			1000 daN
WT. OF STRING		81	1000 daN

BIT RECORD

BIT NO.	7
SIZE (mm)	311
IADC CODE	5 3 7 B
MFG.	SECURITY
TYPE	GS46F
SERIAL NO.	725280
JETS (mm)	3-18.
DEPTH OUT (m)	
DEPTH IN (m)	1518
TOTAL METRES DRILLED (m)	163
TOTAL HOURS RUN	24

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG: 1-2T 2-3L

TORQUE AT BOTTOM: 4760 - 5417

FILL ON BOTTOM (m):

MUD RECORD

WATER BASED ☐ OIL BASED ☐ GAS BASED ☐

TIME	2:00	4:00	6:00
DENSITY kg/m³	970	975	980
FUNNEL VIS. - (S/L)	67	67	71
W.L. (cm³)			
pH			
PV.	141.7	145.5	144.2

PRODUCT	AMOUNT X UNIT
VG 69	40 sx
Lime	20 sx
VERSA HRP	1 BBL
INVERT	15 m³ FROM
4100 TO	PREMIX

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
	8	980	970	1730

METRES DRILLED

FROM	TO	DRLG RWA CORE-C	ROT RIP
1614	1681	67	21
			5

	LINER SIZE (mm)	S.P.M.
MP-1900	152	90

2000 daN

DEPTH (m)	DEVIATION (°)
1627.60	5.2
1656.4	3.9

Gareth Evans

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
1			.41 m
1	motor	6.5	1046/.56m
1	Monel	H.S.	1143/.59m
1	Monel		9.34 m
5	D.C.	228	45.96m
1	JAR		7.08m
3	D.C.	228	27.59 m
1	XO		.83 m
12	HWDP		109.71 m
	BHA		221.55m
99	F2-D.P.		943.50m
21	x2 D.P.	STANDS	663.29 m
	D.P.	SINGLES	m
	KELLY DOWN		m
	TOTAL		1768.14 m
WT. OF DC			1000 daN
WT. OF STRING		83	1000 daN

BIT RECORD

BIT NO.	7
SIZE (mm)	311
IADC CODE	5 3 7 B
MFG.	Sec.
TYPE	GS46F
SERIAL NO.	725280
JETS (mm)	3x19.
DEPTH OUT (m)	—
DEPTH IN (m)	1518
TOTAL METRES DRILLED (m)	2441
TOTAL HOURS RUN	35

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG: 1-3T 1-3L

TORQUE AT BOTTOM: 4600 - 5300

FILL ON BOTTOM (m): —

MUD RECORD

WATER BASED ☐ OIL BASED ☐ GAS BASED ☐

TIME	09:00	12:00	15:00
DENSITY kg/m³	980	985	985
FUNNEL VIS. - (S/L)	70	69	68
W.L. (cm³)			
pH		Recalibrate & Dirt	
PVT m³	143.4	113.2	114.8

PRODUCT	AMOUNT X UNIT
Invert	10 m³

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
	12	980	970	1680

METRES DRILLED

FROM	TO	DRLG RWA CORE-C	ROT RIP
1681	1768	87	1
			5

	LINER SIZE (mm)	S.P.M.
MP-12000	152	90

1500 daN

DEPTH (m)	DEVIATION (°)
1665.90	3.6
1675.50	3.7
1694.00	3.7
1713.80	3.4
1752.20	5.1

Scott Lee

EVENING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
1			.41 m
1	motor	6.5	1046/.56m
1	Monel	H.S.	843/.59m
1	Monel		9.34 m
5	D.C.	228	45.96m
1	JAR		7.08m
3	D.C.	228	27.59 m
1	XO		.83 m
12	HWDP		109.71 m
	BHA		221.55m
99	F2-D.P.		943.50m
22	x2 D.P.	STANDS	631.81 m
	D.P.	SINGLES	m
	KELLY DOWN		6.14 m
	TOTAL		1803.00m
WT. OF DC			1000 daN
WT. OF STRING		85	1000 daN

BIT RECORD

BIT NO.	7
SIZE (mm)	311
IADC CODE	5 3 7 B
MFG.	Security
TYPE	GS46F
SERIAL NO.	725280
JETS (mm)	3-19
DEPTH OUT (m)	
DEPTH IN (m)	1518
TOTAL METRES DRILLED (m)	285
TOTAL HOURS RUN	38½

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG: 2-3T 2-3L

TORQUE AT BOTTOM: 4917 - 6223

FILL ON BOTTOM (m):

MUD RECORD

WATER BASED ☐ OIL BASED ☐ GAS BASED ☐

TIME	18:00	21:00	24:00
DENSITY kg/m³	980	975	990
FUNNEL VIS. - (S/L)	71	68	80
W.L. (cm³)			
pH			
PVT m³	116.2	123.4	120.2

ADDITIVES ADDED — SOLIDS CONTROL

PRODUCT	AMOUNT X UNIT
T	

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
	4	990	980	1635

METRES DRILLED

FROM	TO	DRLG RWA CORE-C	ROT RIP
1768	1803	35	2
			5

	LINER SIZE (mm)	S.P.M.
MP-12000	152	90

2200 daN 59

DEPTH (m)	DEVIATION (°)
1780.80	4.6

DRILLER'S SIGNATURE: Scott Lee

FOLD HERE →

DAILY CHECKS — OPR. / R.M.

- Daily Walk Around Inspection — Initial / Initial
- Detailed Inspection-Weekly (using checklist) — Initial / Initial
- H2S Signs Posted (if required) — Initial / Initial
- Well Licence & Deck Diagram Posted — Initial / Initial
- Flare Lines Staked — Initial / Initial
- BOP Drills Performed — Initial / Initial
- Visually Inspect BOP's • Flarelines & Degasser Lines — Initial / Initial
- Pre-Tour Safety Meeting (on-crew/month) — Initial
- IADC Rig Safety Inspection Checklist (one/rig/month) — Initial
- Derrick Inspection Before Raising or Lowering — Initial
- Crown Saver Checked — Initial
- Choke Kills checked — Initial

YEAR 99 | MONTH 02 | DAY 27

RIG NO. 48

FUEL @ 8:00

RIG 176 | BOILER 1.75

WEATHER: TEMPERATURE 33c AM; CURRENT CONDITIONS 1192.1; WIND DIRECTION; BAROMETRIC 55.2507

LAST CASING TUBING OR LINER	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
	339.7	315.34	101.2	BUTRESS	K-55	56	693.60	7.31	701.3

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
127	29	E	108	152	5"XH	121	9-P-100	NATIONAL	235
127	29	X2	120	152	5"XH	133	9-P-100	NATIONAL	235
127	38	X3	101	156	5"XH	160	F-1000	EMSCO	454

	21	22	23	24	25	26
QTY						

TOTAL: 8 / 12 / 4 / 24

SHALE SHAKER(S) — NO. / TYPE

SCREENS CHANGED ☐ YES ☐ NO

	TOP	TOP
MIDDLE	84	84
BOTTOM	84	84

RENTALS/SERVICES

Second Boiler	4	12	4
#3 Pump	8	12	4

MORNING TOUR

METRES DRILLED

FROM	TO	DRLG RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
1614	1681	67	R 15	10/12
			S 100	10/12

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
MP-10000 / MB-1900	152	90	152	90

REDUCED PUMP SPEED: 2000 @ JAC @ 62

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
1627.60	5.2	60.2
1654.4	3.9	64.2

DRILLER'S SIGNATURE: Keith Lemon

TIME LOG

FROM	TO	HRS	CODE
00:00	03:00	3	2
03:00	03:15	1/4	7
03:15	07:30	4 1/4	2
07:30	08:00	1/2	10

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

- Drill 311mm Hole w/ Motor Fr: 1614 - 1643
- R/S Close Top Pipe Rams & Manifold Test
- Drill 311mm Hole w/ Motor Fr: 1643 - 1681
- Surveys & Above Drilling

NOTES: Crown Saver / Brake Linkage / Foot Line Clear / Anchor Tailer Plain Down @ 0100, 0300, 0500, 0700

8 | 125 - 127 | 83000 | | 2319

DAY TOUR

METRES DRILLED

FROM	TO	DRLG RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
1681	1768	91	R 15	10/12
			S 100	10/12

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
MP-10000	152	90	152	80

REDUCED PUMP SPEED: 1500 @ @ @ 60

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
1665.90	3.6	67.2
1675.50	3.7	66.1
[illegible]	3.7	
1713.80	3.4	70.7
1752.20	5.1	63.4

DRILLER'S SIGNATURE: [signature]

TIME LOG

FROM	TO	HRS	CODE
08:00	19:00	11	2
19:00	19:15	1/4	7
19:15	20:00	3/4	10

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

- Drill 311mm Hole w/motor Fr: 1681 - 1768m
- R/S Service Rig Hydraulic & Mud Hoses c/o
- Surveys For Above Drilling

NOTES: Crown Saver / Brake Linkage, Clear / Anchor Bull Boy Down @ 9:00, 13:00, 17:00

12 | 104 325 | | | 2080

EVENING TOUR

METRES DRILLED

FROM	TO	DRLG RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
1768	1803	35	R 15	10/12
			S 100	10/12

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
MP-12100	152	90	152	80

REDUCED PUMP SPEED: 2200 @ 59 @ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
1780.80	4.6	50.9

DRILLER'S SIGNATURE: [signature]

TIME LOG

FROM	TO	HRS	CODE
20:00	21:15	1 1/4	2
21:15	21:30	1/4	7
21:30	23:45	2 1/4	2
23:45	24:00	1/4	10

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

- Drill 311mm Hole w/Motor Fr: 1768 - 1787
- R/S Close Lower Pipe Rams & Manifold Test c/c
- Drill 311mm Hole w/Motor Fr: 1787 - 1803
- Survey For Above Drilling.

NOTES: Crown Saver / Brake Linkage / Foot Line Clear / Anchor Tailer Plain Down @ 2000, 2200

BOILER: HRS RAN 4 | PSI 110 | STACK TEMP 210°

EXPERIENCED HOOKLOAD: 88 000

SAFE OPERATIONS: 234

111065

FOLD HERE →

LICENCE NO.: SDI 99

WELL NAME AND NO.: CHEVRON ETAL HARD K-29 60° 30' N 123° 30' W

OPERATOR: CHEVRON CANADA RESOURCES LTD

CONTRACTOR: AKITA DRILLING

SURFACE LOCATION: K-29 60° 30' N 123° 30' W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) HPS Signs Posted (if required)	Initial	Initial
(4) Well Licence & Block Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (once/crew/month)	Initial	
(2) C.A.O.D.C. Rig Safety Inspection Checklist (once/rig/month)	Initial	
(3) Mast Inspection Before Raising or Lowering	Initial	
(4) Crown Saver Checked	Initial	
(5) Motor Kills checked	Initial	

YEAR 99 | RIG NO. 48

FUEL

RIG 122 cm

WEATHER: TEMPERATURE | CURRENT CONDITIONS | WIND DIRECTION | ROADS

TIME-HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV. SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.			
MORN.		2¼	4			1¼	¼			¼														
DAY		11¾					¾			½														
EVE.		¼					¼			½														
TOTAL		12¾	4			1¼	1¼			1¼														

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
1			41 m
1	Motor	6.5	10.66/56m
1	Monel	Hwds.	8.42/1.99m
1	Motor		9.34 m
5	D.C.	228	45.96 m
1	JAR		7.08 m
3	D.C.	228	27.59 m
1	XO		.83 m
12	HWDP		109.71 m
	BHA		221.55 m
99	E-DP		943.50 m
12	x2 D.P.	STANDS	344.52 m
1	D.P.	SINGLES	9.58 m
	KELLY DOWN		m
	TOTAL		1519.15 m
WT. OF DC			1000 daN
WT. OF STRING	80		1000 daN

BIT RECORD

BIT NO.	7
SIZE (mm)	311
IADC CODE	5 3 7 B
MFG.	SECURITY
TYPE	G586F
SERIAL NO.	725280
JETS (mm)	3-19.
DEPTH OUT (m)	
DEPTH IN (m)	1518
TOTAL METRES DRILLED (m)	1
TOTAL HOURS RUN	2¼

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG

TORQUE AT BOTTOM 3500-4100

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☐ WATER BASED ☐ OIL BASED

TIME	2:00	4:00	6:00
DENSITY kg/m³	960	955	950
FUNNEL VIS. - (S/L)	61	61	60
W.L. (cm³)			
pH			
PV/YP	142.2	141.9	142

PRODUCT	AMOUNT X UNIT
CLEAN UP	4 PAILS
-6 BUCKETS OF	
SHALE TO SHED	

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
	8	950	940	1110

METRES DRILLED

FROM	TO	DRILLED OR CORED	ROT. HRS
1490	1518	R	1
1518	1519	D	¼

LINER SIZE (mm)	S.P.M.
152	80

DEPTH (m)	DEVIATION (°)
1501.5	9°

Mark Lee

METRES DRILLED

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
1			41 m
1	Motor	6.5	10.66/56m
1	Monel	Hwds.	8.42/1.99m
1	Motor		9.34 m
5	D.C.	228	45.96 m
1	JAR		7.08 m
3	D.C.	228	27.59 m
1	XO		.83 m
12	HWDP		109.71 m
	BHA		221.55 m
99	E-DP		943.50 m
14	x2 D.P.	STANDS	401.94 m
2	x2 D.P.	SINGLES	19.17 m
	KELLY DOWN		m
	TOTAL		1586.16 m
WT. OF DC			1000 daN
WT. OF STRING	91		1000 daN

BIT RECORD

BIT NO.	7
SIZE (mm)	311
IADC CODE	5 3 7 B
MFG.	Sec.
TYPE	G586F
SERIAL NO.	725280
JETS (mm)	3x19
DEPTH OUT (m)	
DEPTH IN (m)	1518
TOTAL METRES DRILLED (m)	68
TOTAL HOURS RUN	13½

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG 10-1

TORQUE AT BOTTOM 4200-5000

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☐ WATER BASED ☐ OIL BASED

TIME	0900	1200	1500
DENSITY kg/m³	960	965	970
FUNNEL VIS. - (S/L)	60	63	61
W.L. (cm³)			
pH			
PVT m³	144.3	143.6	141.0

PRODUCT	AMOUNT X UNIT
Drilling Det.	1 Sx.
Lignite Grt	2 Sxs.
Lime	20 Sxs
VG-69	40 Sxs
Vesamul	1 Barrel
INVERT	10m³
PREMIX TO TANKS	

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
	12	970	970	1510

METRES DRILLED

FROM	TO	DRILLED OR CORED	ROT. HRS
1519	1586	CC	1½

LINER SIZE (mm)	S.P.M.
152	80

DEPTH (m)	DEVIATION (°)
1512.7	9.4
1541.4	7.3

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
1			41 m
1	Motor	6.5	10.66/56m
1	Monel	Hwds.	8.42/1.99m
1	Motor		9.34 m
5	D.C.	228	45.96 m
1	JAR		7.08 m
3	D.C.	228	27.59 m
1	XO		.83 m
12	HWDP		109.71 m
	BHA		221.55 m
99	E-DP		943.50 m
15	x2 D.P.	STANDS	420.69 m
11	D.P.	SINGLES	19.16 m
	KELLY DOWN		m
	TOTAL		1614.90 m
WT. OF DC			1000 daN
WT. OF STRING	91		1000 daN

BIT RECORD

BIT NO.	7
SIZE (mm)	311
IADC CODE	5 3 7 B
MFG.	Security
TYPE	G586F
SERIAL NO.	725280
JETS (mm)	3-19
DEPTH OUT (m)	
DEPTH IN (m)	1518
TOTAL METRES DRILLED (m)	96
TOTAL HOURS RUN	16½

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG 1-2 T

TORQUE AT BOTTOM 4200-5532

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☐ WATER BASED ☐ OIL BASED

TIME	1800	2100	2400
DENSITY kg/m³	965	970	970
FUNNEL VIS. - (S/L)	62	61	62
W.L. (cm³)			
pH			
PVT m³	150.2	150.4	1418.8

PRODUCT	AMOUNT X UNIT

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
	11	970	955	1210

METRES DRILLED

FROM	TO	DRILLED OR CORED	ROT. HRS
1586	1614	28	8½

LINER SIZE (mm)	S.P.M.
152	90

DEPTH (m)	DEVIATION (°)
1570.2	6.3
1594.9	5.6

DRILLER SIGNATURE

Mark Lee

EVENING TOUR

FOLD HERE →

Y CHECKS	OPR.	R.M.
w Walk Around Inspection	Initial	Initial
ekend Inspection-Weekly (using checklist)	Initial	Initial
Signs Posted (if required)	Initial	Initial
e License & Block Diagram Posted	Initial	Initial
w Lines Tested	Initial	Initial
P Drills Performed	Initial	Initial
ify Inspect BOP's - Flowlines & Degasser Lines	Initial	Initial
's Health and Safety Meeting (one/crew/month)		Initial
O.D.G. Rig Safety Inspection Checklist (one/rig/month)		Initial
st Inspection Before Raising or Lowering		Initial
wn Saver Checked		Initial
or Kills checked		Initial

YEAR	MONTH	DAY
99	02	26

RIG NO. 48

FUEL @ 8:00

RIG 122cm | BOILER #2 111cm

WEATHER: TEMPERATURE -37 c/R; CURRENT CONDITIONS - 10645; WIND DIRECTION NW; ROADS - 55:231

	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
LAST CASING	339.7	315.24	101.2	BUTRASS	K-55	56	693.60	7.31	701.3
TUBING OR LINER									

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
127	39	E	108	152	5"XH	121	9-P-100	NATIONAL	235
127	29	X2	106	152	5"XH	133	9-P-100	NATIONAL	235
127	38	X2	114	156	5"XH	160	F-1000	EMSCO	254

	22	23	24	25	26
TY					

TOTAL: 8 / 12 / 4 / 24

SHALE SHAKER(S): NO. / TYPE

SCREENS CHANGED ☐ YES ☑ NO

TOP 24 / TOP 24

MIDDLE 24 / MIDDLE 24

BOTTOM 24 / BOTTOM 24

RENTALS/SERVICES

	MORN	TOUR	EVE
Second Bouce	8	12	4
3RD Pump	8	12	4

RD

:0	6:00
	950
	60
9	142

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
950	940	2110

RD

00	1500
	970
	61
6	141.0

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
970	970	1510

ORD

	2400
	970
	62
.4	1418.8

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
970	955	1810

MORNING TOUR

METRES DRILLED

FROM	TO	DBG PRM CORE-C	ROTARY R.P.M.	WT ON BIT (1000 daN)
1440	1518	R	10	9/2
1518	1519	D	10	2/3

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
9000	152	80	152	80

REDUCED PUMP SPEED

	@		@

DEVIATION SURVEYS

DEPTH (m)	DEVIATION (°)	DIRECTION
1501.5	9°	52.6

DRILLER'S SIGNATURE: Keith Lamar

TIME LOG

FROM	TO	HRS	CODE
00:00	01:15	1¼	6
01:15	05:15	4	2
05:15	05:45	½	2
05:45	06:00	¼	10
06:00	07:45	1¾	2
07:45	08:00	¼	7

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

Running to 7200 + check mud / Running to 1480

Ream w/ full f/: 1480 - 1514 Tag WT @ 1514m. Ream 2 stds f/: 1511 - 1518

Drill 311mm Hole w/motor. / Low RPM + Low WT.

Survey

Drill 311mm / Low RPM + Low WT.

R/S Close Top Pipe Rams @ Floor O/C 6 sec

NOTES: Crown Saver Brake Linkage / Cat Line Clamp / Anchor Pulled Blown Down @ 07:30, 05:30, 07:00

8 | 1 | 7254 | 2456

DAY TOUR

METRES DRILLED

FROM	TO	DBG PRM CORE-C	ROTARY R.P.M.	WT ON BIT (1000 daN)
1519	1586	66	10/2	10/12

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
10400	152	80	152	90

REDUCED PUMP SPEED

1800	@	6	@	60

DEVIATION SURVEYS

DEPTH (m)	DEVIATION (°)	DIRECTION
1582	8.4	55.0
1541.4	7.3	51.7

DRILLER'S SIGNATURE: Keith Lamar

TIME LOG

FROM	TO	HRS	CODE
08:00	08:45	¾	2
08:45	09:00	¼	10
0900	0915	¼	7
0915	1445	5½	2
1445	1500	¼	10
1500	2000	5	2

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

Drill 311mm Hole w/motor. F/: 1519m - 1529m

Survey @ 1512m.

Rig Service Func. Crown Pipes @ Floor, Close Top

Drill 311mm Hole w/motor. F/: 1529m - 1556m.

Survey @ 1541m.

Drill 311mm Hole w/motor. F/: 1556m - 1586m

NOTES: Crown Saver / Brake Linkage / Cat Line Clamp / Anchor Pulled Blown Down @ 20:00, 23:30

12 | 9 | 225 | Environmental | 2387

EVENING TOUR

METRES DRILLED

FROM	TO	DBG PRM CORE-C	ROTARY R.P.M.	WT ON BIT (1000 daN)
1586	1614	28	R 15	10/12
			S 100	10/12

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
10400-1500	152	90	152	80

REDUCED PUMP SPEED

1900	@	60	@	

DEVIATION SURVEYS

DEPTH (m)	DEVIATION (°)	DIRECTION
1570.2	6.3	56.4
1594.9	5.6	52.2

DRILLER'S SIGNATURE: Keith Lamar

TIME LOG

FROM	TO	HRS	CODE
20:00	23:15	3¼	2
23:15	23:30	¼	7
23:30	24:00	½	10

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

Drill 311mm Hole w/motor F/: 1586m - 1614m

R/S Close Annular F/: Floor O/C 16 sec

Surveys for A Bank Drilling.

NOTES: Crown Saver / Brake Linkage / Cat Line Clamp / Anchor Pulled Blown Down @ 20:00, 23:30

4 | 4 | 175°C | | | 2387

111064

FOLD HERE →

LICENCE NO.: SOL991

WELL NAME AND NO.: CHEVRON ETAL LIARD K-29 60° 30'N 123° 30'W

OPERATOR: CHEVRON CANADA RESOURCES LTD

CONTRACTOR: AKITA DRILLING

SURFACE LOCATION: K-29 60° 30'N 123° 30'W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS — OPR. / R.M.

(1) Daily Walk Around Inspection — Initial / Initial
(2) Detailed Inspection-Weekly (using checklist) — Initial / Initial
(3) HPS Signs Posted (if required) — Initial / Initial
(4) Well License & Block Diagram Posted — Initial / Initial
(5) Flare Lines Staked — Initial / Initial
(6) BOP Drills Performed — Initial / Initial
(7) Visually inspect BOP's - Flarelines & Degasser Lines — Initial / Initial

(1) Rig Site Health and Safety Meeting (one/crew/month) — Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
(3) Mast Inspection Before Raising or Lowering — Initial
(4) Crown Saver Checked — Initial
(5) Motor Kills checked — Initial

YEAR 97
RIG NO. HK
FUEL
RIG 1.53
WEATHER: TEMPERATURE / CURRENT CONDITIONS / WIND DIR.

TIME — CODE NO. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV. SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.	23 1/2 hrs
MORN.						6														2		2
DAY		8			3 1/4	2 1/2	1/4													1 1/4		
EVE.																						
TOTAL																						

DRILLING ASSEMBLY (At End of Tour)

			LENGTH
1			.41 m
1	Mud M.	F.S.	10.66 / 156.99 m
1	Mud M.	H.S.	9.42 / 99 m
1	Monel		9.34 m
5	DC	228	45.96 m
1	JAR		7.08 m
3	DC	228	27.59 m
1	XO		.93 m
12	H.WDP		109.71 m
	BHA		221.55 m
99	F-2-DP		943.50 m
	D.P.	STANDS	m
	D.P.	SINGLES	m
	KELLYDOWN		m
	TOTAL		m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	RR5	RR6
SIZE (mm)	311	311
IADC CODE		437
MFG.	HYCALOG	REED
TYPE	PDC	EHP43H
SERIAL NO.	H44392	XL5158
JETS (mm)	7-15.9/1443	2-22.2/1-19
DEPTH OUT (m)	1432	
DEPTH IN (m)	1349	1432
TOTAL METRES DRILLED (m)	93	
TOTAL HOURS RUN	10 3/4	

CUTTING STRUCTURE T1	To	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.
0	0	—	-	F	T	-	-	

HOLE CONDITION
HOLE DRAG
TORQUE AT BOTTOM
FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: WATER BASED / OIL BASED

TIME	2:00
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

MORNING TOUR

METRES DRILLED

FROM	TO	DRILL RUN CORING	ROTARY R.P.
1432			

LINER SIZE (mm)	S.P.M.
152	

DEPTH (m)	DEVIATION (°)
MEAS - 5.44 @ 3	
CALC - 9.37 @ 3	
DIFF .17 @ 3	

DRILLING ASSEMBLY (At End of Tour)

			LENGTH
1			.41 m
1	Mud M.	F.S.	10.66 / 156.99 m
1	Mud M.	H.S.	9.42 / 99 m
1	Monel		9.34 m
5	DC	228	45.96 m
1	JARS		7.08 m
3	DC	228	27.59 m
1	Bit Sub		.83 m
12	H.WDP		109.71 m
	BHA		221.55 m
99	F - DP		943.50 m
12	D.P.	STANDS	344.52 m
2	D.P.	SINGLES	11.16 m
5	KELLYDOWN		10.73 m
	TOTAL		1518 m
WT. OF DC			1000 daN
WT. OF STRING			80 1000 daN

BIT RECORD

BIT NO.	RR6	
SIZE (mm)	311	
IADC CODE	437	
MFG.	REED	
TYPE	EHP43H	
SERIAL NO.	XL5158	
JETS (mm)	2-22.2/1-19	
DEPTH OUT (m)	1518	
DEPTH IN (m)	1432	
TOTAL METRES DRILLED (m)	86	
TOTAL HOURS RUN	4	

CUTTING STRUCTURE T1	To	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.
8	8	BT	A	F	6	CI	PR	10 3/4

HOLE CONDITION
HOLE DRAG
TORQUE AT BOTTOM 3600 - (1000) F: 36
FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: WATER BASED / OIL BASED

TIME	09:00	12:00	15:00
DENSITY kg/m³	960	965	965
FUNNEL VIS. - (S/L)	64	63	62
W.L. (cm³)			
pH			

PRODUCT	AMOUNT X UNIT
Bar. Te	20 SxS

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

DAY TOUR

METRES DRILLED

FROM	TO	DRILL RUN CORING	ROTARY R.P.
1432	1518	86	

LINER SIZE (mm)	S.P.M.
12 GOOD	152 90
19 (MM)	62

DEPTH (m)	DEVIATION (°)
1436 10	12°
1455 3	10.9
1484	9.2

DRILLING ASSEMBLY (At End of Tour)

			m
D.P.	STANDS		m
D.P.	SINGLES		m
KELLYDOWN			m
TOTAL			m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	7	
SIZE (mm)	311	
IADC CODE		
MFG.	SECURITY	
TYPE	GS86F	
SERIAL NO.	725240	
JETS (mm)	3x9	
DEPTH OUT (m)		
DEPTH IN (m)		
TOTAL METRES DRILLED (m)		
TOTAL HOURS RUN		

CUTTING STRUCTURE T1	To	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION
HOLE DRAG
TORQUE AT BOTTOM
FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: WATER BASED / OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

EVENING TOUR

METRES DRILLED

FROM	TO	DRILL RUN CORING	ROTARY R.P.
1518			

LINER SIZE (mm)	S.P.M.	SI
152		1

REDUCED PUMP SPEED

DEPTH (m)	DEVIATION (°)
CALC - 10.57 @ 3	
MEAS 10.32 3	
DIFF .25 @ 3	

DRILLER'S SIGNATURE

FOLD HERE →

DAILY CHECKS — OPR. / R.M.

- Daily Walk Around Inspection — Initial / Initial
- Documented Inspection-Weekly (using checklist) — Initial / Initial
- Safety Signs Posted (if required) — Initial / Initial
- Well License & Block Diagram Posted — Initial / Initial
- Guy Lines Staked — Initial / Initial
- BOP Drills Performed — Initial / Initial
- Monthly Inspect BOP's - Flarelines & Degasser Lines — Initial / Initial
- Pre-Spud Site Health and Safety Meeting (one/crew/month) — Initial
- IADC/CAODC Rig Safety Inspection Checklist (one/rig/month) — Initial
- Pre-Spud Inspection Before Pinning or Lowering — Initial
- Pits/Sewer Checked — Initial
- Emergency Kills checked — Initial

YEAR 97 | MONTH 02 | DAY 25

RIG NO. 48

FUEL @ 8:00

RIG 1.53 | BOILER 2.03

WEATHER — TEMPERATURE .33 °C; CURRENT CONDITIONS; WIND DIRECTION; AIR TEMP

LAST CASING / TUBING OR LINER	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
	339.7	315.34	101.2	BUTRESS	K55	56	693.60	7.31	701.2

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
127	29	E	104	152	5"XH	121	G-P-100	NATIONAL	235
127	29	X2	106	152	5"XH	133	G-P-100	NATIONAL	235
127	38	X3	101	156	5"XH	160	F-1000	ENSEO	254

TOTAL 12

SHALE SHAKER(S) — NO. / TYPE

SCREENS CHANGED ☐ YES ☐ NO

TOP 84	TOP 84
MIDDLE 84	MIDDLE 84
BOTTOM 84	BOTTOM 84

RENTALS/SERVICES

MORNING TOUR

METRES DRILLED

FROM	TO	DRO RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
1432				

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
152		152	

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
MEAS- 5.44 m³		
CALC - 9.27 m³		
DIFF .17 m³		

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	HOURS	CODE
00:00	04:00	4	6
04:00	06:00	2	30
06:00	07:30	1½	6
07:30	07:45	¼	7
07:45	09:00	¼	22

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

Pump Pill Hoist To Change Bit / Flow Check
Flow @ Hwdp + Out Of Hole
Change MWD, B.T + Trip In Factor.
+ Install Grid In Motor
Run In W/ Motor. Test MWD Unit Ok
Rig Service (Grease Crown / Blow Down Air Off Of Tank)
(Clear Tool From Derrick)
Hold B.O.P. Drill W/Crew In Tripping
Mode Well Secured In 90 Seconds
Hand Fire Drill.

NOTES: Crown Saver / Brake Linkage / Fast Line Clamp / Anchor Bolts Blocked (5:30 Hours)

2 | 9 | 22C° | 2456

DAY TOUR

METRES DRILLED

FROM	TO	DRO RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
1432	1514	86	50	7/10
			Slide	14/12

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
12¼x2	152	90	152	90

REDUCED PUMP SPEED

1900 @ 62 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
1436.10	12°	62.9 azm
1455.3	10.9	56.7
1484	9.2	50.9

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	HOURS	CODE
08:00	08:15	¼	8
08:15	09:00	¾	6
09:00	09:15	¼	5
09:15	17:15	8	2
17:15	18:00	¾	5
18:00	18:15	¼	7
18:15	2:00	7¾	6

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

Test MWD
Run In Hole To 1414m.
Break Circ + Wash To Btm No Fill.
Orient + Drill 3 Jts Hole Fr. 1432m - 1514m
Circ. Btms Up Prior To TPH.
Rig Service Fan Motor @ Floor Issue
Pull Out Of Hole. Flow @ 1510m, 1382m

NOTES: Crown Saver, Brake Linkage, Clamp, Anchor Bolts Blocked 08:00, 12:00, 16:00

12 | 9 | 22C°

EVENING TOUR

METRES DRILLED

FROM	TO	DRO RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
1514				

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
	152		152	

REDUCED PUMP SPEED

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
CALC -	10.57 m³	
MEAS	10.77 m³	
DIFF	.20 m³	

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	HOURS	CODE
20:00	22:00	2	6
22:00	23:00	1	30
23:00	23:45	¾	6
23:45	24:00	¼	7

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

Flow Check Hoist Flow / Out Of Hole
Change Out B.T + Check MWD.
Run In W/ B.T #7
R/S Close Blind Rams Out Of Hole
Fr: Main + Floor Of Issues.

NOTES: Crown Saver / Brake Linkage / Fast Line Clamp / Anchor

BOILER HRS RAN 4 | STACK TEMP | NO. ON LOCATION | NO. EXPERIENCED HOOKLOAD | SAFETY TOPIC

111063

FOLD HERE →

LICENCE NO.: SDE99

WELL NAME AND NO.: CHEVRON ETAL HARA K-29-60° 30'N 123° 30'W.

OPERATOR: CHEVRON CANADA RESOURCES LTD

CONTRACTOR: AKITA DRILLING.

SURFACE LOCATION: K-29-60° 30'N 123° 30' W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) H2S Signs Posted (if required)	Initial	Initial
(4) Well Licence & Block Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Weekly Inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)	Initial	
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)	Initial	
(3) Mast Inspection Before Raising or Lowering	Initial	
(4) Crown Saver Checked	Initial	
(5) Motor Kills checked	Initial	

YEAR 99 | RIG NO. 41

FUEL

RIG 187

WEATHER: TEMPERATURE | CURRENT CONDITION | WIND DIRECTION | ROADS

TIME - HRS

CODE NO	1 OPER.	2 RIG UP & TEAR DOWN	3 DRILL ACTUAL	4 REAMING	5 CORING	6 COND. MUD & CIRC.	7 TRIPS	8 RIG SERVICE	9 REPAIR RIG	10 CUT OFF DRILL LINE	11 DEV SURVEY	12 WIRE LINE LOGS	13 RUN CASS & CEMENT	14 WAIT ON CEMENT	15 NIPPLE UP B.O.P.	16 TEST B.O.P.	17 DRILL STEM TEST	18 PLUG BACK	19 SQUEEZE CEMENT	20 FISHING	21 DIR. WORK	22 SAFETY MTG.	23 MWD	24 Pump P.U.	25 Flow	
	MORN.		3 1/4				2	1/4															2 1/4	1/4		
	DAY		5			1/2	5	1/4			1/2										1/2	1 1/4				
	EVE.		2 1/2			1/2		1/4			1/2														1/4	
	TOTAL		10 3/4			1	7	3 1/4			1										1/2	1/4	2 1/4	1/4	1/4	

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
1			0.41 m
1	mot.	F.S.	10.66/1.56 m
1	mwd	HOS	8.42/1.99 m
1	mwd		9.34 m
5	DC	228	45.96 m
1	JAR		7.08 m
3	D.C.		27.59 m
1	XO		.83 m
12	HWDP		109.71 m
	BHA		221.53 m
99	E-2 DP		943.50 m
			m
7	D.P.	STANDS	201.24 m
	D.P.	SINGLES	m
XX	KELLYDOWN		18.89 m
	TOTAL		1384.96 m
WT. OF DC			1000 daN
WT. OF STRING		75	1000 daN

BIT RECORD

BIT NO.	7RR
SIZE (mm)	311
IADC CODE	
MFG.	HYCALOG.
TYPE	PDC
SERIAL NO.	H44392
JETS (mm)	7-15.9/1-14.3
DEPTH OUT (m)	1384
DEPTH IN (m)	1349
TOTAL METRES DRILLED (m)	35
TOTAL HOURS RUN	2 1/4

CUTTING STRUCTURE: T_i | T_o | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: WATER BASED ☐ OIL BASED ☐ GAS BASED ☐

TIME	2:00	4:00	6:00
DENSITY kg/m³	960	960	955
FUNNEL VIS. - (S/L)	65	68	68
W.L. (cm³)			
pH			
PVT	85.5	148.1	149.6

MUD ADDITIVES ADDED

PRODUCT	AMOUNT X UNIT
LIME	25 sx
INVERT	45 m³
400 BBL.	GAUGE
2 TANKS	WERE OFF ON
DIESEL	
BARITE	25 sx

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
8	953	930	1810

METRES DRILLED

FROM	TO	DRD/RMR CODE-C	ROT R
1349	1384	35	5

LINER SIZE (mm)	S.P.M.
14000	152 / 105

2400 — 70

DEPTH (m)	DEVIATION (°)
1359	7.9°

MORNING TOUR

DRILLER'S SIGNATURE

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
1			.41 m
1	mot.	F.S.	10.66/1.56 m
1	mwd	HOS	8.42/1.99 m
1	mwd		9.34 m
5	DC	228	45.96 m
1	JAR		7.08 m
3	DC.	228	27.59 m
1	BIT SUB		.83 m
12	HWDP		109.71 m
	BHA =		221.53 m
99	E-2 DP		943.50 m
8	x2 D.P.	STANDS	229.51 m
2	x2 D.P.	SINGLES	19.16 m
	KELLYDOWN		3.3 m
	TOTAL		1417 m
WT. OF DC			1000 daN
WT. OF STRING		75	1000 daN

BIT RECORD

BIT NO.	7RR
SIZE (mm)	311
IADC CODE	—
MFG.	HYCALOG.
TYPE	PDC
SERIAL NO.	H44392
JETS (mm)	7x15.9/1-14.3
DEPTH OUT (m)	—
DEPTH IN (m)	1349
TOTAL METRES DRILLED (m)	68
TOTAL HOURS RUN	8 1/4

CUTTING STRUCTURE: T_i | T_o | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	1 m

MUD RECORD

MUD TYPE: WATER BASED ☐ OIL BASED ☐ GAS BASED ☐

TIME			16:00
DENSITY kg/m³			9.65
FUNNEL VIS. - (S/L)			66
W.L. (cm³)			
pH			
PVT m³			153.8

MUD ADDITIVES ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRD/RMR CODE-C	ROT R.P.
1384	1417	33	5

LINER SIZE (mm)	S.P.M.
12000	152 / 96

1600 — 60

DEPTH (m)	DEVIATION (°)
1388.10	9.8
1397.70	10.5

DAY TOUR

DRILLER'S SIGNATURE

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
1			.41 m
1	mot.	F.S.	10.66/1.56 m
1	mwd	HOS	8.42/1.99 m
1	mwd		9.34 m
5	D.C.	228	45.96 m
1	JAR		7.08 m
3	D.C.	228	27.59 m
1	XO		.83 m
12	HWDP		109.71 m
	BHA		221.53 m
99	E-2 DP		943.50 m
9	x2 D.P.	STANDS	258.27 m
X	D.P.	SINGLES	9.59 m
	KELLYDOWN		m
	TOTAL		1432.91 m
WT. OF DC			1000 daN
WT. OF STRING		75	1000 daN

BIT RECORD

BIT NO.	7RR
SIZE (mm)	311
IADC CODE	
MFG.	Hycalog
TYPE	~~226~~ DS120H
SERIAL NO.	H44392
JETS (mm)	7-15.9/1-14.3
DEPTH OUT (m)	1432
DEPTH IN (m)	1349
TOTAL METRES DRILLED (m)	83
TOTAL HOURS RUN	10 3/4

CUTTING STRUCTURE: T_i | T_o | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: WATER BASED ☐ OIL BASED ☐ GAS BASED ☐

TIME	18:00	21:00	23:00
DENSITY kg/m³	960	950	960
FUNNEL VIS. - (S/L)	64	64	61
W.L. (cm³)			
pH			
PVT m³	153.1	160.5	159.6

MUD ADDITIVES ADDED

PRODUCT	AMOUNT X UNIT
LIME	25 sx
BARITE	25

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
4	960	940	1830

METRES DRILLED

FROM	TO	DRD/RMR CODE-C	ROT R.P.
1417	1432	15	

LINER SIZE (mm)	S.P.M.	
13000	152	100

1600 — 60

DEPTH (m)	DEVIATION (°)
1407.31	11.3
1416.91	11.9

EVENING TOUR

DRILLER'S SIGNATURE

FOLD HERE →

DAILY CHECKS	OPR.	R.M.
Safety Walk Around Inspection	Initial	Initial
Weekly Inspection-Weekly (using checklist)	Initial	Initial
WHMIS Signs Posted (if required)	Initial	Initial
Permit License & Block Diagram Posted	Initial	Initial
Flare Lines Staked	Initial	Initial
BOP Drills Performed	Initial	Initial
Monthly Inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
Pre Spud Health and Safety Meeting (one/crew/month)		Initial
A.D.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
Derrick Inspection Before Raising or Lowering		Initial
Blowout Preventer Checked		Initial
Mud Mix Kills checked		Initial

YEAR	MONTH	DAY
94	02	24

RIG NO: 414

FUEL @ 8:00

RIG: 187 BOILER: 719 2

WEATHER: TEMPERATURE -33°C; CURRENT CONDITIONS: 41245; WIND DIRECTION; ROADS - @ -4423

LAST CASING / TUBING / OR LINER	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
	339.7	315.34	101.2	BUTRESS	K55	56	693.60	7.31	7013

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
127	29	E	108	152	5"XH	121	9-P-100	NATIONAL	235
127	29	X2	106	152	5"XH	133	9-P-100	NATIONAL	235
127	38	X3	101	151	5"XH	160	F-1000	EMSCO	254

QTY						
	MUD	Pump #1	Flowline			
	2¼	¼				
			¼			
	2¼	¼	¼			

TOTAL: 8 / 12 / 4 / 24

SHALE SHAKER(S): NO. / TYPE

SCREENS CHANGED ☑ YES ☐ NO

	TOP	TOP
	94	241
	MIDDLE 94	MIDDLE 241
	BOTTOM 94	BOTTOM 241

RENTALS/SERVICES

	MORNING TOUR	DAY TOUR	EVENING TOUR
SOLIDS CONTROL	6:00	16:00	23:00
	9.5	9.65	9.60
	68	66	61
	145.6	153.8	159.6

MORNING TOUR

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROTARY R.P.M.	WT ON BIT (1000 daN)
1349	1384	35	50	5-6 5-3

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
12000	152	105	152	105

REDUCED PUMP SPEED: 2400 @ 70 @ daN

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
1359	7.9°	59.6

DRILLER'S SIGNATURE:

TIME LOG

FROM	TO	HRS	CODE NO.
00:00	02:00	3	2
02:00	03:00	1	22
03:00	04:00	1	22
04:00	04:15	¼	2
04:15	04:30	¼	7
04:30	05:45	1¼	22
05:45	06:00	¼	22
06:00	08:00	2	6

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

Cut Tool Faces + Drill 311 m - Hold w/ MWD FF 1349 - 1360
Trouble Shoot MWD
Drill 311 - Hold w/ MWD FF 1360 - 1384
R/S Close Top Pipe Rams & Flare. O/C 450 psi
Attempt To Survey
Flow + Pump 2.1
Hoist To Check MWD. Flow OK's TOS

NOTES: Crown Saver / Brake Linkage / Fast Line Clamp / Anchor
Trip Tank Trans for 0100, 0430, 0730

SAFETY TOPIC:

2451

DAY TOUR

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROTARY R.P.M.	WT ON BIT (1000 daN)
1384	1417	33	50	2-3

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
12000	152	100	152	100

REDUCED PUMP SPEED: 1600 @ 100 @ daN

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
1388.10	9.8	62.5 Azm
1397.70	10.5	61.8 Azm

DRILLER'S SIGNATURE:

TIME LOG

FROM	TO	HRS	CODE NO.
08:00	10:00	2	6
10:00	10:30	½	22
10:30	10:45	¼	7
10:45	12:45	2	1
12:45	13:00	¼	22
13:00	13:15	¼	5
13:15	14:15	1	1
14:15	14:30	¼	5
14:30	17:30	3	2
17:30	20:00	½	10

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

Hoist To Change Out MWD
Change Out Tools
BIC Service Tool Bonnet & Bon Pipes
Run In Hole To 1340m.
Rot Drill / Slide Drill
Break Circ & Test MWD
Run In Hole To 1365m.
Break Circ & Wash To Btm. 1m Fill
Drill To Take FF & Drill 311 m Hole FF 1384 - 1417
Surveys For Above Drilling.

NOTES: Crown Saver, Brakes + Linkage, Crown + Anchor
Trip Tank Trans @ 1200

SAFETY TOPIC:

2456

EVENING TOUR

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
1417	1432	15	—	½

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
13000	152	100	152	100

REDUCED PUMP SPEED: 1600 @ 60 @ daN

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
1407.31	11.3	62.2
1416.94	11.9	62.6

DRILLER'S SIGNATURE:

TIME LOG

FROM	TO	HRS	CODE NO.
20:00	23:30	3½	2
23:30	23:00	½	10
23:00	23:30	½	5
23:30	23:45	¼	7
23:45	24:00	¼	2-1

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

Drill 311 m Hole w/ MWD FF 1417 - 1432
Survey For Above Drilling
Circ. Attempt To Mix Dril
R.C. Service Close Annular Pr. Flare O/C 450
Flow ✓

NOTES: Crown Saver, Brakes + Linkage, Fast Line Clamp / Anchor
Trip Tank Trans @ 1200

SAFETY TOPIC: Watch Out

2456

111062

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LICENCE NO.: SDL99

WELL NAME AND NO.: CHEVRON ETAL LIARD K-29-60°30'N 123°30'W

OPERATOR: CHEVRON CANADA RESOURCES LTD

CONTRACTOR: AKITA DRILLING.

SURFACE LOCATION: K-29 60° 30'N 123° 30'W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS — OPR. / R.M.

(1) Daily Walk Around Inspection
(2) Detailed Inspection-Weekly (using checklist)
(3) HPS Signs Posted (if required)
(4) Well License & Sick Diagram Posted
(5) Flare Lines Staked
(6) BOP Drills Performed
(7) Visually Inspect BOP's - Flarelines & Degasser Lines

(1) Rig Site Health and Safety Meeting (one/crew/month)
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)
(3) Mast Inspection Before Raising or Lowering
(4) Crown Saver Checked
(5) Motor Kills checked

YEAR 99 — RIG NO. 123 — FUEL — WEATHER: TEMPERATURE, CURRENT CONDITIONS, WIND DIR., ACCESS ROADS

TIME / HRS — CODE NO.

OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.		20	21	22	23	24
MORN.		3			1/2	3 3/4	1/4			1/2												TRIPPING					
DAY						4	1/4		3/4											4 1/2			2 1/2				
EVE.					1/4	3 1/2	1/4																				
TOTAL		3			3/4	11 1/4	3/4		3/4	1/2										4 1/2			2 1/2				

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
1			.35 m
1	Mon Bit		1200 / 1.63 m
1	6.5 Pol Pin		990 / 9.34 m
1	D.C.	228	9.22 / 1.77 m
1	D.C. STAB	228	9.49 / 1.77 m
3	D.C.	228	27.27 m
1	JAR		7.08 m
3	D.C.	228	27.59 m
1	X.O.		.83 m
12	HWDP		109.71 m
	BHA		214.93 m
6	D.P.	STANDS	172.43 m
X9	D.P.	SINGLES	9.59 m
	KELLYDOWN		8.55 m
	TOTAL		m
WT. OF DC	89-E.20		94350 1000 daN
WT. OF STRING	74		1000 daN

BIT RECORD

BIT NO.	6
SIZE (mm)	311
IADC CODE	4 3 7
MFG.	REED
TYPE	EHP 43H
SERIAL NO.	X45158
JETS (mm)	3-22.2
DEPTH OUT (m)	1349
DEPTH IN (m)	1330
TOTAL METRES DRILLED (m)	19
TOTAL HOURS RUN	3

CUTTING STRUCTURE: T_i | T_o | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION: HOLE DRAG; TORQUE AT BOTTOM; FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☐ WATER BASED ☐ OIL BASED

TIME	3:00
DENSITY kg/m³	960
FUNNEL VIS. - (S/L)	64
W.L. (cm³)	
pH	
PVT	73.9

	5:00	7:00
	965	
	C1	
	73.6	

MUD ADDITIVES ADDED

PRODUCT	AMOUNT X UNIT
LIME	25 SX
BARITE	25 SX

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
6	965	930	1940

METRES DRILLED

FROM	TO	DRLG FOR CORE-C	ROT R
1330	1349	19	

CIRCULATING SYSTEM

LINER SIZE (mm)	S.P.M.
152	80

REDUCED PUMP SPEED

@	SPM
1200	

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
1324	7 3/4

Pumping Liner 152

DRILLER'S SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
1			.41 m
1	Mon Bit		1066 / 1.56 m
1	6.5 Pol Pin		8.42 / .99 m
1	Mon DC		7.34 / 4.54 m
5	DC	228	137
1	JAR		7.08 m
3	DC	228	27.59 m
1	Bell Sub		.83 m
12	HWDP		109.71 m
	BHA		= 221.53 m
99	E-D.P.		943.50 m
	D.P.	STANDS	m
	D.P.	SINGLES	m
	KELLYDOWN		m
	TOTAL		m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	#7 RR'S
SIZE (mm)	311
IADC CODE	
MFG.	HYCALOG.
TYPE	PDC
SERIAL NO.	H41392
JETS (mm)	7/15.9 1/14.3
DEPTH OUT (m)	
DEPTH IN (m)	1349
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE: T_i | T_o | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION: HOLE DRAG; TORQUE AT BOTTOM; FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD ADDITIVES ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLG FOR CORE-C	ROT R

CIRCULATING SYSTEM

LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@	SPM

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

EVENING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
1			.41 m
1	Mon Bit	RR#6	1.56 m
1	Mon Pin	8.42	.99 m
1	Mon DC	228	134 / 4.54 m
5	DC	228	27.59 m
1	JAR		7.08 m
3	DC	228	27.59 m
1	Bell Sub		.83 m
12	HWDP		109.71 m
	BHA		= 221.53 m
99	E-D.P.		943.50 m
	D.P.	STANDS	m
	D.P.	SINGLES	m
	KELLYDOWN		m
	TOTAL		m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	7 RR#5
SIZE (mm)	311
IADC CODE	
MFG.	HYCALOG.
TYPE	PDC
SERIAL NO.	H44352
JETS (mm)	7-15.9/14.3
DEPTH OUT (m)	
DEPTH IN (m)	1349
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE: T_i | T_o | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION: HOLE DRAG; TORQUE AT BOTTOM; FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	24:00
DENSITY kg/m³	955
FUNNEL VIS. - (S/L)	71
W.L. (cm³)	
pH	
PVT	71.1

MUD ADDITIVES ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
0			

METRES DRILLED

FROM	TO	DRLG FOR CORE-C	ROT R
1349			

CIRCULATING SYSTEM

LINER SIZE (mm)	S.P.M.
152	

REDUCED PUMP SPEED

@	SPM

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

FOLD HERE →

DAILY CHECKS

	OPR.	R.M.
Safety Walk Around Inspection	Initial	Initial
Visual Inspection-Weekly (using checklist)	Initial	Initial
H2S Signs Posted (if required)	Initial	Initial
Flare Lines & Block Diagram Posted	Initial	Initial
Flare Lines Staked	Initial	Initial
H2S Drills Performed	Initial	Initial
Visually inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
Tool Box Safety Meeting (one/crew/month)		Initial
A.D.O.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
Pre-tour Inspection Before Raising or Lowering		Initial
Crown Saver Checked		Initial
Motor Kills checked		Initial

YEAR	MONTH	DAY
99	09	23

RIG NO. 44

FUEL @ 8:00

RIG 123 BOILER 5

WEATHER

	°C
TEMPERATURE	
CURRENT CONDITIONS	1322
WIND DIRECTION	
ACCESS ROADS	5419 rd

	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
LAST CASING	339.7	315.34	101.2	BUTRESS	K55	56	693.60	7.31	701.3
TUBING OR LINER									

	DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
	127	29	E	108	152	5"XH	121	9-P-100	NATIONAL	235
	127	29	X2	106	154	5"XH	133	9-P-100	NATIONAL	235
	127	38	X3	101	156	5"XH	160	F-1000	EMSCO	254

21	22	23	24	25	26
SAFETY TOPIC	TARP LINE				
	2½				
	2½				

TOTALS

	8
	12
	4
	24

SHALE SHAKER(S)

NO.	TYPE

SCREENS CHANGED ☐ YES ☐ NO

	TOP	TOP
	50	38
	MIDDLE 50	MIDDLE 34
	BOTTOM 50	BOTTOM 38

RENTALS/SERVICES

	NORMAL	DAYWORK	OTHER

MORNING TOUR

RECORD ☐ OBSERVED ☑ BASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
965	930	1940

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
1330	1349	19	40/60	7/10

CIRCULATING PRESSURE (kPa) 16300

PUMP NO. 1: LINER SIZE (mm) 152, S.P.M. 80 — PUMP NO. 2: LINER SIZE (mm) 152, S.P.M. 80

REDUCED PUMP SPEED: 1200 @ ___ kPa @ ___ 61

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
1324	7¾	55°

Pumped 2 Liner 152 @ 1155 PM

DRILLER SIGNATURE: [signature]

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	01:45	1¾	6	RUN IN w/ BIT #6
01:45	4:45	3	2	PATTERN BIT + DRILL 311mm HOLE W/MOTOR. FR: 1330-1349
4:45	05:00	¼	7	R/S CLOSE BTM P.R. RAISE MANI O/C SSEC
05:00	05:30	½	10	CIRC + SURVEY @ 1324
05:30	06:00	½	5	CIRC + PUMP PILL
06:00	08:00	2	6	FLOW / HOIST 5 STDS / FLOW ✓ / POOH. FLOW ✓ ½ WAY OUT

NOTES: J/C CROWN SAVER ✓ BRAKE LINKAGE ✓ FASTLINE CLAMP ✓ ARMOR. Boiler Blow Down @ 0400

BOILER HRS: RAN 8, gph 9, STACK TEMP 215°C

MAXIMUM EXPERIENCED HOOKLOAD: 238T

SAFETY TOPIC:

DAY TOUR

RECORD ☐ OBSERVED ☐ BASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATING PRESSURE (kPa)

PUMP NO. 1: LINER SIZE (mm), S.P.M. — PUMP NO. 2: LINER SIZE (mm), S.P.M.

REDUCED PUMP SPEED: ___ @ ___ kPa @ ___

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE: [signature]

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
0800	1030	2½	22	RIG FOR TO DRIVE HOSE + STRAIGHTEN OUT TARP + CORDS
1030	1115	¾	6	PULL OUT TO HWDP.
1115	1200	¾	9	SLIP + CUT
1200	1515	3¼	6	PULL OUT + LAYDOWN MOTOR + STABS.
1515	1530	¼	7	RIG SERVICE FCN BLINDS @ FLOOR + MAIN
1530	2000	4½	2	PICK UP DIR TOOLS, RIH W/ MWD + U.S.

NOTES: J/C CROWN SAVER BRAKES + LINKAGE, CLAMP & ARMOR. F[illegible]

BOILER HRS: RAN 12, gph 10, STACK TEMP 225°C

MAXIMUM EXPERIENCED HOOKLOAD:

SAFETY TOPIC:

EVENING TOUR

RECORD ☐ OBSERVED ☑ BASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
1349				

CIRCULATING PRESSURE (kPa)

PUMP NO. 1: LINER SIZE (mm) 152, S.P.M. — PUMP NO. 2: LINER SIZE (mm) 152, S.P.M.

REDUCED PUMP SPEED: ___ @ ___ kPa @ ___

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE: [signature]

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
20:00	23:30	3½	6	RUN IN WITH MOTOR / MUD C SHOE + C 1200m.
23:30	23:45	¼	5	CLEAN TO BTM In of Fill.
23:45	24:00	¼	7	R/S CIRC ANNULAR & MANI O/C 1-4 SEC.

NOTES: J/C CROWN SAVER ✓ BRAKE LINKAGE ✓ FASTLINE CLAMP ✓ ARMOR ✓ Boiler Blow Down @ 2200

BOILER HRS: RAN 4, gph 9, STACK TEMP 220°C

MAXIMUM EXPERIENCED HOOKLOAD:

SAFETY TOPIC:

111061

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LICENCE NO.: SDL99

WELL NAME AND NO.: CHEVRON ET AL LIARD K-39 60° 30'N 123° 30'W

OPERATOR: CHEVRON CAN. RES.

CONTRACTOR: AKITA DRILLING LTD

SURFACE LOCATION: K-39 60° 30'N 123° 30'W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS

	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection Monthly (using checklist)	Initial	Initial
(3) HPS Signs Posted (if required)	Initial	Initial
(4) Well License & Plot Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually Inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)	Initial	Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)	Initial	Initial
(3) Mast Inspection Before Raising or Lowering	Initial	Initial
(4) Crown Saver Checked	Initial	Initial
(5) Motor Kills checked	Initial	Initial

RIG NO.: 99

FUEL

RIG

WEATHER: TEMPERATURE; CURRENT CONDITION; WIND DIR.; ROAD

TIME-HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	MAKE UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.			
MORN.																								
DAY		5			½	12½	½			1														
EVE.						7½	½																	
TOTAL																								

DRILLING ASSEMBLY (At End of Tour)

NO.	OD		LENGTH
			.41 m
1	MOTOR	PIN - PIN	7.01/1.63 m
1	N.B. STAB		1.34 m
1	STAB		1.77 m
5	D.C.		45.96 m
1	JAR		7.08 m
3	D.C.		19.28 m
1	X/O		.93 m
12	HWDP		109.71 m
	BHA		206.07 m
99	E.D.P.		943.50 m
334	X2 D.P.	STANDS	114.99 m
	D.P.	SINGLES	m
	KELLYDOWN		14.22 m
	TOTAL		1250 m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	1
SIZE (mm)	311
IADC CODE	
MFG.	HYCALOG
TYPE	PDC
SERIAL NO.	H44392
JETS (mm)	7x15.9/1x14.3
DEPTH OUT (m)	
DEPTH IN (m)	1183
TOTAL METRES DRILLED (m)	67
TOTAL HOURS RUN	2 3/4

CUTTING STRUCTURE

T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	0500
DENSITY kg/m³	970
FUNNEL VIS. - (S/L)	72
W.L. (cm³)	
pH	

MUD WATER AS ADDED

PRODUCT	AMOUNT X UNIT
INVERT	<5m3
LIME	25

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

MORNING TOUR

METRES DRILLED

FROM	TO	DRO-RIM-RP CORE-C	RO RI
1183	1250	67	

	LINER SIZE (mm)	S.P.M.
1350	152	80

REDUCED RATE

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

#3 Pump 152 Liners

DRILLER'S SIGNATURE

V. Ma

DRILLING ASSEMBLY (At End of Tour)

NO.	OD		LENGTH
1			.41 m
1	MOTOR	PIN - PIN	7.01/1.63 m
1	N.B. STAB		2.34/1.34 m
1	STAB		1.77 m
5	D.C.	228	45.96 m
1	JAR		7.08 m
3	D.C.	228	19.28 m
1	X/O		.93 m
12	HWDP		109.71 m
	BHA		206.07 m
99	E.D.P.		943.50 m
6	X2 D.P.	STANDS	172.98 m
	D.P.	SINGLES	m
	KELLYDOWN		m
	TOTAL		1321.99 m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	1
SIZE (mm)	311
IADC CODE	
MFG.	HYCALOG.
TYPE	PDC
SERIAL NO.	H44392
JETS (mm)	7-15.9/1-14.3
DEPTH OUT (m)	1321
DEPTH IN (m)	1183
TOTAL METRES DRILLED (m)	138
TOTAL HOURS RUN	7 3/4

CUTTING STRUCTURE

T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.
2	1	CT			I		DEV	

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	9:00	12:00	18:00
DENSITY kg/m³	950	960	955
FUNNEL VIS. - (S/L)	65	67	68
W.L. (cm³)			
pH			
POT	44.4	74.9	73.5

MUD WATER AS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
8	950	910	1985

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

DAY TOUR

METRES DRILLED

FROM	TO	DRO-RIM-RP CORE-C	RO RI
1250	1321	71	

	LINER SIZE (mm)	S.P.M.
1400	152	80

REDUCED RATE

1600	60

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
1248	5½
1286	7°

Pump #3 Liner 152 @

DRILLER'S SIGNATURE

DRILLING ASSEMBLY (At End of Tour)

NO.	OD		LENGTH
1	MOTOR		.35 m
1	N.B. STAB	DRL PIN	7.09/1.63 m
1	STAB		.70/1.34 m
1	DC SUB	STAB	1.77 m
1	DC		1.77 m
3	DC	228	27.27 m
1	JAR		7.08 m
3	DC	228	27.59 m
1	FLEX SUB		.83 m
12	HWDP		109.71 m
	BHA -		214.93 m
	D.P.	STANDS	m
	D.P.	SINGLES	m
	KELLYDOWN		m
	TOTAL		m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	B6
SIZE (mm)	311
IADC CODE	
MFG.	REED
TYPE	EHP43H
SERIAL NO.	XL5158
JETS (mm)	3x22.2
DEPTH OUT (m)	
DEPTH IN (m)	1321
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE

T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD WATER AS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

EVENING TOUR

METRES DRILLED

FROM	TO	DRO-RIM-RP CORE-C	RO RI

	LINER SIZE (mm)	S.P.M.

REDUCED RATE

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

FOLD HERE

Y CHECKS	OPR.	R.M.
y Walk Around Inspection	Initial	Initial
sked Inspection-Weekly (using checklist)	Initial	Initial
S Signs Posted (if required)	Initial	Initial
el License & Stick Diagram Posted	Initial	Initial
rm Lines Staked	Initial	Initial
P Drills Performed	Initial	Initial
ily inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
y Site Health and Safety Meeting (one/crew/month)		Initial
A.D.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
ot Inspection Before Raising or Lowering		Initial
own Sewer Checked		Initial
tor Kills checked		Initial

YEAR	MONTH	DAY
79	02	22

RIG NO. 48

FUEL @ 8:00

RIG | BOILER

WEATHER

TEMPERATURE °C	
CURRENT CONDITIONS	9482
WIND DIRECTION	
ROAD	534383

	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
LAST CASING									
TUBING OR									
LINER	3317	31534	10.2	BYPASS	K-55	56	473.6	7.3	701.3

	DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
	127	29	E	106	152	5"XH	101	9-P-100	NATIONAL	235
	127	29	X2	106	154	5"XH	133	9-P-100	NATIONAL	235
	127	29	X3	101	156	5"XH	160	F-1000	EMSCO	254

1	22	23	24	25	26
TY					

TOTALS

SHALE SHAKER(S) — NO. | TYPE

SCREENS CHANGED ☐ YES ☐ NO

TOP 50 | TOP 3X

MIDDLE 50 | MIDDLE 3X

BOTTOM 50 | BOTTOM 3X

RENTALS/SERVICES | HOURS | DAYS | $

MORNING TOUR

RD

METRES DRILLED

FROM	TO	DRD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
1183	1250	67	55	3/5

CIRCULATION PUMP NO. 1 | PUMP NO. 2

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
1950	152	80	152	80

REDUCED PUMP SPEED

@ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

#3 Pump 152 Liners 115 SPM

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	02:00	2	6	R.I.H. TO 1183m
02:00	02:15	1/4	5	Brk. Circ.
02:15	03:00	3/4	6	R.I.H. TO 1235m
03:00	04:30	1½	5	Wash F/1235 - 1183
04:30	06:15	1¾	2	Drill F/1183m - 1235m
06:15	06:30	1/4	7	R/S
06:30	06:45	1/4	2	Drill F/1235m - 1245m
06:45	07:15	1/2	10	Survey
07:15	08:00	3/4	2	Drill F/1245m - 1250m

NOTES: V. Brakes, Linkage, Crown Saver, Clamp, Hoses

Boiler Blow Down @ 0100, 0730

BOILER: HRS. RAN | pH | STACK TEMP. | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC

7 | 9.5 | 220

SOLIDS CONTROL

	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

RD

METRES DRILLED

FROM	TO	DRD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
1250	1321	71	80	2/3

CIRCULATION PUMP NO. 1 | PUMP NO. 2

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
17400	152	80	152	80

REDUCED PUMP SPEED

1600 @ 60 @ 85 am

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
1248	5½	55 Azm
1246	7°	57 Azm

Pump #3 Liner 152 @ 115 SPM

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
08:00	09:30	1½	2	Drill 311mm Hole w/Motor Fr: 1250 - 1274
09:30	10:00	½	10	Core - Survey @ 1248
10:00	12:30	2½	2	Drill 311mm Hole w/Motor Fr: 1274 - 1312
12:30	13:00	½	10	Core - Survey @ 1246
1300	14:00	1	2	Drill 311mm Hole w/Motor Fr: 1312 - 1321
14:00	14:30	½	5	Circ up BTM Hole Sample
14:30	14:45	¼	7	R/S Close T.P Pipe Rams @ Manifold Hose
14:45				Flow ✓ Pump Pill Hoist to Change BHA
	16:00	1¼	6	Flow ✓ Trip

NOTES: ✓ Crown Saver ✓ Brakes ✓ Linkage ✓ First Aid ✓ Clamps ✓ Anchor

Boiler Blow Down @ 0900, 1300

BOILER: HRS. RAN | pH | STACK TEMP. | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | BLACK

4 | 9 | 210°C | 99000 | | 2456

SOLIDS CONTROL

	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
	1450	910	1980

ORD

METRES DRILLED

FROM	TO	DRD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION PUMP NO. 1 | PUMP NO. 2

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
16:00	20:30	4½	6	Pull Out of Hole w/ Bit
20:30	20:45	¼	7	Rig Service
20:45	21:00	¾	6	Make up Motor + Bit + Go in Hole To Same
				Tag Fill @ 134m.

NOTES: ✓ Crown Saver ✓ Brakes ✓ Linkage ✓ Floor ✓ Anchor

SOLIDS CONTROL

	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

DRILLER SIGNATURE

BOILER: HRS. RAN | pH | STACK TEMP.

8 | 10.5 | 225°

111060

FOLD HERE →

LICENCE NO.: SV 99 | WELL NAME AND NO.: CHEVRON ET AL LINDRO K-J4 60° 30' N 123° 30' W

OPERATOR: CHEVRON CAN. RES. | CONTRACTOR: AKITA DRILLING LTD

SURFACE LOCATION: K-J4 60° 30' N 123° 30' W | UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE: | SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS

	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) HPS Signs Posted (if required)	Initial	Initial
(4) Well Licence & Block Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually Inspect BOP's - Flexibles & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)	Initial	
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)	Initial	
(3) Mast Inspection Before Raising or Lowering	Initial	Initial
(4) Crown Saver Checked	Initial	Initial
(5) Motor Kills checked	Initial	Initial

YEAR 94 | RIG NO. 48 | FUE | RIG 1.70 | WEATHER: TEMPERAT, CURRENT CONDITION, WIND DIRE, ROAD

TIME - HRS

CODE NO.	1 OPER.	2 RIG UP & TEAR DOWN	3 DRILL ACTUAL	4 REAMING	5 CORING	6 COND. MUD & CIRC	7 TRIPS	8 RIG SERVICE	9 REPAIR RIG	10 CUT OFF DRIL. LINE	11 DEV SURVEY	12 WIRE LINE LOGS	13 RUN CASE & CEMENT	14 WAIT ON CEMENT	15 NIPPLE UP B.O.P.	16 TEST B.O.P.	17 DRILL STEM TEST	18 PLUG BACK	19 SQUEEZE CEMENT	20 FISHING	21 DIR. WORK	22 SAFETY MTG.	23	24
	MORN.		11¼				3¼	¼														AIR SK. PRT		
	DAY																							
	EVE.		4½				3¼	¼														½		
	TOTAL																							

DRILLING ASSEMBLY (At End of Tour)

NO.	OD		LENGTH (m)
			34 m
1½	B.S. / MOTOR		.90 / 9.34 m
2	DC / REAM / DC		18.69 m
1½			2.41 / 9.27 m
1	STAB		1.77 m
4	DC's		36.50 m
1	X/O		.83 m
12	HWDP		109.71 m
	BHA:		269.91 m
32	D.P.	STANDS	914.72 m
	D.P.	SINGLES	m
	KELLY DOWN		30 m
	TOTAL		1183 m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	RR 4A
SIZE (mm)	311
IADC CODE	
MFG.	HUGHES
TYPE	GT-1
SERIAL NO.	Y79VK
JETS (mm)	1X10.7/2X9.9
DEPTH OUT (m)	1183
DEPTH IN (m)	711
TOTAL METRES DRILLED (m)	472
TOTAL HOURS RUN	41

CUTTING STRUCTURE T1	To	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	02:00	0400	0600
DENSITY kg/m³	940	950	
FUNNEL VIS. - (S/L)	64	64	
W.L. (cm³)			
pH			
	FW 684	674	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
BAR	25 SX

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

MORNING TOUR

METRES DRILLED

FROM	TO	DRD FROM CORE-C	RC R
1136	1183	47	

	LINER SIZE (mm)	S.P.M.
16.00	150	115

1650 | 60

DEPTH (m)	DEVIATION (°)
Pump #3 152 LINERS	115

DRILLER'S SIGNATURE

DRILLING ASSEMBLY (At End of Tour)

NO.	OD		LENGTH (m)
1			.34 m
½	B.S. / MOTOR		.90 / 9.34 m
2	D.C.		18.69 m
½	REAM / D.C.		2.41 / 9.27 m
1	STAB		1.77 m
4	DC		36.32 m
1	JAR		7.08 m
4	DC		36.50 m
1	XO		.83 m
12	HWDP		109.71 m
	BHA		269.91 m
	D.P.	STANDS	m
	D.P.	SINGLES	m
	KELLY DOWN		m
	TOTAL		m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	RR 4A
SIZE (mm)	311
IADC CODE	
MFG.	HUGHES
TYPE	GT-1
SERIAL NO.	Y79VK
JETS (mm)	1-10.7/2-9.5
DEPTH OUT (m)	1183
DEPTH IN (m)	711
TOTAL METRES DRILLED (m)	472
TOTAL HOURS RUN	41

CUTTING STRUCTURE T1	To	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME			
DENSITY kg/m³			
FUNNEL VIS. - (S/L)			
W.L. (cm³)			
pH			

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

DAY TOUR

METRES DRILLED

FROM	TO	DRD FROM CORE-C	RC R
1183			

	LINER SIZE (mm)	S.P.M.
	150	

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

DRILLING ASSEMBLY (At End of Tour)

NO.	OD		LENGTH (m)
			41 m
½	MOTOR / B.S. - PIN		.90 / 9.63 m
1½	NB STAB / MOTOR		2.05 / 9.34 m
1	STAB		1.77 m
5	DC		45.96 m
1	JAR		7.08 m
3	DC		19.28 m
1	X/O		.83 m
12	HWDP		109.71 m
	BHA		306.07 m
	D.P.	STANDS	m
	D.P.	SINGLES	m
	KELLY DOWN		m
	TOTAL		m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	1
SIZE (mm)	311
IADC CODE	
MFG.	HYCALOG
TYPE	PDC
SERIAL NO.	H44377
JETS (mm)	7X15.9/1X14.3
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T1	To	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	T.P. RECORD		
DENSITY kg/m³	MEAS	872	
FUNNEL VIS. - (S/L)	CALC.	7.82	
W.L. (cm³)	DIFF	.90	
pH			

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

EVENING TOUR

METRES DRILLED

FROM	TO	DRD FROM CORE-C	RC R

	LINER SIZE (mm)	S.P.M.

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

FOLD HERE →

DAILY CHECKS — OPR. / R.M.

Daily Walk Around Inspection — Initial / Initial
Documented Inspection-Weekly (using checklist) — Initial / Initial
H2S Signs Posted (if required) — Initial / Initial
Well Licence & Slack Diagram Posted — Initial / Initial
Pipeline Lines Staked — Initial / Initial
BOP Drills Performed — Initial / Initial
Visually Inspect BOP's - Flarelines & Degasser Lines — Initial / Initial
Pre-Spud Site Health and Safety Meeting (one/crew/month) — Initial
C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
Visual Inspection Before Raising or Lowering — Initial
Crown Saver Checked — Initial
Choke Manifold Kills checked — Initial

YEAR 97 | MONTH 02 | DAY 21

RIG NO. 48

FUEL @ 8:00

RIG 1.70 | BOILER

WEATHER — TEMPERATURE °C
CURRENT CONDITIONS SUNNY
WIND DIRECTION
ROAD CONDITIONS GOOD

LAST CASING TUBING OR LINER	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
	337.7	315.34	101.2	BUTTRESS	K-55	56	693.1	7.31	701.3

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
127	29	E	108	152	5"XH	121	9-P-100	NATIONAL	235
127	29	X2	106	154	5"XH	133	9-P-100	NATIONAL	235
177	38	X3	101	156	5"XH	140	F-1000	EMSCO	254

21 22 23 24 25 26

SAFETY MTG — AIR SERVICE

1/2

TOTALS

SHALE SHAKER(S) — NO. / TYPE

SCREENS CHANGED ☐ YES ☐ NO

TOP 50 | TOP 38
MIDDLE 50 | MIDDLE 38
BOTTOM 50 | BOTTOM 38

RENTALS/SERVICES — 2.10 BOILER 1.95

RECORD

MORNING TOUR

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
1136	1163	47	150	7/10

PUMP NO.	LINER SIZE (mm)	S.P.M.	PUMP NO.	LINER SIZE (mm)	S.P.M.
1 & 2	150	115	150		

REDUCED PUMP SPEED: 1650 @ 60 SPM

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

Pump #3 152 Liners 115 SPM

DRILLER SIGNATURE: L. Dr. Johnson

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	01:30	1½	2	DRLG 311mm Hole F/ 1136m - 1155m
01:30	01:45	¼	7	R/S Func. Annular 13 sec % F/Floor
01:45	04:30	2¾	2	DRLG F/1155m - 1163m
04:30	04:45	¼	5	Circ & Work Pipe
04:45	05:15	½	10	Survey
05:15	05:45	½	5	Circ
05:45	08:00	2¼	6	Pump Pill & P.O.O.H. Flow Ck @ 5 Stds, 30 Stds

NOTES: Brakes, Linkage, Crown Saver Clamp, Anchor
Boiler Blow Down @ 0430

BOILER HRS RAN 9.5 | STACK TEMP 220°C

MORNING TOUR

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
1163				

PUMP NO.	LINER SIZE (mm)	S.P.M.	PUMP NO.	LINER SIZE (mm)	S.P.M.
	152		152		

REDUCED PUMP SPEED: @ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE: [signature]

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
08:00				Replace Bumper Block @ Crown + Watch Akita Engineer To Inspect
	17:45	9¾	8	C Crown
17:45	18:00	¼	7	R/S. Circ Lower Pipe Rams @ Floor Drill
18:00	20:00	2	6	TRIP OUT.
				Note: @ 0750 Day Driller

NOTES: Boiler Blown Down @ 0900, 1200, 1600, 1930
√ Crown Saver / Brakes / Hook / Fast Line Clamp / Anchor

BOILER HRS RAN 12 | STACK TEMP 210°C

EVENING TOUR

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

PUMP NO.	LINER SIZE (mm)	S.P.M.	PUMP NO.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED: @ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE: [signature]

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
20:00	21:00	1	6	P.O.O.H. Lay Down Jars & Reamer Flow √ Out Of Hole
21:00	21:15	¼	7	Func. Blind Rams 6 sec % F/Floor
21:15	21:45	½	20	Pick Up & Install Air Stripper
21:45	24:00	2¼	6	Pick Up Motor & Make Up Bit & R.I.H.

NOTES: √ Brakes, Linkage, Crown Saver, Clamp, Anchor
Boiler Blow Down @

BOILER HRS RAN 4 | STACK TEMP 220

111059

FOLD HERE →

LICENCE NO.: SOL-29

WELL NAME AND NO.: CHEVRON ET AL LIARD K-29 60° 30' N 123° 30' W

OPERATOR: CHEVRON CAN. RES.

CONTRACTOR: AKITA DRILLING LTD

SURFACE LOCATION: K-29 60° 30' N 123° 30' W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS — OPR. / R.M.

(1) Daily Walk Around Inspection
(2) Detailed Inspection-Weekly (using checklist)
(3) H²S Signs Posted (if required)
(4) Well License & Block Diagram Posted
(5) Flare Lines Staked
(6) BOP Drills Performed
(7) Visually inspect BOP's - Flarelines & Degasser Lines

(1) Rig Site Health and Safety Meeting (one/crew/month)
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)
(3) Meet Inspection Before Raising or Lowering
(4) Crown Saver Checked
(5) Motor Kills checked

YEAR 89
RIG NO. 48
FUEL
RIG
WEATHER — TEMPERATURE / CURRENT CONDITIONS / WIND DIRE

TIME-HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.	KELLY HOSE / KELLY COCK		
MORN.		6 1/4					1/4			1/2												1	KELLY HOSE / KELLY COCK	
DAY		10 1/2					1/2			1													1/2	
EVE.																								
TOTAL																								

DRILLING ASSEMBLY (At End of Tour)

NO.	DESCRIPTION		LENGTH
	BIT		.34 m
1/1	B.S./MONEL		.90/9.34 m
2	DC		18.69 m
1/1	REAM/DC		2.88/9.27 m
1	STAB		1.77 m
8	DC		73.37 m
1	JAR		7.08 m
4	DC		36.50 m
1	X/O		.83 m
12	HWDP		109.70 m
	BHA =		269.96 m
25	D.P.	STANDS	714.54 m
	D.P.	SINGLES	m
	KELLYDOWN		8.50 m
	TOTAL		976 m
WT. OF DC			1000 daN
WT. OF STRING	76		1000 daN

BIT RECORD

BIT NO.	RR 4A
SIZE (mm)	311
IADC CODE	
MFG.	HUGHES
TYPE	GT-1
SERIAL NO.	J79YK
JETS (mm)	1x12.7/2x15.9
DEPTH OUT (m)	
DEPTH IN (m)	711
TOTAL METRES DRILLED (m)	265
TOTAL HOURS RUN	23

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☐ WATER BASED ☐ OIL BASED

TIME	0200	0400	0600
DENSITY kg/m³	930	940	960
FUNNEL VIS. - (S/L)	52	54	62
W.L. (cm³)			
pH			
PVT			66

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

MORNING TOUR

METRES DRILLED

FROM	TO	DRILLED / CORED	ROT / R.P.
909	976	67	

	LINER SIZE (mm)	S.P.M.
15750	152	115

1600 — 57

DEPTH (m)	DEVIATION (°)
913	4°

#3 Pump — 152 LINERS

DRILLER'S SIGNATURE

DRILLING ASSEMBLY (At End of Tour)

NO.	DESCRIPTION		LENGTH
1	BIT		.34 m
1/1	B.S./MONEL		.90/9.34 m
2	DC	228	14.69 m
1/1	REAM/DC	228	2.41/9.27 m
1	STAB		1.77 m
8	D.C.	228	73.37 m
1	JAR		7.08 m
4	D.C.	228	36.50 m
1	X/O		.83 m
12	HWDP		109.70 m
	BHA		269.96 m
29	D.P.	STANDS	828.54 m
	D.P.	SINGLES	m
	KELLYDOWN		m
	TOTAL		1098.5 m
WT. OF DC			1000 daN
WT. OF STRING	76		1000 daN

BIT RECORD

BIT NO.	RR4A
SIZE (mm)	311
IADC CODE	
MFG.	HUGHES
TYPE	GT-1
SERIAL NO.	J79YK
JETS (mm)	1-12.7/3-15.9
DEPTH OUT (m)	—
DEPTH IN (m)	711
TOTAL METRES DRILLED (m)	387
TOTAL HOURS RUN	33 1/2

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☐ WATER BASED ☐ OIL BASED

TIME	09:00	12:00	15:00
DENSITY kg/m³	920	930	1970
FUNNEL VIS. - (S/L)	56	57	57
W.L. (cm³)			
pH			
PVT	61.6	58.8	65.9

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
HRP	1 BBL
VG-69	12 SX
INVERT	40 m3

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
12	930	900	1710

DAY TOUR

METRES DRILLED

FROM	TO	DRILLED / CORED	ROT / R.P.
976	1098	122	

	LINER SIZE (mm)	S.P.M.
16410	152	115

1900 — 60

DEPTH (m)	DEVIATION (°)
960	3 1/2
1027	4°

Pump #3 — 152 LINERS

DRILLER'S SIGNATURE

DRILLING ASSEMBLY (At End of Tour)

NO.	DESCRIPTION		LENGTH
	BIT		.34 m
	B.S./MONEL		.90/9.34 m
2	DC		18.69 m
1/1	REAM/DC		2.88/9.27 m
1	STAB		1.77 m
8	DC		73.37 m
1	JAR		7.08 m
4	DC		36.50 m
1	X/O		.83 m
12	HWDP		109.70 m
			269.96 m
31	D.P.	STANDS	995.79 m
	D.P.	SINGLES	m
	KELLYDOWN		7.54 m
	TOTAL		1136 m
WT. OF DC			1000 daN
WT. OF STRING	77		1000 daN

BIT RECORD

BIT NO.	RR 4A
SIZE (mm)	311
IADC CODE	
MFG.	HUGHES
TYPE	GT-1
SERIAL NO.	J79YK
JETS (mm)	1x12.7/2x15.9
DEPTH OUT (m)	
DEPTH IN (m)	711
TOTAL METRES DRILLED (m)	425
TOTAL HOURS RUN	38 3/4

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☐ WATER BASED ☐ OIL BASED

TIME	18:00	21:00	24:00
DENSITY kg/m³	940	940	950
FUNNEL VIS. - (S/L)	59	58	68
W.L. (cm³)			
pH			
PVT	62.2	72.8	69.2

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
VG 69	1 BBL
INVERT	20 SX

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

EVENING TOUR

METRES DRILLED

FROM	TO	DRILLED / CORED	ROT / R.P.
1098	1136	38	

	LINER SIZE (mm)	S.P.M.	SIZE
16400	152	115	

1700 — @ 58

DEPTH (m)	DEVIATION (°)
1103	4

Pump #3 — 152 LINERS

DRILLER'S SIGNATURE

FOLD HERE →

DAILY CHECKS	OPR.	R.M.
Safety Walk Around Inspection	Initial	Initial
Derrick Inspection-Weekly (using checklist)	Initial	Initial
H2S Signs Posted (if required)	Initial	Initial
Permit License & Block Diagram Posted	Initial	Initial
Guy Lines Staked	Initial	Initial
BOP Drills Performed	Initial	Initial
Daily Inspect BOP's - Flexlines & Degasser Lines	Initial	Initial
Pre-Spud Health and Safety Meeting (one/crew/month)		Initial
IADC Rig Safety Inspection Checklist (one/rig/month)		Initial
Crown Inspection Before Raising or Lowering		Initial
Crown Saver Checked		Initial
Choke Kills checked		Initial

YEAR 94 | MONTH 02 | DAY 20

RIG NO. 48

FUEL @ 8:00

RIG | BOILER

WEATHER: TEMPERATURE °C; CURRENT CONDITIONS 3752; WIND DIRECTION; RIG: 3752756

LAST CASING / TUBING OR LINER	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
	339.7	315.74	101.2	BUTRESS	K-55	56	693.6	7.31	701.3

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
127	29	E	106	152	5"XH	121	9-P-100	NATIONAL	235
127	29	X2	106	154	5"XH	133	9-P-100	NATIONAL	235
127	38	X3	101	156	5"XH	160	5-1000	EMSCO	254

21	22	23	24	25	26
SAFETY MTG Reeling in Drill Line	Kelly Hose	Monitor Kills			
1					
	1/4				

TOTALS: 8 / 12

SHALE SHAKER(S): NO. | TYPE; SCREENS CHANGED ☐ YES ☐ NO; TOP 50 / 38; MIDDLE 50 / 38; BOTTOM 50 / 38

RENTALS/SERVICES: DCC .34; 2nd Tower 2.22

MORNING TOUR

RD

OIL BASED

50	06:00
C	960
7	62
	6.3

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DBA-HAMR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
909	976	67	150	5/6

PUMP #1: LINER SIZE (mm) 152; S.P.M. 115

PUMP #2: LINER SIZE (mm); S.P.M.

REDUCED PUMP SPEED: 1400 @ 57 SPM @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
913	4°	49 AZ

#3 Pump: 152 LINERS 115 STKS

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	SLIP/CUT DRLG LINE	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	01:15	1¼	2	DRILL 311mm HOLE F/909m - 927m
01:15	01:45	½	10	SURVEY @ 913
01:45	02:45	1	22	WORK on KELLY HOSE
02:45	03:00	¼	7	RS FUNC ANNULAR 14 SEC C/O F/manual
03:00	08:00	5	2	DRILL F/927m - ~~F/m~~ 976m
~~[illegible]~~	~~[illegible]~~			

NOTES: BRAKES, LINKAGE, CROWN, SAVER, CLAMP, ANCHOR; ROLLER REAMER DRILL 0-670

BOILER: HRS RAN | STACK TEMP | BACKGROUND/EXPERIENCED HOOKLOAD | SAFETY TOPIC

10 | 770

DAY TOUR

RD

GAS CONDITIONED

00	15:00
50	1930
7	57
8	65.9

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
1930	900	1710

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DBA-HAMR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
976	1098	122	150	8/10

PUMP #1: LINER SIZE (mm) 152; S.P.M. 115; LINER SIZE (mm) 152; S.P.M.

REDUCED PUMP SPEED: 1900 @ 60 SPM @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
960	3 7/8	41 AZM
1027	4°	38 AZM
Pump #3	152 LINERS @ 115 SPM.	

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	SLIP/CUT DRLG LINE	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
08:00	9:00	1	2	DRILL 311mm HOLE F/: 976 - 994
09:00	09:30	½	10	C.O.C. - SURVEY @ 960
09:30	15:00	5½	2	DRILL 311mm HOLE F/ 994 - 1041
15:00	15:15	¼	7	R/S CLOSE UPPER PIPE RAMS @ Manifold 45 SEC
15:15	16:15	1	2	DRILL 311mm HOLE F/ 1041 - 1051
16:15	16:45	½	10	SURVEY @ 1027 TO OOH
16:45	17:00	¼	23	FUNCTION R.S MOTOR KILLS ARE LOCKED
17:00	20:00	3	2	DRILL 311mm HOLE F/: 1051 - 1098
				Trailer Plug Down @ 17:30 Hrs 1930

NOTES: BRAKES, LINKAGE, CROWN, SAVER, BLOCK, LOCK, CLAMP, ANCHOR; Functions Electric Motor Kill etc.

BOILER: HRS RAN | STACK TEMP | BACKGROUND/EXPERIENCED HOOKLOAD | SAFETY TOPIC

12 | 9.5 | 374.0C | 90,000 | Environmental | 2594

EVENING TOUR

RD

GAS CONDITIONED

00	24.00
	950
	62
2.5	69.2

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DBA-HAMR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
1098	1136	38	150	7/10

PUMP #1: LINER SIZE (mm) 152; S.P.M. 115; LINER SIZE (mm); S.P.M.

REDUCED PUMP SPEED: 1700 @ 58 SPM @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
1103	4	32 AZ
Pump #3	152 LINERS 115 SPM	

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	SLIP/CUT DRLG LINE	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
20:00	22:30	2½	2	DRILL 311mm HOLE F/ 1098m - 1127m
22:30	23:00	½	10	SURVEY @ 1103m
23:00	23:45	¾	2	DRILL F/1127m - 1136m
23:45	24:00	¼	7	R/S FUNC. LOWER PIPE RAMS 55 SEC C/O F/manual

NOTES: BRAKES, LINKAGE, CROWN, SAVER, CLAMP, ANCHOR; BOILER FLOOR DRILL @ 1100m

BOILER: HRS RAN | STACK TEMP | BACKGROUND/EXPERIENCED HOOKLOAD | SAFETY TOPIC

4 | 410 | [illegible]

111058

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LICENCE NO.: SD 99

WELL NAME AND NO.: CHEVRON ET AL LIARD K-29 60° 30' N 123° 30' W

OPERATOR: CHEVRON CANADA RESOURCES

CONTRACTOR: AKITA DRILLING LTD

SURFACE LOCATION: K-29 60° 30' N 123° 30' W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS — OPR. / R.M.

(1) Daily Walk Around Inspection — Initial / Initial
(2) Detailed Inspection-Weekly (using checklist) — Initial / Initial
(3) H²S Signs Posted (if required) — Initial / Initial
(4) Well Licence & Stick Diagram Posted — Initial / Initial
(5) Flare Lines Staked — Initial / Initial
(6) BOP Drills Performed — Initial / Initial
(7) Visually inspect BOP's - Flexibles & Degasser Lines — Initial / Initial

(1) Rig Site Health and Safety Meeting (one/crew/month) — Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
(3) Mast Inspection Before Raising or Lowering — Initial
(4) Crown Saver Checked — Initial
(5) Motor Kill checked — Initial

YEAR 99 | RIG NO. 48 | FUEL | RIG 102 | WEATHER: TEMPERATURE, CURRENT CONDITIONS, WIND DIRECTION

TIME - HRS

CODE NO	1 OPER.	2 RIG UP & TEAR DOWN	3 DRILL ACTUAL	4 REAMING	5 CORING	6 COND MUD & CIRC	7 TRIPS	8 RIG SERVICE	9 REPAIR RIG	10 CUT OFF DRILL LINE	11 DEV. SURVEY	12 WIRE LINE LOGS	13 RUN CASS & CEMENT	14 WAIT ON CEMENT	15 NIPPLE UP B.O.P.	16 TEST B.O.P.	17 DRILL STEM TEST	18 PLUG BACK	19 SQUEEZE CEMENT	20 FISHING	21 DIR. WORK	22 SAFETY MTG.	23	24	
	MORN.		3½			2½		¼														½	FIT	1¼	BOP DRILL	
	DAY		9¾					¼			1¾													¼	
	EVE.		3½					¼																¼	
	TOTAL																								

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
			34 m
½	BS/Monel		1.90/9.34 m
2	DC		18.69 m
½	Ream/DC		2.11/9.27 m
1	STAB		1.77 m
8	DC		73.37 m
1	JAR		7.08 m
4	DC		36.50 m
1	X/O		.83 m
12	HWDP		109.70 m
		BHA	289.91 m
116	D.P.	STANDS	457.58 m
	D.P.	SINGLES	m
	KELLY/SWIVEL		3.99 m
	TOTAL		779 m
WT. OF DC		1000 daN	
WT. OF STRING		1000 daN	

BIT RECORD

BIT NO.	RR #4A
SIZE (mm)	311
IADC CODE	
MFG.	HUGHES
TYPE	GT-1
SERIAL NO.	Y71VK
JETS (mm)	1x12.7 2x14.3
DEPTH OUT (m)	
DEPTH IN (m)	711
TOTAL METRES DRILLED (m)	13
TOTAL HOURS RUN	3½

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG	0-1↑ 0-1↓
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	0800
DENSITY kg/m³	930
FUNNEL VIS. - (S/L)	68
W.L. (cm³)	
pH	10.5
OVT	59.8

PRODUCT	AMOUNT X UNIT

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	GRAB SAMP. CORE C	RO P.
711	724	13	

	LINER SIZE (mm)	S.P.M.
14800	152	110
Pump #3	152	

DEPTH (m)	DEVIATION (°)

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
			34 m
½	BS/Monel		1.90/9.34 m
2	DC		18.69 m
½	Ream/DC		2.11/9.27 m
1	STAB		1.77 m
4	DC		73.37 m
1	JAR		7.08 m
4	DC		36.50 m
1	XO		.83 m
12	HWDP		109.70 m
		BHA	269.91 m
19	D.P.	STANDS	543.80 m
	D.P.	SINGLES	m
DP RX	KELLY DOWN		19.10 m
	TOTAL		832.81 m
WT. OF DC		1000 daN	
WT. OF STRING	70	1000 daN	

BIT RECORD

BIT NO.	RR #4A
SIZE (mm)	311
IADC CODE	
MFG.	HUGHES
TYPE	GT-1
SERIAL NO.	Y79YK
JETS (mm)	1-12.7 2-15.9
DEPTH OUT (m)	
DEPTH IN (m)	711
TOTAL METRES DRILLED (m)	121
TOTAL HOURS RUN	13¼

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	19:00	12:00	15:00
DENSITY kg/m³	940	930	920
FUNNEL VIS. - (S/L)	66	64	62
W.L. (cm³)			
pH			
DYT	66.9	65.7	63.3

PRODUCT	AMOUNT X UNIT
INVERT	20 m³

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
12	900	890	660

METRES DRILLED

FROM	TO	GRAB SAMP. CORE C	RO P.
724	832	108	

	LINER SIZE (mm)	S.P.M.
14300	152	110
1200	55	

DEPTH (m)	DEVIATION (°)
748	3¼
791	3¼

	LINER SIZE (mm)	S.P.M.
Pump #3	Liner 152	

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
			34 m
½	BS/Monel		1.90/9.34 m
2	DC		18.69 m
½	Ream/DC		2.11/9.27 m
1	STAB		1.77 m
8	DC		73.37 m
1	JAR		7.08 m
4	DC		36.50 m
1	X/O		.83 m
12	HWDP		109.70 m
		BHA	269.91 m
19	D.P.	STANDS	543.80 m
	D.P.	SINGLES	m
	KELLY/SWIVEL DOWN		19.10 m
	TOTAL		832.81 m
WT. OF DC		1000 daN	
WT. OF STRING		1000 daN	

BIT RECORD

BIT NO.	RR 4A
SIZE (mm)	311
IADC CODE	
MFG.	HUGHES
TYPE	GT-1
SERIAL NO.	Y79YK
JETS (mm)	1x12.7 2x15.9
DEPTH OUT (m)	
DEPTH IN (m)	711
TOTAL METRES DRILLED (m)	198
TOTAL HOURS RUN	16 3/4

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG	0-1↑ 0-1↓
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	18:00	21:00	24:00
DENSITY kg/m³	900	910	930
FUNNEL VIS. - (S/L)	60	58	57
W.L. (cm³)			
pH			
DYT	69.4	69.3	67.4

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
NOVAWET	1 BBL
LIME	10 SX
VERSA WET	1 BBL
VG69	12 SX

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
12	910	860	710

METRES DRILLED

FROM	TO	GRAB SAMP. CORE C	RO P.
832	909	77	

	LINER SIZE (mm)	S.P.M.
15800	152	115
15m	@	60

DEPTH (m)	DEVIATION (°)

	LINER SIZE (mm)	S.P.M.
Pump #3	Liner 152	

DRILLER'S SIGNATURE

EVENING TOUR

FOLD HERE →

CHECKS	OPR.	R.M.
Walk Around Inspection	Initial	Initial
Inspection-Weekly (using checklist)	Initial	Initial
Signs Posted (if required)	Initial	Initial
License & Stick Diagram Posted	Initial	Initial
Lines Staked	Initial	Initial
Drills Performed	Initial	Initial
Daily Inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
Safe Health and Safety Meeting (one/crew/month)		Initial
C.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
Inspection Before Raising or Lowering		Initial
Driven Sever Checked		Initial
Flare Kits checked		Initial

YEAR 99 | MONTH 03 | DAY 19

RIG NO. 48 N/C

FUEL @ 8:00

RIG 102 | BOILER

WEATHER: TEMPERATURE °C; CURREAT CONDITIONS 2630; WIND DIRECTION; ROAD 533934

	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
LAST CASING									
TUBING OR LINER	339.7	315.34	101.2	BUTTRESS	K55	56	1693.40	7.31	701.3

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
127	29	E	108	152	5"XH	121	9-P-100	NATIONAL	235
127	29	X2	106	154	5"XH	133	9-P-100	NATIONAL	235
127	38	X3	101	156	5"XH	160	E-1000	EMSCO	254

22	23	24	25	26
F.I.T	Work/sleeves	B.O.P Drill		
1/2	1 1/4			
		1/4		
		1 1/4		

SHALE SHAKER(S): NO. | TYPE

SCREENS CHANGED ☑ YES ☐ NO

	TOP	TOP	
8			
12	50	50	34
4	50	80	34
	BOTTOM 50	BOTTOM 80	34

RENTALS/SERVICES

2ND Boiler @ 21

Change Air Rotary Lines @ 30

MORNING TOUR

RD — ☑ RELEASED: 08:00

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD (Drill Hour) CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
711	724	13	60	3/5

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
14900	152	110	152

REDUCED PUMP SPEED

Pump #3 @ 152 @ 112

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE: J Dr. Johnson

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	01:30	1 1/2	5	Work Pipe & Circ. Cement Out of Hole & Clean Shaker Screens
01:30	02:00	1/2	2	Drill 311mm Hole F/711m - 715m
02:00	03:00	1	5	Circ.
03:00	03:30	1/2	22	F.I.T. To 15 KPa/m
03:30	03:45	1/4	7	R/S
03:45	04:00	1/4	2	Drill 715m - 715.5m
04:00	04:30	1/2	23	Clean Shaker Screens
04:30	05:00	1/2	2	Work on Drill F/715.5 - 716
05:00	05:45	3/4	23	Work on Shakers
05:45	08:00	2 1/4	2	Drill F/716 - 724

NOTES: Brakes, Linkage, Crown Saver, Clamp, Air Hoist, All Scott Air Refire Extinguishers, Boiler Blow Down @ 0330, 0530

BOILER HRS. RAN	STACK TEMP.	MAN DOWN EXPERIENCED HOOKLOAD	SAFETY DRILLS
8	720		

DAY TOUR

RD — ☑ RELEASED: 15:00

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
700	890	1110

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD (Drill Hour) CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
724	832	108	120	5/6

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
14300	152	110	152

REDUCED PUMP SPEED

1200 @ 55 @ 80

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
748	3 1/4	32 Azm.
791	3 1/4	37 Azm.

Pump #3 Liner - 152 SPM 110

DRILLER SIGNATURE: Paul Lacy

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
08:00	11:30	3 1/2	2	Drill 311mm Hole F/ 724 - 755
11:30	11:45	1/4	24	Hold P.J.S.M. Drill Crew Well Secured in 90 Seconds Annular Closed in 45 Sec.
11:45	13:00	1 1/4	10	Survey @ 755 m Pressure Circ in Between
13:00	15:45	2 3/4	2	Drill 311mm Hole F/: 755 - 784
15:45	16:00	1/4	7	R/S Change to Drive Clock to Pulse. Hook Hose
16:00	18:00	2	2	Drill 311mm Hole F/: 784 - 813
18:00	19:30	1/2	10	Circ + Survey @ 791
19:30	20:00	1/2	2	Drill 311mm Hole F/: 813 - 832

NOTES: Crown Saver, Brake, Linkage, First Line Clamp, Anchor. Boiler Blow Down @ 0730, 1730, 1930

BOILER HRS. RAN	STACK TEMP.	MAN DOWN EXPERIENCED HOOKLOAD	MAN DOWN	SAFETY DRILLS	BOP
12	9.5 715°C		Air Hoist	Scotts	2800

EVENING TOUR

RD — ☑ RELEASED: 24:00

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD (Drill Hour) CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
832	907	77	150	5/7

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
15800	152	115	152

REDUCED PUMP SPEED

150 @ 60 @ 80

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
Pump #3	Liner 152	SPM 115

DRILLER SIGNATURE: J Dr. Johnson

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
20:00	23:15	3 1/4	2	Drill 311mm Hole F/ 837m - 878m
23:15	23:30	1/4	7	R/S Func. Lower Pipe Rams (Floor Sec 96)
23:30	23:45	1/4	24	BOP Drill w/ Crew / Well Secured in 90 Sec Pason
23:45	24:00	1/4	2	Drill F/ 878m - 907m

NOTES: Brakes, Linkage, Crown Saver, Clamp, Boiler Blow Down @ 2130

BOILER HRS. RAN	STACK TEMP.	MAN DOWN EXPERIENCED HOOKLOAD	SAFETY DRILLS
4	715 200		

111057

FOLD HERE →

LICENCE NO.: SD 99

WELL NAME AND NO.: CHEVRONET AL LINED K-A 60° 30' N 123° 30' W

OPERATOR: CHEVRON CANADA LTD.

CONTRACTOR: AKITA DRILLING LTD

SURFACE LOCATION:

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) H²S Signs Posted (if required)	Initial	Initial
(4) Well Licenses & Stick Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually Inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)		Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
(3) Mast Inspection Before Raising or Lowering		Initial
(4) Crown Saver Checked		Initial
(5) Motor Kills checked		Initial

YEAR 99

RIG NO. 48

FUEL

RIG 1.32

WEATHER: TEMPERAT / CURRENT CONDITION / WIND DIR / ROAD

TIME - HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC.	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV. SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.	RHA	TOP DRIVE	hrs/DOWNTIME BIT
MORN.						7 3/4	1/2																	
DAY						5 1/4	1/4		3/4													4 3/4	1/2	1/2
EVE.					1	1 1/4		1/4																3/4
TOTAL																								

DRILLING ASSEMBLY (At End of Tour)

NO.	DESCRIPTION		LENGTH
1			34 m
1	BS/MOTOR		9.00 m
2	DC	228	18.69 m
1	REAM/DC	228	9.27 m
1	STAB		1.77 m
8	D.C	228	73.37 m
1	JAR		7.08 m
4	D.C.	228	36.50 m
1	XO		.93 m
12	HWDP		109.71 m
	RHA		9.91 m
	D.P.	STANDS	m
	D.P.	SINGLES	m
	KELLY DOWN		m
	TOTAL		m
	WT. OF DC		1000 daN
	WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	RR1
SIZE (mm)	311
IADC CODE	
MFG.	HUGHES
TYPE	GT-1
SERIAL NO.	Y79YK
JETS (mm)	12.7/15.9/15.9
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T1	To	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
DESCO	15 X
DRILL	9 m 3
INVERT	4.3 m 3

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

DEGASSER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLG RMR CORE-C	RO RR

LINER SIZE (mm)	S.P.M.

REDUCED SPEED

DEPTH (m)	DEVIATION (°)

DEVIATION SURVEY

DRILLER'S SIGNATURE

MORNING TOUR

DAY TOUR

EVENING TOUR

FOLD HERE →

DAILY CHECKS	OPR.	R.M.
Daily Walk Around Inspection	Initial	Initial C
Detailed Inspection-Weekly (using checklist)	Initial	Initial
H2S Signs Posted (if required)	Initial	Initial
Permit License & Stick Diagram Posted	Initial	Initial C
Flare Lines Staked	Initial	Initial
BOP Drills Performed	Initial	Initial C
Visually inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
Rig Site Health and Safety Meeting (one/crew/month)		Initial
C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
Derrick Inspection Before Raising or Lowering		Initial
Blow-down Sewer Checked		Initial
Choke Kills checked		Initial

YEAR 11 | MONTH 09 | DAY 13

RIG NO. 45

FUEL @ 8:00

RIG 1.32 | BOILER

WEATHER: TEMPERATURE °C; CURRENT CONDITIONS; WIND DIRECTION; ROAD

LAST CASING TUBING OR LINER	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
		311.24							
	339.7	[illegible]	101.2	BTC	K-55	56	693.6	7.31	701.3

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
177	29	E	101	152	5" XH	121	9-P-100	NATIONAL	
177	29	X2	106	154	5" XH	153	F-1000	EMSCO	
177	38	X3	101	154	5" XH	110	7-P-100	NATIONAL	

QTY	21	22	23	24	25	26
	BHA	TOP DRIVE	Lay Down Truck	Kelly UP	DRILL OUT	
	4 3/1	1/2	1/2			
				3/4	1 3/4	

TOTALS: 8 | 4

SHALE SHAKER(S): NO. | TYPE | SCREENS CHANGED ☒ YES ☐ NO | TOP 84 | TOP 84 | MIDDLE 44 | MIDDLE 84 | BOTTOM 44 | BOTTOM 84

RENTALS/SERVICES: 2ND BOILER FUEL LVL

MORNING TOUR

RD: ☐ CASED

SOLIDS CONTROL: INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

LOCATION	PUMP NO.	LINER SIZE (mm)	S.P.M.	PUMP NO.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED: @ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE: [illegible]

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	07:45	7 3/4	6	Pick up Pipe & Rack in Derrick
07:45	08:00	1/4	7	R/S Service Top Drive

NOTES: Drakes, Lubkoke Could Save Clamp A Line. Boiler Blow Down @ 0430

DAY TOUR

RD: ☐ CASED

SOLIDS CONTROL: INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

LOCATION	PUMP NO.	LINER SIZE (mm)	S.P.M.	PUMP NO.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED: @ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
Function Motor Kill		
ON Pump #3		QR

DRILLER SIGNATURE: [illegible]

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
08:00	10:15	2 1/4	6	Pick up Pipe + Rack in Derrick
10:15	10:45	1/2	21	Tear out Laydown Truck.
10:45	11:00	1/4	7	R.S. Service
11:00	11:45	3/4	6	Rack Pipe in Derrick (5 stds)
11:45	12:45	1	22	Cut BHA on Cut Wall + I.D. to O.D. Thds
12:45	16:30	3 3/4	22	Make up 2 BHA
16:30	15:15	1 3/4	6	Run it to 527
14:15	19:00	3/4	9	~~Slip Cut 36 m Drlg~~. Cut 36 Slip 18 m
19:00	19:30	1/2	23	Fix Trap in T.D. Drive.
19:30	20:00	1/2	6	Run in DS

NOTES: Boiler Blow Down @ 0900, 1200, 1600, 1700

EVENING TOUR

RD: ☐ CASED

SOLIDS CONTROL: INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

LOCATION	PUMP NO.	LINER SIZE (mm)	S.P.M.	PUMP NO.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED: @ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE: [illegible]

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
20:00	21:15	1/4	6	R.U. Bottom Floor Valve @ 688.17m
20:15	21:00	3/4	25	Circ to Displace with Invert
21:00	22:00	1	5	Displace Hole to Invert
22:00	25:45	1 3/4	26	Drill out Float + Shoe (Held BOP Drill w/ (new)
25:45	26:00	1/4	7	RIS

NOTES: Drakes, Lubkoke Could Save Clamp A Line. Rig Inspection

DRILLER SIGNATURE: [illegible]

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DAILY CHECKS	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) HPS Signs Posted (if required)	Initial	Initial
(4) Well Licensee & Stock Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually Inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)		Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
(3) Mast Inspection Before Raising or Lowering		Initial
(4) Crown Saver Checked		Initial
(5) Motor Kills checked		Initial

YEAR

RIG NO.

FUEL

RIG

WEATHER: TEMPERAT / CURRENT CONDITION / WIND DIR / ROAD

LICENCE NO.: SD-29

WELL NAME AND NO.: CHEVRON ET AL LIARD K-29 60° 30'N 123° 30'W

OPERATOR: CHEVRON CANADA RES.

CONTRACTOR: AKITA DRILLING LTD

SURFACE LOCATION: K-29 60° 30'N 123° 30'W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

TIME HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.			
MORN.							1/4								7 3/4							WAIT 2 hrs for Accurate Test	K-29 W. PIPE HANDLERS	
DAY																								
EVE.						2 1/2	1/2														1/4			
TOTAL																								

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTH
		m
		m
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLYDOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	R

LINER SIZE (mm) | S.P.M.

REDUCED @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTH
		m
		m
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLYDOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	R

LINER SIZE (mm) | S.P.M.

REDUCED @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER SIGNATURE

EVENING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTH
		m
		m
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLYDOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	R

LINER SIZE (mm) | S.P.M.

REDUCED @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER SIGNATURE

FOLD HERE →

DAILY CHECKS — OPR. / R.M.

	OPR.	R.M.
Daily Walk Around Inspection	Initial	Initial
Derrick Inspection-Weekly (using checklist)	Initial	Initial
H2S Signs Posted (if required)	Initial	Initial
Contractor License & Stock Diagram Posted	Initial	Initial
Flare Lines Staked	Initial	Initial
BOP Drills Performed	Initial	Initial
Monthly Inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
Safety Health and Safety Meeting (one/crew/month)		Initial
I.A.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
Derrick Inspection Before Raising or Lowering		Initial
Blowdown Sewer Checked		Initial
Choke Manifold Kills checked		Initial

YEAR 94 | MONTH 09 | DAY 17

RIG NO.

FUEL @ 8:00

RIG 151 | BOILER

WEATHER — TEMPERATURE °C: CURRENT CONDITIONS 16/08; WIND DIRECTION; ROAD <30cm

LAST CASING TUBING OR LINER	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
		311.24							
	339.7	311.20	101.2	BAMPESS	K-55	46	1713.1a	7.31	7013

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
127	29	E	108	152	5"XH	121	9-P-100	NATIONAL	235
127	29	X2	106	154	5"XH	133	7-P-100	NATIONAL	235
177	38	X3	101	156	6"XH	160	F-1000	EMSCO	254

1	22	23	24	25	26
	HOUSE BOARD ARCO KELLY		KELLY HOSE IN DERRICK		
			1		

TOTALS: 8 / 4

SHALE SHAKER(S): NO. | TYPE

SCREENS CHANGED ☐ YES ☐ NO

TOP	TOP
MIDDLE	MIDDLE
BOTTOM	BOTTOM

RENTALS/SERVICES | MORN | EVE/NIGHT

2ND BOILER 153

MORNING TOUR

RD — ☐ OIL BASED

METRES DRILLED

FROM	TO	DRD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION | PUMP NO. | PUMP NO.

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED: @ SPM @ SPM

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

SOLIDS CONTROL

	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
CENTRIFUGE			

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
0000	0745	7 3/4	15	PRESS TEST CHOKE MANIFOLD, CHOKE LINES, UPR. INSIDE & OUTSIDE CHOKE LINE VALVES, INSIDE & OUTSIDE KILL LINE VALVES, CHECK VALVES & UPPER PIPE RAMS. HYDRIL Low 3450 KPA HIGH, BLIND RAMS & Csg. 1500 PSI Low 15000 PSI HIGH.
0745	0800	1/4	7	RIG SERVICE

NOTES: Boiler Blown Down @ 0800

HRS RAN | BOILER PH | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | MUD WT.

4 | 10.0 | 175

DAY TOUR

RD — ☐ OIL BASED

METRES DRILLED

FROM	TO	DRD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION | PUMP NO. | PUMP NO.

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED: @ SPM @ SPM

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

SOLIDS CONTROL

	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
CENTRIFUGE			

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
08:00			15	PRESS TEST LOWER PIPE RAMS TO 1400 KPA LOW / 34500 KPA HIGH / TEST ANNULAR TO 1400 KPA LOW / 17,500 KPA HIGH / TEST UPPER + LOWER KELLY C.K., STABBING VALVE, FOSIDE
	15:00	7	15	BOP + MUD LINES TO 1400 KPA LOW / 34500 KPA HIGH
15:00	16:00	1	22	INSTALL WEAR BUSHING
16:00	16:30	1/2	23	ACCUM. FUNCT. TEST
16:30	17:30	1	24	RACK D.P. + HWDP ON CHINESE SIDE
17:30	19:45	2 1/4	6	RUN 12 / 11" D.C. + SECURE DOWN ALL 11" D.C.'S
19:45	20:00	1/4	7	R.S. SERVICE

NOTES: Boiler Blown Down @ 1100, 1330, 1830

HRS RAN | BOILER PH | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | MUD WT.

12 | 10 | 225 T

EVENING TOUR

ORD — ☐ OIL BASED

METRES DRILLED

FROM	TO	DRD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION | PUMP NO. | PUMP NO.

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED: @ SPM @ SPM

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

SOLIDS CONTROL

	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
CENTRIFUGE			

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
2000	2100	1	6	LAY DOWN 11" DC'S
2100	2200	1	24	R.U. PIPE HANDLE TRUCK
2200	2215	1/4	21	SAFETY MEETING
2215	2345	1 1/2	6	PICK UP PIPE & RACK IN DERRICK
2345	2400	1/4	7	RIG

NOTES: ✓ BRAKES / LINKAGE / ROTARY SAVER / CLAMP / ALIGNER

RUN DRILL 22200

HRS RAN | BOILER PH | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | MUD WT.

6 1/2 | 10 | 225

111054

FOLD HERE →

LICENCE NO.: SDL-99

WELL NAME AND NO.: CHEVRON ETAL K-29 60°N 30' 123° 30'N

OPERATOR: CHEVRON CANADA LTD

CONTRACTOR: AKITA DRILLING LTD

SURFACE LOCATION: K-29 60°N 30' 123° 30N

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS

	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) H²S Signs Posted (if required)	Initial	Initial
(4) Well Licenses & Stab Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually Inspect BOP's - Flexlines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)		Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
(3) Mast Inspection Before Raising or Lowering		Initial
(4) Crown Saver Checked		Initial
(5) Motor Kills checked		Initial

YEAR: 94

RIG NO.: 175

FUE

WEATHER: TEMPERAT / CURRENT CONDITION: / WIND DIR. / ROAD

TIME-HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.			
MORN.	1						1/4						6 1/4									HOLE CSG.		CIRC 1/2
DAY					1/2		1/4					1/2		7 1/4								1/2		
EVE.																								
TOTAL																								

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTH
		m
		m
		m

FOLD HERE →

DAILY CHECKS

	OPR.	R.M.
Daily Walk Around Inspection	Initial	Initial
Biased Inspection-Weekly (using checklist)	Initial	Initial
Flag Signs Posted (if required)	Initial	Initial
Name Licence & Stick Diagram Posted	Initial	Initial
Service Lines Staked	Initial	Initial
BOP Drills Performed	Initial	Initial
Daily Inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
Safety Meeting (one/crew/month)	Initial	
H.A.O D.C. Rig Safety Inspection Checklist (one/rig/month)	Initial	
Last Inspection Before Raising or Lowering	Initial	Initial
Crown Saver Checked	Initial	Initial
Motor Kills checked	Initial	

YEAR 97 | MONTH 05 | DAY 16

RIG NO. 48 UE

FUEL @ 8:00

RIG 148 | RIGLER 31

WEATHER: TEMPERATURE °C; CURRENT CONDITIONS 16651; WIND DIRECTION 300S; ROAD

LAST CASING TUBING OR LINER

O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
339.7	311.38	106.2	Baycrest	K-55	56	693.6	7.5	701.3

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
127	29	E	108	152	5"XH	121	9-P100	NATIONAL	234
127	29	X2	106	154	5"XH	133	9-P100	NATIONAL	234
127	34	X3	101	156	5"XH	160	F-1000	EMSCO	254

1	22	23	24	25	26
QTY	4½ DRILL COLLARS		Run Bowen		
			1½		
	1½				

TOTALS

8	SHALE SHAKER(S) NO.	TYPE	RENTALS/SERVICES
2	SCREENS CHANGED ☐ YES ☐ NO		Iron Roughneck
	TOP 50	TOP 50	Fuel 181
	MIDDLE 50	MIDDLE 50	
	BOTTOM 40	BOTTOM 50	

MORN | EVE | NIGHT

5 | 12 | 4

MORNING TOUR

RD

☐ OILBASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATING PRESSURE | PUMP NO. 1: LINER SIZE (mm), S.P.M. | PUMP NO. 2: LINER SIZE (mm), S.P.M.

REDUCED PUMP SPEED @ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE: [signature]

TIME LOG

FROM	TO	ELAPS. TIME	CODE NPT	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	01:00	1	14	Move Rig + Divertor
01:00	01:15	¼	9	Rig Service
01:15	01:45	½	24	Rig Diverter Sys Prior to Cementing
01:45	08:00	6¼	13	Wait On Cement

NOTES: ✓ Crown Saver, Brakes + Linkage Checked Daily. Bowl Bolts Oiled @ 2:00 + 6:00

BOILER HRS. RAN | STACK TEMP. | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | DAILY COST

4 | 10 | 225°C

DAY TOUR

RD

☐ OILBASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATING PRESSURE | PUMP NO. 1: LINER SIZE (mm), S.P.M. | PUMP NO. 2: LINER SIZE (mm), S.P.M.

REDUCED PUMP SPEED @ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE: [signature]

TIME LOG

FROM	TO	ELAPS. TIME	CODE NPT	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
08:00	08:30	½	22	Backoff Csg + Lay Down
08:30	15:45	7¼	14	Nipple Down Diverter, Cut Off Conductor
				Bevel + Screw In Csg. Bowl + Nipple Up
		½		BOP's
15:45	16:00	¼	7	Rig Service

NOTES: ✓ Brakes, Linkage Checked Daily. Bowl Bolts Oiled @ 0800

BOILER HRS. RAN | STACK TEMP. | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | DAILY COST

2 | 10 | 225°C

EVENING TOUR

RD

☐ OILBASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATING PRESSURE | PUMP NO. 1: LINER SIZE (mm), S.P.M. | PUMP NO. 2: LINER SIZE (mm), S.P.M.

REDUCED PUMP SPEED @ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE: [signature]

TIME LOG

FROM	TO	ELAPS. TIME	CODE NPT	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
16:00	23:45	7¾	14	Clean up BOP's
23:45	24:00	¼	7	Rig Service

NOTES: Boiler Blow Down @ 1900, 2300

BOILER HRS. RAN | STACK TEMP. | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | DAILY COST

8 | 10 | 225°C

111053

FOLD HERE →

LICENCE NO.: SDL-99 | WELL NAME AND NO.: CHEVRON ETAL LEMO K-29-60 30"N 123°30"N

OPERATOR: CHEVRON CANADA LTD | CONTRACTOR: FLORA DRILLING LTD

SURFACE LOCATION: K-29 60° 30"N 123° 30"N | UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE: | SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS

	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial RR
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) H²S Signs Posted (if required)	Initial	Initial
(4) Well Licence & Stick Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)		Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
(3) Meet Inspection Before Raising or Lowering		Initial
(4) Crown Saver Checked		Initial JL
(5) Motor Kills checked		Initial

YEAR 99 | RIG NO. | FUEL | RIG | WEATHER | TEMPERATU | CURRENT CONDITIO | WIND DIREC | ROAD

TIME - HRS

CODE NO.	1 OPER.	2 RIG UP & TEAR DOWN	3 DRILL ACTUAL	4 REAMING	5 CORING	6 COND MUD & CIRC	7 TRIPS	8 RIG SERVICE	9 REPAIR RIG	10 CUT OFF DRILL LINE	11 DEV. SURVEY	12 WIRE LINE LOGS	13 RUN CASE & CEMENT	14 WAIT ON CEMENT	15 NIPPLE UP B.O.P.	16 TEST B.O.P.	17 DRILL STEM TEST	18 PLUG BACK	19 SQUEEZE CEMENT	20 FISHING	21 DIR. WORK	22 SAFETY MTG.	23 Rig Out Steer	24 Rig In Steer Finish	
	MORN.					1 3/4	1 3/4	1/4					3 1/4										3/4	2 1/4	
	DAY					7 1/2	6 1/2	1/4					2 1/2									1/4			
	EVE.						2 1/4	1/4							3/4									1/2	
	TOTAL																								

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	ID	LENGTH
			m
			m
			m
			m
			m
			m
			m
			m
	D.P.	STANDS	m
	D.P.	SINGLES	m
	KELLY DOWN		m
	TOTAL		m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.			
SIZE (mm)			
IADC CODE			
MFG.			
TYPE			
SERIAL NO.			
JETS (mm)			
DEPTH OUT (m)			
DEPTH IN (m)			
TOTAL METRES DRILLED (m)			
TOTAL HOURS RUN			

CUTTING STRUCTURE				B	Gage	ODC	Reason Pulled	Total Run m/hr.
T_i	T_o	MDC	LOC					

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME			
DENSITY kg/m³			
FUNNEL VIS. - (S/L)			
W.L. (cm³)			
pH			

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
CENTRIFUGE				

METRES DRILLED

FROM	TO	DRLG ROT CORE-C	ROT R.P.

LINER SIZE (mm)	S.P.M.

REDUCED @ SPEED

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	ID	LENGTH
			m
			m
			m
			m
			m
			m
			m
			m
	D.P.	STANDS	m
	D.P.	SINGLES	m
	KELLY DOWN		m
	TOTAL		m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.			
SIZE (mm)			
IADC CODE			
MFG.			
TYPE			
SERIAL NO.			
JETS (mm)			
DEPTH OUT (m)			
DEPTH IN (m)			
TOTAL METRES DRILLED (m)			
TOTAL HOURS RUN			

CUTTING STRUCTURE				B	Gage	ODC	Reason Pulled	Total Run m/hr.
T_i	T_o	MDC	LOC					

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME			
DENSITY kg/m³			
FUNNEL VIS. - (S/L)			
W.L. (cm³)			
pH			

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
Disco	9 SX

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
CENTRIFUGE				

METRES DRILLED

FROM	TO	DRLG ROT CORE-C	ROT R.P.

LINER SIZE (mm)	S.P.M.

REDUCED @ SPEED

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	ID	LENGTH
			m
			m
			m
			m
			m
			m
			m
			m
	D.P.	STANDS	m
	D.P.	SINGLES	m
	KELLY DOWN		m
	TOTAL		m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.			
SIZE (mm)			
IADC CODE			
MFG.			
TYPE			
SERIAL NO.			
JETS (mm)			
DEPTH OUT (m)			
DEPTH IN (m)			
TOTAL METRES DRILLED (m)			
TOTAL HOURS RUN			

CUTTING STRUCTURE				B	Gage	ODC	Reason Pulled	Total Run m/hr.
T_i	T_o	MDC	LOC					

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME			
DENSITY kg/m³			
FUNNEL VIS. - (S/L)			
W.L. (cm³)			
pH			

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
CENTRIFUGE				

METRES DRILLED

FROM	TO	DRLG ROT CORE-C	ROT R.P.

LINER SIZE (mm)	S.P.M.

REDUCED @ SPEED

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

EVENING TOUR

FOLD HERE →

DAILY CHECKS

	OPR.	R.M.
Daily Walk Around Inspection	Initial	Initial
Weekly Inspection-Weekly (using checklist)	Initial	Initial
H2S Signs Posted (if required)	Initial	Initial
Well Licensee & Stick Diagram Posted	Initial	Initial
Flare Lines Staked	Initial	Initial
BOP Drills Performed	Initial	Initial
Weekly Inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
Safety Site Health and Safety Meeting (one/crew/month)		Initial
A.E.R.C.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
Derrick Inspection Before Raising or Lowering		Initial
Crown Saver Checked		Initial
Emergency Kills checked		Initial

YEAR 99 | MONTH 02 | DAY 13

RIG NO. 48 LEE

FUEL @ 8:00

RIG | POWER

WEATHER: TEMPERATURE °C; CURRENT CONDITIONS 16 ↓ 1; WIND DIRECTION; ROAD 050013

LAST CASING / TUBING OR LINER	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
	339.7	311.25	101.2	R-FREES	K-55	46	692.6		701.3

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
127	29	E	108	152	5"FH	121	9-P100	NATIONAL	234
127	29	X2	106	154	5"XH	133	9-P100	NATIONAL	234
	38	X3	101	156	5"XH	160	F-1600	EMSCO	254

1	22	23	24	25	26
QTY	Kill Out Stack - Pit + Fore Flush				
	3/4	2 3/4			
4					
		1/2			

TOTALS: 5 | 12 | 4

SHALE SHAKER(S): NO. | TYPE; SCREENS CHANGED ☐ YES ☐ NO

TOP		TOP	50
MIDDLE	50	MIDDLE	50
BOTTOM	50	BOTTOM	50

RENTALS/SERVICES

	MORN	DAY	EVE
2ND BOILER	8	12	4
FUEL 222			

MORNING TOUR

RD ☐ OIL BASED

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION | PUMP NO. | PUMP NO.

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED: @ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE: [signature]

SOLIDS CONTROL

	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
CENTRIFUGE			

TIME LOG

FROM	TO	ELAPS. TIME	CODE	NPT
0000	0300	3 1/4	12	FINISH CMG DOWN 5" 6851 -
0315	0330	1/4	5	CUT & SLIP.
0330	0345	1/4	7	R.C. SERVICE
0345	0345	3/4	22	RIG OUT FLR. SLIPS & BLOW KELLY
0345	0615	2 3/4	23	KICK UP TOP DRIVE TO RUN IN DP. + PICK UP FALSE FLOOR
0615	0800	1 3/4	6	MAKE UP SINGLES & RUN IN HOLE
				SURFACE CASING
				[illegible] 39.6
				TOTAL 692.6
				CSG LANDED @ 701.3 m

NOTES: ✓ CROWN SAVER, BRAKES & LINKAGE, CLAMP & HANGER

BOILER BLOW DOWN @ 2:00 & 5:00

HRS RAN	BOILER PSI	STACK TEMP'S	MAXIMUM EXPERIENCED HOOKLOAD	SAFETY TOPIC
8	10	220		

DAY TOUR

RD ☐ OIL BASED

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION | PUMP NO. | PUMP NO.

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED: @ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE: [signature]

SOLIDS CONTROL

	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
CENTRIFUGE			

TIME LOG

FROM	TO	ELAPS. TIME	CODE	NPT
0800	0705	13/4	6	RIH
0745	1000	1/4	7	RS
1000	1145	1 3/4	6	RIH WITH STINGER SPACE OUT & STAB IN
1145	1415	2 3/4	5	CIRC CASING
1415	1430	1/4	21	SPACE / PRETEST & CEMENTING CASING
1430	1700	2 1/2	12	CEMENT CASING
1700	2000	3	6	POOH
				CEMENTING DETAILS: PUMP 5 m³ H2O + 2 SPACER
				LEAD 90 m³ 11.0 ppg [illegible]
				TAIL 8.2 m³ [illegible]
				[illegible] 17 m³ [illegible] 17:50

NOTES: ✓ BLOCKS, LUBRICATE RIG & SERVICE CLAMP ABOVE

BOILER BLOW DOWN @ 1000, 1500

HRS RAN	BOILER PSI	STACK TEMP	MAXIMUM EXPERIENCED HOOKLOAD	SAFETY TOPIC
12	90	175		

EVENING TOUR

RD ☐ OIL BASED

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION | PUMP NO. | PUMP NO.

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED: @ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE: [signature]

SOLIDS CONTROL

	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
CENTRIFUGE			

TIME LOG

FROM	TO	ELAPS. TIME	CODE	NPT
20:00	22:30	2 1/2	6	P.O.O.H.
2230	2300	1/2	23	BREAK FALSE FLOOR
2300	2345	3/4	5	R.C. SERVICE
2345	0200	2 1/4	14	N.U. B.O.P.'S

NOTES: ✓ CROWN SAVER, BRAKES, LINKAGE, CLAMP & HANGER

✓ BOILER BLOW DOWN @ 1000, 2300

HRS RAN	BOILER PSI	STACK TEMP	MAXIMUM EXPERIENCED HOOKLOAD	SAFETY TOPIC
4	105	220		

111052

FOLD HERE →

LICENCE NO.: SDL-99

WELL NAME AND NO.: CHEVRON E-AL LIARD K-29 60° 30'N 123° 30'W

OPERATOR: CHEVRON CANADA LTD

CONTRACTOR: AKITA DRILLING LTD

SURFACE LOCATION: K29 - 60° 30'N 123° 30'W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS — OPR. / R.M.

	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) H²S Signs Posted (if required)	Initial	Initial
(4) Well Licensee & Stack Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually Inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)		Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
(3) Mast Inspection Before Raising or Lowering		Initial
(4) Crown Saver Checked		Initial
(5) Motor Kills checked		Initial

YEAR 97 | RIG NO. 47 | FUEL | RIG .64 | WEATHER: TEMPERATURE, CURRENT CONDITIONS, WIND DIR., ROAD 5

TIME-HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	2
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV. SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.				
MORN.			1		1/2	4 1/4	1/4															8:45 AM TO 12:00				
DAY						3 1/2	1/4					4 1/4									1/2	3 1/2			
EVE.							1/4					3 1/2									1/4				
TOTAL																									

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTH
		.31 m
1	8 1/2	120 m
1	8 1/2	8.51 147 m
2	8 1/2	17.09 m
1	8 1/2	9.31 m
12	8 1/2	110.03 m
1	8 1/2	7.06 m
3	8 1/2	27.60 m
1	8 1/2	.84 m
12	8 1/2	109.28 m
		355.62 m

D.P. STANDS m
D.P. SINGLES m
KELLY DOWN m
TOTAL m
WT. OF DC 1000 daN
WT. OF STRING 1000 daN

BIT RECORD

BIT NO.	RR #4A	1
SIZE (mm)	311	444.5
IADC CODE		
MFG.	Hughes	SMITH
TYPE	GT-1	HYPERION
SERIAL NO.	479416	H044980
JETS (mm)	3x15.9	3x12.7
DEPTH OUT (m)		711
DEPTH IN (m)		529
TOTAL METRES DRILLED (m)		182
TOTAL HOURS RUN		15 3/4

CUTTING STRUCTURE: T_i | T_o | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG

TORQUE AT BOTTOM

FILL ON BOTTOM (m) 5 m

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME			
DENSITY kg/m³			
FUNNEL VIS. - (S/L)			
W.L. (cm³)			
pH			

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
Desco	1 SX
Sawdust	5 SXS

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
DESILTER				
DESANDER				
CENTRIFUGE				

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROT R.P.

LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE: A. Watson

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTH
		m

D.P. STANDS m
D.P. SINGLES m
KELLY DOWN m
TOTAL m
WT. OF DC 1000 daN
WT. OF STRING 1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE: T_i | T_o | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG

TORQUE AT BOTTOM

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME			
DENSITY kg/m³			
FUNNEL VIS. - (S/L)			
W.L. (cm³)			
pH			

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
DESILTER				
DESANDER				
CENTRIFUGE				

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROT R.P.

LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE: K. Mc Johnson

EVENING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTH
		m

D.P. STANDS m
D.P. SINGLES m
KELLY DOWN m
TOTAL m
WT. OF DC 1000 daN
WT. OF STRING 1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE: T_i | T_o | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG

TORQUE AT BOTTOM

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME			
DENSITY kg/m³			
FUNNEL VIS. - (S/L)			
W.L. (cm³)			
pH			

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
DESILTER				
DESANDER				
CENTRIFUGE				

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROT R.P.

LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE:

FOLD HERE →

Y CHECKS — OPR. — R.M.

- fy Walk Around Inspection — Initial — Initial
- ailed Inspection-Weekly (using checklist) — Initial — Initial
- S Signs Posted (if required) — Initial — Initial
- il Licenses & Stick Diagram Posted — Initial — Initial
- wn Lines Staked — Initial — Initial
- DP Drills Performed — Initial — Initial
- ekly Inspect BOP's - Flexlines & Degasser Lines — Initial — Initial
- See Health and Safety Meeting (one/crew/month) — Initial
- A.D.O.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
- st Inspection Before Raising or Lowering — Initial
- own Saver Checked — Initial
- or Kills checked — Initial

YEAR 91 | MONTH 02 | DAY 14

RIG NO. 48 ULE

FUEL @ 8:00

RIG .64 | GENER 31

	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
LAST CASING									
TUBING OR LINER									

WEATHER

	°C
TEMPERATURE	
CURRENT CONDITIONS	15856
WIND DIRECTION	
ROAD	529218

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
127	29	E	108	152	5"XH	121	PP-100	NATIONAL	234
127	29	X2	106	154	5"XH	133	PP-100	NATIONAL	234
127	38	X3	101	156	5"XH	114	F-1000	FMC	254

22 23 24 25 26

TOTALS 8

SHALE SHAKER(S) — NO. | TYPE

SCREENS CHANGED ☐ YES ☐ NO

TOP	50	TOP	50
MIDDLE	50	MIDDLE	50
BOTTOM	50	BOTTOM	50

RENTALS/SERVICES — HORN | TOWER | WIRE

2ND BULKS — 8 | 12 | 4

FUEL .84

RD

MORNING TOUR

METRES DRILLED

FROM	TO	DRD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED — @ — @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
0000	0030	1/2	6	Pick up DP Hitch Bridge @ 689m
0030	0130	1	3	Ream Core @ 687m + Wash to Btm 5m fill
0130	0300	1½	5	Circ + Cond Hole.
0300	0315	1/4	3	Rig Service
0315	0800	4¾	6	Pull Out of Hole Pump Pill @ Btm Kelly Hose Etc

NOTES
✓ Crown Saver Brakes + Lowerer Clean Packing
Driller Rig in @ 7:00 - 5:00

BOILER HRS. RAN | STACK TEMP | MAX. UNEXPERIENCED HOOKLOAD | SAFETY TOPIC

5 | 10 | 77.5C

DAY TOUR

METRES DRILLED

FROM	TO	DRD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED — @ — @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
0800	1130	3½	6	P.O.O.H. Laying Down Stab + Cut Strapping Off Hole Opener + Bit Laying Down Same
1130	1500	3½	22	Rig up to Run Csg.
1500	1530	½	21	Safety Meeting
1530	1945	4¼	12	Run 339mm Casing
1945	2000	¼	7	RS

NOTES
✓ Brakes L. Wake Crown Saver Clean Floor
Bucket Rental Drill @ 1000 1500

BOILER HRS. RAN | STACK TEMP | MAX. UNEXPERIENCED HOOKLOAD | SAFETY TOPIC

12 | 10.5 | 175

EVENING TOUR

METRES DRILLED

FROM	TO	DRD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED — @ — @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
2000	2015	1/4	23	Safety Meeting Prior To Running Casing.
2015	2030	¼	7	Rig Service
2030	2400	3½	12	Run Casing 339.7mm - 101.2 kg/m - K55 Buttress. Jts. 56 Jts Landed = 693.6

NOTES
✓ Crown Saver Brakes + Lowerer Clean + Floor.
Bucket Rental (2)

BOILER HRS. RAN | STACK TEMP | MAX. UNEXPERIENCED HOOKLOAD | SAFETY TOPIC

4 | 105 | 225

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

111051

FOLD HERE →

LICENCE NO.: SDL 99

WELL NAME AND NO.: CHEVRON ETAL LIARD K-29 60° 30'N 123° 30'W

OPERATOR: CHEVRON CANADA

CONTRACTOR: AKITA DRILLING LTD

SURFACE LOCATION: K29 - 60° 30'N 123° 30'W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS — OPR. [ ] R.M. [ ]

(1) Daily Walk Around Inspection — Initial [ ] Initial [ ]
(2) Detailed Inspection-Weekly (using checklist) — Initial [ ] Initial [ ]
(3) H²S Signs Posted (if required) — Initial [ ] Initial [ ]
(4) Well Licensee & Sour Diagram Posted — Initial [ ] Initial [ ]
(5) Flare Lines Staked — Initial [ ] Initial [ ]
(6) BOP Drills Performed — Initial [ ] Initial [ ]
(7) Visually Inspect BOP's - Fireproof & Degasser Lines — Initial [ ] Initial [ ]

(1) Rig Site Health and Safety Meeting (one/crew/month) — Initial [ ]
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial [ ]
(3) Mast Inspection Before Raising or Lowering — Initial [ ]
(4) Crown Saver Checked — Initial [ ]
(5) Motor Kills checked — Initial [ ]

YEAR 99 — RIG NO. — FUEL — RIG 1.4 — WEATHER — TEMPERATURE — CURRENT CONDITION — WIND DIR. — ROAD

TIME-HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.			
MORN.			7¾				1/4																	
DAY			4 3/4		2	5	1/4																	
EVE.						2¾	1/4														1/4	3/4		
TOTAL																								

DRILLING ASSEMBLY (At End of Tour)

NO.		OD	LENGTHS
	BIT		.34 m
1/1	MOTOR		1.52
1/1	DC	8¼ S.S.	8.54 1.20m
2	DC	279	17.09 m
1/1	XO	8¼ S.S.	.90 9.34 m
12	DC	228	110.03 m
1	JAR		7.08 m
3	DC	228	27.60 m
1	BELL SUB		.84 m
17	HWDP		169.65 m
	BHA :		295.62
13	D.P.	STANDS	371.37 m
	D.P.	SINGLES	m
	KELLYDOWN		m
	TOTAL		667.04 m
WT. OF DC			1000 daN
WT. OF STRING		76	1000 daN

BIT RECORD

BIT NO.	RR#4A	1	
SIZE (mm)	311	444.5	
IADC CODE			
MFG.	HUGHES	SMITH	
TYPE	XFGHJGT-1	HYE OPENHOLE	
SERIAL NO.	479416	H044780	
JETS (mm)	3 x 15.9	3 x 12.7	
DEPTH OUT (m)			
DEPTH IN (m)		529	
TOTAL METRES DRILLED (m)		138	
TOTAL HOURS RUN		11	

CUTTING STRUCTURE: T_i | T_o | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG
TORQUE AT BOTTOM
FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☐ WATER BASED ☐ OIL BASED

TIME	02:00	04:00	06:00
DENSITY kg/m³	1150	1145	1150
FUNNEL VIS. - (S/L)	95	110	108
W.L. (cm³)	7.0	7.2	7.0
pH	8.5	9.0	8.5
PVT m³	136	134	130.0

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
Bel	25 5x5
Kelzan	3 5x5
Caust.C	2 5x5
Soda Ash	2 5x5
Sawdust	3 5x5

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
DESILTER				
CENTRIFUGE	8	1145	1135	1290

METRES DRILLED

FROM	TO	DRILLED BY RM-R CORE-C	ROT. R.P.M.
581	667	86	

LINER SIZE (mm)	S.P.M.
14000	152 95

REDUCED POWER SPEED: Pump #3 @ 10

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.		OD	LENGTHS
	BIT		.34 m
1/1	HOLE OPENER BIT SUB		1.54 1.20m
1/1	DC / STAB	279	8.54 1.47m
2	DC	279	17.09 m
1/1	XO / MOTOR	279	.90 9.34m
12	DC		110.03 m
1	JAR		7.08 m
3	DC	228	27.60 m
1	BELL SUB		.84 m
17	HWDP		169.62 m
		BHA	295.62 m
	D.P.	STANDS	m
	D.P.	SINGLES	m
	KELLYDOWN		m
	TOTAL		m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	RR#4A	1	
SIZE (mm)	311	444.5	
IADC CODE			
MFG.	HUGHES	SMITH	
TYPE	GT-1	HYE OPENER	
SERIAL NO.	479416	H044780	
JETS (mm)	3 x 15.9	3 x 12.7	
DEPTH OUT (m)		711	
DEPTH IN (m)		529	
TOTAL METRES DRILLED (m)		182	
TOTAL HOURS RUN		15 3/4	

CUTTING STRUCTURE: T_i | T_o | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG
TORQUE AT BOTTOM
FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☐ WATER BASED ☐ OIL BASED

TIME	02:00	14:00	18:00
DENSITY kg/m³	1150		
FUNNEL VIS. - (S/L)	12		
W.L. (cm³)	6.5		
pH	8.0		
PVT	124.5		

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
Kelzan	2 5X
Bel	2 5X

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
DESILTER				
CENTRIFUGE				

METRES DRILLED

FROM	TO	DRILLED BY RM-R CORE-C	ROT. R.P.M.
669	711	42	70

LINER SIZE (mm)	S.P.M.
14700	152 95

REDUCED POWER SPEED: Pump #3 @ 152

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.		OD	LENGTHS
	BIT		.34 m
1/1	HOLE OPENER		1.54 1.20m
1/1	DC STAB	279	8.54 1.47m
2	DC	279	17.09 m
1/1	XO	MOTOR 228	90 9.34m
12	DC	228	110.03 m
1	JARS		7.08 m
3	DC	228	27.60 m
1	BELL SUB		.84 m
17	HWDP		169.62 m
			295.62 m
	D.P.	STANDS	m
	D.P.	SINGLES	m
	KELLYDOWN		m
	TOTAL		m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	RR#4A	1	
SIZE (mm)	311	444.5	
IADC CODE			
MFG.	HUGHES	SMITH	
TYPE	GT-1	HYE OPENER	
SERIAL NO.	479416	H044780	
JETS (mm)	3 x 15.9	3 x 12.7	
DEPTH OUT (m)		711	
DEPTH IN (m)		529	
TOTAL METRES DRILLED (m)		182	
TOTAL HOURS RUN		15 3/4	

CUTTING STRUCTURE: T_i | T_o | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG
TORQUE AT BOTTOM
FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☐ WATER BASED ☐ OIL BASED

TIME			
DENSITY kg/m³			
FUNNEL VIS. - (S/L)			
W.L. (cm³)			
pH			

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
DESILTER				
CENTRIFUGE				

METRES DRILLED

FROM	TO	DRILLED BY RM-R CORE-C	ROT. R.P.M.

LINER SIZE (mm)	S.P.M.

REDUCED POWER SPEED: Pump #3 @ 152

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

EVENING TOUR

FOLD HERE →

Y CHECKS — OPR. — R.M.

- Walk Around Inspection — Initial — Initial
- ...spect Inspection-Weekly (using checklist) — Initial — Initial
- ...Signs Posted (if required) — Initial — Initial
- ...License & Stick Diagram Posted — Initial — Initial
- ...e Lines Stated — Initial — Initial
- ...P Drills Performed — Initial — Initial
- ...ekly inspect BOP's - Flarelines & Degasser Lines — Initial — Initial
- ...Site Health and Safety Meeting (one/crew/month) — Initial
- ...C.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
- ...t Inspection Before Raising or Lowering — Initial
- ...wn Saver Checked — Initial
- ...or Kills checked — Initial

YEAR 94 | MONTH 02 | DAY 13

RIG NO. 48116

FUEL @ 8:00

RIG 1.14 | PERS. 3

WEATHER: TEMPERATURE °C; CURRENT CONDITIONS; WIND DIRECTION; ROAD

LAST CASING / TUBING OR LINER

	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)

	DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
	127	29	E	105	152	5½H	121	9P100	NATIONAL	234
	127	29	X2	106	154	5½H	133	9P100	NATIONAL	234
	127	38	X3	101	151	5½H	11..	F-1000	EMSCO	254

22	23	24	25	26
TY Hse Mainten.				
3/4				

TOTALS: 8 / 12. / 4

SHALE SHAKER(S): NO. — TYPE —

SCREENS CHANGED ☐ YES ☐ NO

TOP 50 | TOP 50

MIDDLE 50 | MIDDLE 50

BOTTOM 50 | BOTTOM 50

RENTALS/SERVICES

	MONTH	DAY	YEAR
2ND Runner	8	12	4
Fuel 1.23			

RD

ON BASED

	06:00
	1150
	108
	70
	8.5
1	130.0

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
1145	1135	1290

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

MORNING TOUR

METRES DRILLED

FROM	TO	DRLG RMR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
581	667	86	95	0/5

CIRCULATING	PUMP NO.	LINER SIZE (mm)	S.P.M.	PUMP NO.	LINER SIZE (mm)	S.P.M.
14000		152	95		152	95

REDUCED PUMP SPEED: Pump #3 @ 80 | 150 | @ 80 | 120

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	07:45	7¾	3	Ream 311mm Hole To 444mm Hole F/ 581m - 667m
17:...	18:00	1¼	7	Rig Service.

NOTES: ✓ Crown Saver, Brakes/Linkage, Clamp/Anchor, Bailer Rig Down. @ 3:00, 6:00

BOILER HRS RAN | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY WORK | MISC.

8 | 11 | 225

D

ON BASED

	18:00

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

DAY TOUR

METRES DRILLED

FROM	TO	DRLG RMR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
667	711	44	80	0/5

CIRCULATING	PUMP NO.	LINER SIZE (mm)	S.P.M.	PUMP NO.	LINER SIZE (mm)	S.P.M.
10700		152	75		152	95

REDUCED PUMP SPEED: Pump #3 @ 80 | 152 | @ 80 | 120

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
08:00	12:45	4¾	3	Ream 311mm Hole To 444mm Hole F/ 667m - 711m
12:45	19:45	2	5	Circ. Work Pipe & Pump High Vis Sweep
19:45	19:45	5	6	P.O.O.H. Pump Out losses, Pump Pill, Run Survey @ 513m, 475m, 320m, 221m (Wireline)
19:45	20:00	¼	7	RIS (Service Top Drive)

NOTES: ✓ Brakes, Linkage, Crown Saver, Clamp, Anchor, Bailer Rig Down @

BOILER HRS RAN | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY WORK | MISC.

12 | IN | 445

ORD

ON BASED

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

EVENING TOUR

METRES DRILLED

FROM	TO	DRLG RMR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATING	PUMP NO.	LINER SIZE (mm)	S.P.M.	PUMP NO.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED: @ | | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
20:00	22:00	2	6	Run In Hole To 458m.
22:00	22:15	¼	22	Rig Up Lamoral Truck + Strap 30 Joints of DP.
22:15	23:00	¾	21	Safety Meeting: Prior To Picking Up DP.
23:00	23:45	¾	6	Pick Up DP
23:45	24:00	¼	=	Rig Service

NOTES: ✓ Crown Saver, Brakes/Linkage, Clamp + Anchor.

BOILER HRS RAN | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY WORK | MISC.

4 | 04 | 225

111050

FOLD HERE →

LICENCE NO.: SDL 99
WELL NAME AND NO.: CHEVRON ETAL LEAD K-79 60°30'12.5" 30N
OPERATOR: CHEVRON CANADA LTD
CONTRACTOR: ARCTIC DRILLING LTD
SURFACE LOCATION: K-79 60°30'N 123°30'N
UNIQUE ID.:
SIGNATURE OF OPERATOR'S REPRESENTATIVE:
SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS (OPR. / R.M.)
(1) Daily Walk Around Inspection — R.M. 12
(2) Detailed Inspection-Weekly (using checklist)
(3) HPS Signs Posted (if required)
(4) Well License & Stack Diagram Posted — OPR. E
(5) Flare Lines Staked
(6) BOP Drills Performed
(7) Visually Inspect BOP's - Flarelines & Degasser Lines
(1) Rig Site Health and Safety Meeting (one/crew/month)
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)
(3) Mast Inspection Before Raising or Lowering
(4) Crown Saver Checked — OPR. E
(5) Motor Kills checked

RIG NO. 29
FUEL — RIG 1.56
WEATHER — TEMPERATURE; CURRENT CONDITION: IS; WIND DIR.; ROAD 5

TIME-HRS.

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.			
MORN.		2			1¼	4¼	1/4			1/4												HAND OF TOOLS	WELDSTRAPPED & WORE ON TOP DRIVE		
DAY							1/4																	
EVE.			3¾				1/4															1	3	1
TOTAL	1																							

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
	BIT		.34 m
1	12¼" STAB BLADES		.90 1.34 m
3	DC	228	26.41 m
1	STAB		1.77 m
1	XO SUB		8.41 1.77 m
9	DC	228	82.41 m
1	JARS		7.08 m
3	DC	228	27.41 m
1	STAB SUB		.84 m
10	HWDP		109.71 m
	BHA =		269.58 m
15	D.P.	STANDS	428.48 m
1	D.P.	SINGLES	9.67 m
	KELLY DOWN		3.27 m
	TOTAL		711 m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	4A
SIZE (mm)	311
IADC CODE	
MFG.	Hughes
TYPE	GT-1
SERIAL NO.	479416
JETS (mm)	3x15 9
DEPTH OUT (m)	711
DEPTH IN (m)	529
TOTAL METRES DRILLED (m)	182
TOTAL HOURS RUN	31½

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION
HOLE DRAG: 0-17 0-14
TORQUE AT BOTTOM: 2600 FT LBS
FILL ON BOTTOM (m):

MUD RECORD

MUD TYPE: [X] WATER BASED [ ] OIL BASED

TIME	02:00	04:00
DENSITY kg/m³	1140	1140
FUNNEL VIS. - (S/L)	70	65
W.L. (cm³)	7.0	7.5
pH	9.0	8.5

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
Barite	20 SXS
Gel	15 SXS

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
8	1140	1130	1820

METRES DRILLED

FROM	TO	DRLD FOR CORE-C	ROT R.P.
706	711	5	

LINER SIZE (mm)	S.P.M.
14600	150 / 90

REDUCED SPEED: Pump #3 @ 150

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
702	3°

DRILLER'S SIGNATURE:

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
	BIT		.34 m
½	HOLE OPENER	BHA	1.56 1.20 m
1½	DC / STAB	279	8.54 1.47 m
2	DC	279	17.09 m
1½	X/O / MONEL		.80 1.93 m
12	DC	228	110.03 m
1	JAR		7.08 m
3	DC	228	27.60 m
1	STAB SUB		.84 m
10	HWDP		109.68 m
	BHA =		275.67 m
17	D.P.	STANDS	245.52 m
	D.P.	SINGLES	m
	KELLY DOWN		m
	TOTAL		m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION
HOLE DRAG:
TORQUE AT BOTTOM:
FILL ON BOTTOM (m):

MUD RECORD

MUD TYPE: [ ] WATER BASED [ ] OIL BASED

TIME	START	7:00
DENSITY kg/m³	DRILL	7:00
FUNNEL VIS. - (S/L)	DTF	28
W.L. (cm³)	DRILLING	
pH		

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD FOR CORE-C	ROT R.P.

LINER SIZE (mm)	S.P.M.

REDUCED SPEED:

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE:

EVENING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
	BIT		.34 m
½	HOLE OPENER	BHA	1.56 1.20 m
1½	DC / STAB		8.41 1.47 m
2	DC		17.09 m
1½	X/O / MONEL	279	.80 1.93 m
12	DC	228	110.03 m
1	JAR		7.08 m
3	DC	228	27.60 m
1	STAB SUB		.84 m
10	HWDP		109.68 m
	BHA =		275.67 m
17	D.P.	STANDS	245.52 m
	D.P.	SINGLES	m
	KELLY DOWN		m
	TOTAL		581.29 m
WT. OF DC			1000 daN
WT. OF STRING		76	1000 daN

BIT RECORD

BIT NO.	REMA	1
SIZE (mm)	311	444.5
IADC CODE		
MFG.	HUGHES	SMITH
TYPE	GT-1	MILL TOOTH
SERIAL NO.	479416	HD44780
JETS (mm)	3x14	
DEPTH OUT (m)		
DEPTH IN (m)		529
TOTAL METRES DRILLED (m)		52
TOTAL HOURS RUN		3¾

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION
HOLE DRAG: 0-17 0-16
TORQUE AT BOTTOM: 400 - 3000 FT LBS.
FILL ON BOTTOM (m):

MUD RECORD

MUD TYPE: [X] WATER BASED [ ] OIL BASED

TIME	20:00	24:00
DENSITY kg/m³	1145	1145
FUNNEL VIS. - (S/L)	61	60
W.L. (cm³)	7.0	7.0
pH	8.5	8.5

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
4	1145	1135	1740

METRES DRILLED

FROM	TO	DRLD FOR CORE-C	ROT R.P.
529	581	52	9

LINER SIZE (mm)	S.P.M.
12100	152 / 85

REDUCED SPEED: Pump #3 @ 150

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE:

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DAILY CHECKS — OPR. / R.M.

- Daily Walk Around Inspection — Initial / Initial
- Detailed Inspection-Weekly (using checklist) — Initial / Initial
- H2S Signs Posted (if required) — Initial / Initial
- Well License & Stick Diagram Posted — Initial / Initial
- Flare Lines Staked — Initial / Initial
- BOP Drills Performed — Initial / Initial
- Monthly Inspect BOP's - Flarelines & Degasser Lines — Initial / Initial
- Daily Safe Health and Safety Meeting (one/crew/month) — Initial
- A.E.R.C.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
- Pre-Test Inspection Before Raising or Lowering — Initial
- Crown Saver Checked — Initial
- Gas Detector Kits checked — Initial

YEAR 95 | MONTH 02 | DAY 12

RIG NO. 44/55

FUEL @ 8:00

RIG 1.56 | BOILER 31

WEATHER — TEMPERATURE °C — CURRENT CONDITIONS 13725 — WIND DIRECTION — ROAD 527 [illegible]

LAST CASING / TUBING / OR LINER

O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
127 [illegible]	29	E	106	152	5 1/2 XH	121	9-P1000	NATIONAL	234
127 [illegible]	29	X	116	154	5 1/2 XH	133	9-P1000	NATIONAL	234
127 [illegible]	38	X	101	151	5 1/2 XH	160	F. 1000	[illegible]	254

1	22	23	24	25	26
QTY	HWDP TOOLS	[illegible]	WORK OUT TOOLS		
	1	3	1		

TOTALS: 8

SHALE SHAKER(S) — NO. — TYPE —

SCREENS CHANGED ☐ YES ☑ NO

TOP 50 / TOP 50

MIDDLE 50 / MIDDLE 50

BOTTOM 50 / BOTTOM 50

RENTALS/SERVICES

2ND BOILER — 8 — 12 — 4

FUEL 1.66

MORNING TOUR

MUD BASED

TIME	
:00	
:0	
5	
5	
5	

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
1140	1130	1820
INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
706	711	5	1[illegible]	1/5

CIRCULATION PRESSURE (kPa): 14600

PUMP NO. 1: LINER SIZE (mm) 152, S.P.M. 80

PUMP NO. 2: LINER SIZE (mm) 152, S.P.M. 80

REDUCED PUMP SPEED: Pump #3 @ 152 @ 110

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
702	3°	N4E

DRILLER SIGNATURE: [signature]

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.
00[00]	02[00]	2	2
02[00]	03[00]	1	5
03[00]	03[30]	1/2	10
03[30]	03[45]	1/4	5
03[45]	08[00]	4 1/4	6

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

Drill 311mm Hole Fr: 706m - 711m.
Circ Sweep Pipe Prep To Trip.
Survey @ 7[illegible]m. 705m.
Rig Service
Brake Check [illegible] To Trip
Pull out To 453m Pump Plug Blow Down Stand Out

NOTES: 1 Crown Saver, Brakes, Linkage, Clamps, Air Line
Kelly Spin Down @ 2:00, 5:00

BOILER — HRS RAN 5 | pH 10 | STACK TEMP 225

MAXIMUM EXPERIENCED HOOKLOAD

SAFETY TOPIC

DAY TOUR

MUD BASED

TIME	

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION PRESSURE (kPa):

PUMP NO. 1: LINER SIZE (mm), S.P.M.

PUMP NO. 2: LINER SIZE (mm), S.P.M.

REDUCED PUMP SPEED: @ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE: [signature]

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.
08[00]	10[30]	2 1/2	6
10[30]	11[30]	1	22
11[30]	14[30]	3	23
			8
14[30]	18[45]	4 1/4	6
18[45]	19[45]	1	24
19[45]	20[00]	1/4	7

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

P.O.O.H. Laying Down 2 Stds
Measured & Caliper Une Offset 24 Bits & 8
Picked 11 "DC's, Prime Up Une Offset 24 Bits & 8
Held Stand Back 8 - 8 Une Offset 24 Bits Sub
RIH
Work on Top Drive
RIS

NOTES: 1 Crown Saver, Brakes, Linkage, Clamps, Air Line
Boiler Shut Down @ 1400 00

BOILER — HRS RAN 12 | pH 10 | STACK TEMP 225

MAXIMUM EXPERIENCED HOOKLOAD

SAFETY TOPIC

EVENING TOUR

MUD BASED

TIME	
:0	
5	
2	
[illegible]	

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
1145	1135	1790
INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
521	581	52	90	3/5

CIRCULATION PRESSURE (kPa): 15100

PUMP NO. 1: LINER SIZE (mm) 152, S.P.M. 85

PUMP NO. 2: LINER SIZE (mm) 150, S.P.M. 85

REDUCED PUMP SPEED: Pump #3 @ 152 @ 100

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE: [signature]

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.
20[00]	23[45]	3 3/4	3
23[45]	24[00]	1/4	7

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

Ream 3[illegible] Hole To 4[illegible] Fr: 521m - 581m
Rig Service

NOTES: 1 Crown Saver, Brakes, Linkage, Clamps, Air Line
Boiler Shut Down @ 0000

BOILER — HRS RAN 4 | pH 10 | STACK TEMP 225

MAXIMUM EXPERIENCED HOOKLOAD

SAFETY TOPIC

111049

FOLD HERE →

LICENCE NO.: SDL 99

WELL NAME AND NO.: CHEVRON K-29 60° 30'N 123° 30'W E-AC LEAD

OPERATOR: CHEVRON CANADA

CONTRACTOR: AKITA DRILLING LTD

SURFACE LOCATION: K-29 60° 30'N 123° 30'W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS — OPR. / R.M.

(1) Daily Walk Around Inspection
(2) Detailed Inspection-Weekly (Lang checklist)
(3) H²S Signs Posted (if required)
(4) Well Licensee & Stick Diagram Posted
(5) Flare Lines Staked
(6) BOP Drills Performed
(7) Visually Inspect BOP's - Flarelines & Degasser Lines

(1) Rig Site Health and Safety Meeting (one/crew/month)
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)
(3) Mast Inspection Before Raising or Lowering
(4) Crown Saver Checked
(5) Motor Kills checked

YEAR 89
RIG NO. 41
FUEL
RIG 91
WEATHER — TEMPERATURE / CURRENT CONDITIONS / WIND DIR. / ROAD

TIME-HRS

CODE NO.	1 OPER.	2 TRIP UP & TEAR DOWN	3 DRILL ACTUAL	4 REAMING	5 CORING	6 COND. MUD & CIRC	7 TRIPS	8 RIG SERVICE	9 REPAIR RIG	10 CUT OFF DRILL LINE	11 DEV. SURVEY	12 WIRE LINE LOGS	13 RUN CASE & CEMENT	14 WAIT ON CEMENT	15 NIPPLE UP B.O.P.	16 TEST B.O.P.	17 DRILL STEM TEST	18 PLUG BACK	19 SQUEEZE CEMENT	20 FISHING	21 DIR. WORK	22 SAFETY MTG.	23	24
	MORN.		1 1/2			1/2		1/4			3/4													
	DAY		10 3/4			1/2		1/4			1/2													
	EVE.		3 1/4			1/4		1/4			1/4													
	TOTAL																							

DRILLING ASSEMBLY (At End of Tour)

NO.	OD (mm)	CODE	LENGTH (m)
	12¼" BIT		.34
1	STAB		1.77
1	DC 203		8.94/1.77
9	DC	228	82.64
1	STABS		7.08
3	DC	228	27.56
1	Bell Sub		.84
12	HWDP		114.71
	BHA =		243.55
17	D.P.	STANDS	342.08
2	D.P.	SINGLES	18.92
	KELLYDOWN		9.60
	TOTAL		1410.16
WT. OF DC			1000 daN
WT. OF STRING	169		1000 daN

BIT RECORD

BIT NO.	4A
SIZE (mm)	311
IADC CODE	
MFG.	HUGHES
TYPE	GT-1
SERIAL NO.	479416
JETS (mm)	3×15.9
DEPTH OUT (m)	—
DEPTH IN (m)	529
TOTAL METRES DRILLED (m)	111
TOTAL HOURS RUN	15½

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG 0-1 0-1

TORQUE AT BOTTOM 0-1 FT LBS

FILL ON BOTTOM (m) —

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	0200	0400	0600
DENSITY kg/m³	66	65	1150
FUNNEL VIS. - (S/L)	1150	1155	63
W.L. (cm³)	6.5	7.0	2.0
pH	9.0	9.0	9.0
PVT m³	137.5	139.1	139.5

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
Kelzan	4 SxS
Caustic	1 Sx
Detergent	1 pail

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
8	1155	1145	1820
HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

MORNING TOUR

METRES DRILLED

FROM	TO	DRLD RMR CORE-C	R
583	640	57	

CIRCULATION

LINER SIZE (mm)	S.P.M.
14220	152 80

REDUCED PUMP SPEED

Pump #3 @ 150

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
573	4.0
610	4.5

DRILLER'S SIGNATURE

DRILLING ASSEMBLY (At End of Tour)

NO.	OD (mm)	CODE	LENGTH (m)
	12¼" BIT		.34
1	S.S. MUEL		.90 9.34
2	DC		18.69
1	STAB		1.77
1	DC/STABS		8.94/1.77
9	DC		82.64
1	JARS		7.08
3	DC		27.56
1	BELL SUB		.84
12	HWDP		109.71
	BHA =		243.55
14	D.P.	STANDS	399.45
1	D.P.	SINGLES	9.68
—	KELLYDOWN		9.79
	TOTAL		688
WT. OF DC			1000 daN
WT. OF STRING	169		1000 daN

BIT RECORD

BIT NO.	4A
SIZE (mm)	311
IADC CODE	
MFG.	HUGHES
TYPE	GT-1
SERIAL NO.	479416
JETS (mm)	3×15.9
DEPTH OUT (m)	
DEPTH IN (m)	529
TOTAL METRES DRILLED (m)	159
TOTAL HOURS RUN	25¼

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG 0-1 0-1

TORQUE AT BOTTOM

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	1000	1400	1800
DENSITY kg/m³	1145	1140	1140
FUNNEL VIS. - (S/L)	61	64	70
W.L. (cm³)	7	7	7.2
pH	8.5	9	8.5
PVT	143.6	133.1	148.0

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
GEL	2 Sx
CAUST	2 Sx
[illegible]	4 Sx
SOD [illegible]	1 Sx

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
1	1140	1800	1155

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
—	1140	1500	1800
HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

DAY TOUR

METRES DRILLED

FROM	TO	DRLD RMR CORE-C	R
640	688	48	

CIRCULATION

LINER SIZE (mm)	S.P.M.
14800	152 80

REDUCED PUMP SPEED

Pump #3 @ 150

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
643	4

DRILLER'S SIGNATURE

DRILLING ASSEMBLY (At End of Tour)

NO.	OD (mm)	CODE	LENGTH (m)
	12¼" BIT		.34
1	B.S. MUEL		.90 9.34
2	DC	228	18.69
1	STAB		1.77
1	DC 203	STAB	8.94/1.77
9	DC	228	82.64
1	JARS		7.08
3	DC		27.56
1	Bell Sub		.84
12	HWDP		109.71
	BHA		243.55
15	D.P.	STANDS	423.45
	D.P.	SINGLES	—
	KELLYDOWN		8.76
	TOTAL		702.53
WT. OF DC			1000 daN
WT. OF STRING	169		1000 daN

BIT RECORD

BIT NO.	4A
SIZE (mm)	311
IADC CODE	
MFG.	HUGHES
TYPE	GT-1
SERIAL NO.	479416
JETS (mm)	3×15.9
DEPTH OUT (m)	—
DEPTH IN (m)	529
TOTAL METRES DRILLED (m)	177
TOTAL HOURS RUN	21½

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG —

TORQUE AT BOTTOM 0-1 0-1

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	2100	2400	
DENSITY kg/m³	1140	1140	
FUNNEL VIS. - (S/L)	75	78	
W.L. (cm³)	7.0	7.0	
pH	9.5	8.5	
PVT	149.3	150.1	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
4	1140	1130	1935
HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

EVENING TOUR

METRES DRILLED

FROM	TO	DRLD RMR CORE-C	R
688	706	18	

CIRCULATION

LINER SIZE (mm)	S.P.M.
14800	150 80

REDUCED PUMP SPEED

Pump #3 @ 150

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
676	3.5

DRILLER'S SIGNATURE

FOLD HERE →

DAILY CHECKS — OPR. / R.M.

- Daily Walk Around Inspection — Initial / Initial
- Documented Inspection-Weekly (using checklist) — Initial / Initial
- H2S Signs Posted (if required) — Initial X / Initial
- Well Licensee & Stick Diagram Posted — Initial / Initial E
- Overhead Lines Staked — Initial / Initial
- BOP Drills Performed — Initial / Initial
- Visually inspect BOP's - Flarelines & Degasser Lines — Initial / Initial

- Safe Health and Safety Meeting (one/crew/month) — Initial
- A.D.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
- Pre-tour inspection Before Rigging or Lowering — Initial
- Crown Saver Checked — Initial E
- Gas Detector Kills checked — Initial

YEAR 93 | MONTH 02 | DAY 11

RIG NO. 45

FUEL @ 8:00

RIG 61 | BOILER 31

WEATHER

TEMPERATURE °C	
CURRENT CONDITIONS	10933
WIND DIRECTION	
ROAD	526700

LAST CASING TUBING OR LINER

O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
127	29	E	108	152	5 X H	121	[illegible]	NATIONAL	254
127	29	X2	106	154	5 X H	133	9-P100	NATIONAL	254
127	38	X3	101	156	5 X H	160	F-1000	Emsco	254

1 22 23 C 24 25 26

TOTALS

8	SHALE SHAKER(S) NO. / TYPE	
12	SCREENS CHANGED ☐ YES ☐ NO	
4	TOP 50 / TOP 50	
	MIDDLE 50 / MIDDLE 50	
	BOTTOM 50 / BOTTOM 50	

RENTALS/SERVICES — MORNING / DAY / EVENING

2ND BOILER — 4 / 12 / 4

BOILER #2 FUEL 2.09 m

MORNING TOUR

RD — OIL BASED

0	0600
5	1150
0	63
	2.0
	9.0
.1	139.5

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
1155	1145	1820
INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
583	610	57	150	2/5

CIRCULATION — PUMP NO.1 — PUMP NO.2

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
14700	152	80	152	80

REDUCED PUMP SPEED

Pump #3 @ 10 SPM @ 15 SPM 105

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
573	4.1°	N3E
610	4.5°	N15E

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	00 30	1/2	6	Circ + Survey @ 573m.
00:30	00 45	1/4	7	Rig Service + Service Top Drive
00 45	04 30	3 3/4	2	Drill 311mm Hole Fr: 583m - 620m.
04 30	05 00	1/2	5	Circ + Work Pipe Prior To Survey
05 00	05 15	1/4	10	Survey @ 610m.
~~05 15~~	~~05 45~~	~~1/2~~	~~2~~	~~Drill 311mm Hole Fr: 610m - 640m.~~
05 15	19 00	2 3/4	2	Drill 311mm Hole Fr: 620m - 640m.

NOTES: √ Crown Saver, Brakes + Linkage, Clamp + Anchor, Boiler Ran 0-00 To 3:00 (4hrs)

HRS. RAN | BOILER ph | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC

4 | n/a | 225

DAY TOUR

RD — OIL BASED

0	1800
	1140
	70
	7.2
	8.5
1	148.0

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
1150	1140	1855

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
1140	1910	1155
INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
1140	1140	1155

METRES DRILLED

FROM	TO	DRLD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
640	685	48	180	2/5

CIRCULATION — PUMP NO.1 — PUMP NO.2

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
14300	152	80	152	80

REDUCED PUMP SPEED

Pump #3 @ 15 SPM 110

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
642	4	N15E

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
08 00	11 45	3 3/4	2	Drill 311mm Hole F/ 640m - 649m
11 45	12 15	1/2	5	Circ Prior To Survey
12 15	12 45	1/2	10	Survey
12 45	17 15	4 1/2	2	Drill F/ 649m - 678m
17 15	17 30	1/4	7	Rig Service Top Drive
17 30	20 00	2 1/2	2	Drill F/ 678m - 688m

NOTES: √ Brakes, Linkage, Crown Saver, Clamp + Anchor. Boiler Ran 11:00 To 14:00, 18:00

HRS. RAN | BOILER ph | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC

12 | 10.5 | 225 | | Protection of Overhead Work

EVENING TOUR

RD — OIL BASED

7	24.00
	1140
	78
	7.0
	8.5
3	150.1

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
1140	1130	1933
INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
688	706	K	180	1/4

CIRCULATION — PUMP NO.1 — PUMP NO.2

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
14800	152	80	152	80

REDUCED PUMP SPEED

Pump 3 @ 10 SPM @ 15 SPM 110

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
676	3.5	N4E

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
20:00	20 15	1/4	5	Circ + Work Pipe Prior To Survey
20:15	20 30	1/4	9	Rig Service
20 30	20:45	1/4	10	Survey @ 676m.
20:45	24:00	3 1/4	2	Drill 311mm Hole Fr: 688m - 706

NOTES: √ Crown Saver, Brakes + Linkage, Clamp + Anchor.

HRS. RAN | BOILER ph | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC

4 | 10 | 225 | | 2 Hour Tour

111047

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LICENCE NO.: SDL 99

WELL NAME AND NO.: CHEVRON ETAL HARO K-29 60°30'N 123°30'W

OPERATOR: CHEVRON CANADA RESOURCES LTD

CONTRACTOR: ALTA DRILLING

SURFACE LOCATION: K-29 60° 30' N 123° 30' W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS

	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial GR
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial JC
(3) H²S Signs Posted (if required)	Initial	Initial
(4) Well Licensee & Stick Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial JC
(6) BOP Drills Performed	Initial	Initial
(7) Visually Inspect BOP's - Flarestack & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)		Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
(3) Mast Inspection Before Raising or Lowering		Initial JC
(4) Crown Saver Checked		Initial JC
(5) Motor Kills checked PUMP #3		Initial GR

YEAR: 77
RIG NO.: 7

FUEL
RIG: 76m

WEATHER
TEMPERATURE
CURRENT CONDITIONS
WIND DIR
ROAD

TIME - HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.			
MORN.		7¼					¼			½														
DAY		7¼					¼			½														
EVE.																								
TOTAL																								

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD (mm)		LENGTH (m)
1			.44
1/1	NOS / SS		1.59 / 425
1/1	STAB / D.C.	279	1.81 / 9.55
1	ST STAB		1.47
5	D.C.	279	42.00
1/1	6½" Jar / D.C.	228	106 / 5.21
1	JAR		7.08
14	D.C.	228	128.61
1	X.O.		.84
12	HWDP		109.71
	BHA		317.64
6	D.P. STANDS		171.61
X	D.P. SINGLES		9.51
	KELLYDOWN		8.27
	TOTAL		507.03
WT. OF DC		1000 daN	
WT. OF STRING	80	1000 daN	

BIT RECORD

BIT NO.	3A
SIZE (mm)	444.5
IADC CODE	5 1 5
MFG.	HUGHES
TYPE	MAY 22GD
SERIAL NO.	T22CT
JETS (mm)	3-19
DEPTH OUT (m)	—
DEPTH IN (m)	459
TOTAL METRES DRILLED (m)	48
TOTAL HOURS RUN	8

CUTTING STRUCTURE T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION
HOLE DRAG
TORQUE AT BOTTOM
FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☒ WATER BASED ☐ OIL BASED

TIME	2:00	4:00	6:00
DENSITY kg/m³	1170	1160	1165
FUNNEL VIS. - (S/L)	84	58	57
W.L. (cm³)			
pH	9	8.5	9
PVT	112.6	118.1	125.4

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
KELZAN	2 sx
CAUSTIC	3 sx

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
8	1165	1155	1810

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD RMR CORE C	RCT R
469	507	38	

CIRCULATING SYSTEM

LINER SIZE (mm)	S.P.M.
13100	152 80

REDUCED PUMP SPEED
P1 @ P2 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
478	2¼

DRILLER'S SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD (mm)		LENGTH (m)
1			.44
1/1	NOS / SS		1.59 / 425
1/1	STAB / DC	279	1.81 / 9.55
1	ST. STAB		1.47
5	DC	279	43.00
1/1	6½" Jar / DC	228	106 / 5.21
1	JAR		7.08
14	DC	228	128.61
1	XO		.84
12	HWDP		109.71
	BHA		317.64
7	D.P. STANDS		220.47
1	D.P. SINGLES		9.30
	KELLYDOWN		1.13
	TOTAL		529
WT. OF DC		1000 daN	
WT. OF STRING	40	1000 daN	

BIT RECORD

BIT NO.	3A
SIZE (mm)	444.5
IADC CODE	5 1 5
MFG.	HUGHES
TYPE	MAY 22GD
SERIAL NO.	T22CT
JETS (mm)	3-19
DEPTH OUT (m)	—
DEPTH IN (m)	459
TOTAL METRES DRILLED (m)	~70
TOTAL HOURS RUN	15¼

CUTTING STRUCTURE T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION
HOLE DRAG
TORQUE AT BOTTOM
FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☒ WATER BASED ☐ OIL BASED

TIME	0900	1200	1500
DENSITY kg/m³	1160	1160	1155
FUNNEL VIS. - (S/L)	58	53	48
W.L. (cm³)			
pH	8.5	8.3	9.0
PVT m³	133.2	138.6	146.9

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
8	1160	1145	1780

METRES DRILLED

FROM	TO	DRLD RMR CORE C	RCT R
507	529	22	

CIRCULATING SYSTEM

LINER SIZE (mm)	S.P.M.
11000	

REDUCED PUMP SPEED
3 Pumps @ 150

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
506	3°

DRILLER'S SIGNATURE

EVENING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD (mm)		LENGTH (m)
	D.P. STANDS		
	D.P. SINGLES		
	KELLYDOWN		
	TOTAL		
WT. OF DC		1000 daN	
WT. OF STRING		1000 daN	

BIT RECORD

BIT NO.	3A
SIZE (mm)	444.5
IADC CODE	5 1 5
MFG.	HUGHES
TYPE	MAY 22GD
SERIAL NO.	T22CT
JETS (mm)	3 x 19
DEPTH OUT (m)	529
DEPTH IN (m)	459
TOTAL METRES DRILLED (m)	70
TOTAL HOURS RUN	15¼

CUTTING STRUCTURE T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION
HOLE DRAG
TORQUE AT BOTTOM
FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☒ WATER BASED ☐ OIL BASED

TIME	1800		
DENSITY kg/m³			
FUNNEL VIS. - (S/L)			
W.L. (cm³)			
pH	9		

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD RMR CORE C	RCT R

CIRCULATING SYSTEM

LINER SIZE (mm)	S.P.M.	SI

REDUCED PUMP SPEED
@ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
516	4½

DRILLER'S SIGNATURE

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DAILY CHECKS

	OPR. Initial	R.M. Initial
Walk Around Inspection		
Inspection-Weekly (using checklist)		
Signs Posted (if required)		
Licenses & Stick Diagram Posted		
Lines Staked		
Drills Performed		
Daily Inspect BOP's - Flarelines & Degasser Lines		
Safe Health and Safety Meeting (one/crew/month)		
H.O.D.P.T. Rig Safety Inspection Checklist (one/rig/month)		
Pre-Spud Inspection Before Raising or Lowering		
Crown Saver Checked		
Floor Kills checked Pump #3		

YEAR 77 | MONTH Oct | DAY 25

RIG NO. 118

FUEL @ 8:00

RIG 76m | BOILER 1.35m

WEATHER: TEMPERATURE 32 c°f | CURRENT CONDITIONS | WIND DIRECTION | ROADS -

LAST CASING / TUBING / OR LINER	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
127	29	E	108	152	5"XH	121	9-P-100	NATIONAL	235
127	29	X	106	154	5"XH	133	9-P-100	NATIONAL	235
127	29	X	101	151	5"XH	160	F-1000	EMSCO	254

	22	23	24	25	26
QTY					

TOTALS: 8 / 8

SHALE SHAKER(S): NO. | TYPE | SCREENS CHANGED ☐ YES ☐ NO | TOP 50 | MIDDLE 50 | BOTTOM 50

RENTALS/SERVICES: 2x2 Bands — 8 8 8

MORNING TOUR

OIL BASED ☐

METRES DRILLED

FROM	TO	DRLD FOR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
416	507	38	120	5/20

CIRCULATION | PUMP NO. 1 LINER SIZE (mm) | S.P.M. | PUMP NO. 2 LINER SIZE (mm) | S.P.M.

12:00	152	80	152	80

REDUCED PUMP SPEED

2 Pump @ 152 @ 80

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
478	2¼°	

DRILLER SIGNATURE: Kevin Lamar

TIME LOG

FROM	TO	ELAP. TIME	CODE NPT	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	03:15	3¼	2	Drill 444 mm Hole Fr: 416 - 478
03:15	03:30	¼	7	Rig Service + Service Top Drive
03:30	04:00	½	2	Drill 444 mm Hole Fr: 478 - 488
04:00	04:30	½	10	Survey @ 478m + Circ.
04:30	08:00	3½	2	Drill 444 mm Hole Fr: 488 - 507

NOTES: Crown Saver + 2216 Lubricator Fast Line Clamp / Anchor
Boiler Blow Down @ 0700, 0700

BOILER PRESS.	MAXIMUM EXPERIENCED HOOKLOAD	SAFE/TOPIC	MUD CHECK
HRS. RAN: 8	STACK TEMP: 225		

DAY TOUR

OIL BASED ☐

METRES DRILLED

FROM	TO	DRLD FOR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
507	529	22	120	14/20

CIRCULATION | PUMP NO. 1 LINER SIZE (mm) | S.P.M. | PUMP NO. 2 LINER SIZE (mm) | S.P.M.

11:00			152	120

REDUCED PUMP SPEED

3 Pump @ 152 @ 120

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
506	3°	

DRILLER SIGNATURE: Kevin Lamar

TIME LOG

FROM	TO	ELAP. TIME	CODE NPT	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
1100	1100	3	2	Drill 444 mm Hole Fr: 507 - 516
1100	1115	1¼	7	Rig Service + Service Top Drive
1115	1145	½	10	Circ + Survey @ 516m.
1145	1600	4¼	2	Drill 444 mm Hole Fr: 516 - 529

NOTES: Crown Saver Brakes + Linkage Crown Saver Clamp + Anchor
Boiler Blow Down @

BOILER PRESS.	MAXIMUM EXPERIENCED HOOKLOAD	SAFE/TOPIC	MUD CHECK
HRS. RAN: 8	STACK TEMP: 225		

EVENING TOUR

OIL BASED ☐

METRES DRILLED

FROM	TO	DRLD FOR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION | PUMP NO. 1 LINER SIZE (mm) | S.P.M. | PUMP NO. 2 LINER SIZE (mm) | S.P.M.

REDUCED PUMP SPEED

@ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
516	4½	

DRILLER SIGNATURE: Kevin Lamar

TIME LOG

FROM	TO	ELAP. TIME	CODE NPT	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
1600	1715	1¼	5	Work Pipe + Clean Hole Prior to Survey
1715	1730	¼	10	Survey
1730	1800	½	5	Circ. Prior to Trip
1800	2345	5¾	6	P.O.O.H.
2345	0000	¼	7	R/S

NOTES: Brakes Linkage. Crown Saver Clamp + Anchor

BOILER PRESS.	MAXIMUM EXPERIENCED HOOKLOAD	SAFE/TOPIC	MUD CHECK
HRS. RAN: 8	STACK TEMP: 225		

111046

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LICENCE NO.: 5D799

WELL NAME AND NO.: CHEVRON CANADA RESOURCES LTD. HARD K-29 60°30'N 123°30'W

OPERATOR: CHEVRON CANADA RESOURCES LTD.

CONTRACTOR: AKITA DRILLING

SURFACE LOCATION: K-29 60° 30' N 123° 30' W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS

	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) HPS Signs Posted (if required)	Initial	Initial
(4) Well Licence & Sour Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually Inspect BOP's - Flexibles & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)		Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
(3) Mast Inspection Before Raising or Lowering		Initial
(4) Crown Saver Checked		Initial
(5) Motor Kills checked		Initial

YEAR 1979

RIG NO. 17

FUEL

RIG 117m

WEATHER: TEMPERATURE / CURRENT CONDITION / WIND DIRECTION / ACC. TO RIG

TIME - HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P	TEST B.O.P	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.			
MORN.							1/1	7 3/4																
DAY																								
EVE.		3/4				3	4-1																	
TOTAL																								

DRILLING ASSEMBLY (At End of Tour)

NO.		OD mm	LENGTH m
1			.44
1	NBS		1.59 / 4.24
1	ST. STAB / D.C.	279 / 228	1.83 / 8.56
1	ST. STAB		1.47
5	D.C.	279	47.00
1	BELL SUB / D.C.	228	1.06 / 9.22
1	JAR		7.08
14	D.C.	228	128.66
1	XO		.84
12	HWDP		105.71
	BHA		317.64
4	D.P.	STANDS	114.24
XX	D.P.	SINGLES	15.37
D.P.	KELLYDOWN		8.27
	TOTAL		459.54
WT. OF DC			1000 daN
WT. OF STRING	78		1000 daN

BIT RECORD

BIT NO.	2A
SIZE (mm)	444.5
IADC CODE	
MFG.	REED
TYPE	S581-J4
SERIAL NO.	87700
JETS (mm)	3-14.3/1-19
DEPTH OUT (m)	459
DEPTH IN (m)	57
TOTAL METRES DRILLED (m)	402
TOTAL HOURS RUN	51 1/2

CUTTING STRUCTURE

T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	2:00
DENSITY kg/m³	1160
FUNNEL VIS. - (S/L)	56
W.L. (cm³)	
pH	8.5
P.V.T.	129.4

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
8	1160	1155	1620
HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

MORNING TOUR

METRES DRILLED

FROM	TO	DRLD RMVR CORE-C
459		

CIRCULATION

LINER SIZE (mm)	S.P.M.
1500	152

REDUCED STROKE

@	

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER SIGNATURE: Keith Lee

DRILLING ASSEMBLY (At End of Tour)

NO.		OD mm	LENGTH m
	D.P.	STANDS	
	D.P.	SINGLES	
	KELLYDOWN		
	TOTAL		
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	2A	3A
SIZE (mm)	444.5	444.5
IADC CODE		5 1 5
MFG.	REED	HUGHES
TYPE	S581-J4	MAX-22GD
SERIAL NO.	87700	T22CT
JETS (mm)	3-14.3/1-19	3 X 14
DEPTH OUT (m)	459	
DEPTH IN (m)	57	459
TOTAL METRES DRILLED (m)	402	
TOTAL HOURS RUN	51 1/2	

CUTTING STRUCTURE

T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.
2	3	51	H	E	I	N	I	

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

DAY TOUR

METRES DRILLED

FROM	TO	DRLD RMVR CORE-C	RO R

CIRCULATION

LINER SIZE (mm)	S.P.M.
152	

REDUCED STROKE

@	90

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER SIGNATURE:

DRILLING ASSEMBLY (At End of Tour)

NO.		OD mm	LENGTH m
1			.44
1	NBS		1.59 / 4.24
1	ST. STAB / D.C.	279 / 228	1.83 / 8.56
1	ST. STAB		1.47
5	D.C.	279	47.00
1	BELL SUB / D.C.	228	1.06 / 9.22
1	JAR		7.08
14	D.C.	228	128.66
1	XO		.84
12	HWDP		109.71
	BHA		317.64
5	D.P.	STANDS	143.19
	D.P.	SINGLES	
	KELLYDOWN		8.27
	TOTAL		469.10
WT. OF DC			1000 daN
WT. OF STRING	80		1000 daN

BIT RECORD

BIT NO.	3A
SIZE (mm)	444.5
IADC CODE	5 1 5
MFG.	HUGHES
TYPE	MAX 22GD
SERIAL NO.	T22CT
JETS (mm)	3-19
DEPTH OUT (m)	
DEPTH IN (m)	459
TOTAL METRES DRILLED (m)	10
TOTAL HOURS RUN	3/4

CUTTING STRUCTURE

T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☐ WATER BASED ☑ OIL BASED

TIME	24:00
DENSITY kg/m³	1160
FUNNEL VIS. - (S/L)	92
W.L. (cm³)	
pH	8.5
P.V.T.	109.0

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
4	1160	1170	1840
HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

EVENING TOUR

METRES DRILLED

FROM	TO	DRLD RMVR CORE-C	ROT R.P.
459	469	10	1

CIRCULATION

LINER SIZE (mm)	S.P.M.	SIZ
12500	152	70

REDUCED STROKE

@	

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER SIGNATURE:

FOLD HERE →

DAILY CHECKS

	OPR.	R.M.
Daily Walk Around Inspection	Initial	Initial
Detailed Inspection-Weekly (using checklist)	Initial	Initial
H2S Signs Posted (if required)	Initial	Initial
Well License & Stick Diagram Posted	Initial	Initial
Tours Liners Stased	Initial	Initial
BOP Drills Performed	Initial	Initial
Visually inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
Rig Site Health and Safety Meeting (one/crew/month)		Initial
C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
Visual Inspection Before Raising or Lowering		Initial
Crown Saver Checked		Initial
Motor Kills checked		Initial

YEAR | MONTH | DAY

RIG NO. 44

FUEL @ 8:00

RIG 617m | BOILER 177 m³

WEATHER

TEMPERATURE -30 c/h

CURRENT CONDITIONS 1140

WIND DIRECTION

ROAD 524802

LAST CASING TUBING OR LINER	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
E2 127	29	E2	108	152	5"XH	121	9-P-100	NATIONAL	235
* 127	29	X3	106	154	5"XH	133	9-P-100	NATIONAL	235
127	34	X3	101	156	5"XH	160	F-1100	EMSCO	254

21 22 23 24 25 26

SAFETY TG

TOTALS 8

SHALE SHAKER(S)

NO. | TYPE

SCREENS CHANGED ☐ YES ☑ NO

TOP	TOP
30	50
MIDDLE	MIDDLE
50	30
BOTTOM	BOTTOM
20	20

RENTALS/SERVICES

	WORN	REPAIRED	RETURNED

ORD

O/B BASED

20
0
5
9.4

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
1160	1155	1620

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

MORNING TOUR

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
459				

CIRCULATION PRESSURE (kPa)	PUMP NO. 1 LINER SIZE (mm)	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE (mm)	PUMP NO. 2 S.P.M.
1500	152		152	100

REDUCED PUMP SPEED

@ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	07:45	7¾	8	WAIT ON PARTS F.P. ECC.
07:45	08:00	¼	7	RIG SERVICE
0800	2800	2	8	REPAIR SCR #1 & 2

NOTES

Boiler Blow Down @ 0100, 0400, 0700

BOILER HRS RAN | pH | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY STOP | BOP

8 | 10 | 225°C

DAY TOUR

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION PRESSURE (kPa)	PUMP NO. 1 LINER SIZE (mm)	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE (mm)	PUMP NO. 2 S.P.M.
	152		152	

REDUCED PUMP SPEED

@ 90 @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
0800	0900	1¼	8	REPAIR SCR #1+2
0900	1400	4½	6	PULL OUT OF HOLE + CHANGE BIT
1400	1615	2¼	22	REPAIR ACTUATOR + TOP DRIVE.
1615	1630	¼	7	RIG SERVICE
1630	1845	2¼	6	RUN IN HOLE
1845	1930	¾	5	BREAK CIRC @ 250m W/ #3 Pump
			5	SHOTS
1730	2000	½	6	RUN IN HOLE TO 270m.

NOTES

Crown Saver Brake Linkage. Clamp + Pinched.

BOILER HRS RAN | pH | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY STOP | BOP

12 | 10 | 205

EVENING TOUR

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
459	469	10	150	18

CIRCULATION PRESSURE (kPa)	PUMP NO. 1 LINER SIZE (mm)	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE (mm)	PUMP NO. 2 S.P.M.
12500	152	70	152	70

REDUCED PUMP SPEED

Pump #3 @ 2-152 @ 70

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
20:00	23:00	3	6	RUN TO BTM. REAM IN BRIDGES FR. 330-459, 25m OF FILL ON BOTTOM.
23:00	23:45	¾	2	DRLG 444m HOM. FR. 459-469
23:45	24:00	¼	7	RIG SERVICE.

NOTES

Crown Saver Brake Linkage Fastline Clamp Anchor.

Boiler Blow Down @ 2300

BOILER HRS RAN | pH | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY STOP | BOP

7 | 10 | 210 C

111045

FOLD HERE →

LICENCE NO.: SDL 99

WELL NAME AND NO.: CHEVRON ET AL KIARA K-29 60°30'N 123°30'W

OPERATOR: CHEVRON CANADA RESOURCES LTD

CONTRACTOR: AKITA DRILLING

SURFACE LOCATION: K-29 60°20'N 123°30'W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) H²S Signs Posted (if required)	Initial	Initial
(4) Well Licence & Stick Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually Inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)		Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
(3) Mast Inspection Before Raising or Lowering		Initial
(4) Crown Saver Checked		Initial
(5) Motor Kills checked		Initial

YEAR 99 RIG NO.

FUEL RIG 1.43 m

WEATHER: TEMPERATURE, CURRENT CONDITIONS, WIND DIRE, ROAD

TIMES

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CCRING	COND. MUD & CIRC.	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.				
MORN.		5 3/4				1	1/4																		
DAY					1 1/2	3/4	1/4	1 1/2														2 1/2	1/2		
EVE.							1/4	3 3/4																	
TOTAL		5 3/4			1 1/2	1 3/4	3/4	5 1/4		1												2 1/2	1/2		

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTH
1		.44 m
1	445	1.37 / 4.25 m
1	STAB D.C. 445	1.81 / 8.56 m
1	ST STAB	1.47 m
5	D.C. 279	43.00 m
1	STAB D.C. 228	1.06 / 9.20 m
1	JAR	7.08 m
14	D.C. 228	128.66 m
1	XO	.84 m
12	HWDP	109.71 m
	BHA	317.64 m
4	D.P. STANDS	114.26 m
XX	D.P. SINGLES	15.37 m
	D.P. KELLY DOWN	8.27 m
	TOTAL	455.54 m
WT. OF DC		1000 daN
WT. OF STRING	78	1000 daN

BIT RECORD

BIT NO.	2A
SIZE (mm)	444.5
IADC CODE	
MFG.	REED
TYPE	SS81-J4
SERIAL NO.	87700
JETS (mm)	3-143/1-19
DEPTH OUT (m)	—
DEPTH IN (m)	57
TOTAL METRES DRILLED (m)	402
TOTAL HOURS RUN	5 1/2

CUTTING STRUCTURE T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	—
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

	MORN.	DAY	EVE.
TIME	2:00	4:00	16:00
DENSITY kg/m³	1155	1155	1160
FUNNEL VIS. - (S/L)	55	52	56
W.L. (cm³)			
pH	8.5	9	8.5
PVT	159	157	158

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
CAUSTIC	2 ST
DETERGENT	1 PAIL

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
8	1160	1150	1270

METRES DRILLED

FROM	TO	DRLG RMR CORE C	ROT R.B.
411	459	48	

CIRCULATION

LINER SIZE (mm)	S.P.M.
4500	153

REDUCED PUMP SPEED @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
430	1 3/4°
449	1 7/8°

DRILLER'S SIGNATURE

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTH
		m
		m
		m
		m
		m
		m
		m
		m
		m
		m
	D.P. STANDS	m
	D.P. SINGLES	m
	KELLY DOWN	m
	TOTAL	m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	2A
SIZE (mm)	444.5
IADC CODE	
MFG.	REED
TYPE	SS81-J4
SERIAL NO.	87700
JETS (mm)	3-14.3/1-19
DEPTH OUT (m)	459
DEPTH IN (m)	57
TOTAL METRES DRILLED (m)	402
TOTAL HOURS RUN	5 1/2

CUTTING STRUCTURE T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

	DAY
TIME	09:00
DENSITY kg/m³	1155
FUNNEL VIS. - (S/L)	59
W.L. (cm³)	
pH	9.0
PVT	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
12	1160	1155	1740

METRES DRILLED

FROM	TO	DRLG RMR CORE C	ROT R.B.
459			

CIRCULATION

LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTH
		m
		m
		m
		m
		m
		m
		m
		m
		m
		m
	D.P. STANDS	m
	D.P. SINGLES	m
	KELLY DOWN	m
	TOTAL	m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	2A
SIZE (mm)	444.5
IADC CODE	
MFG.	REED
TYPE	SS81-J4
SERIAL NO.	87700
JETS (mm)	3-143/1-19
DEPTH OUT (m)	459
DEPTH IN (m)	57
TOTAL METRES DRILLED (m)	402
TOTAL HOURS RUN	5 1/2

CUTTING STRUCTURE T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

	EVE.
TIME	24:00
DENSITY kg/m³	1155
FUNNEL VIS. - (S/L)	57
W.L. (cm³)	
pH	9
P.V.T.	179

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
4	1155	1155	1830

METRES DRILLED

FROM	TO	DRLG RMR CORE C	ROT R.B.
459			

CIRCULATION

LINER SIZE (mm)	S.P.M.	SIZE
1600	152	

REDUCED PUMP SPEED @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

EVENING TOUR

FOLD HERE →

Y CHECKS	OPR.	R.M.
y Walk Around Inspection	Initial	Initial
ewed Inspection-Weekly (using checklist)	Initial	Initial
Signs Posted (if required)	Initial	Initial
t License & Stick Diagram Posted	Initial	Initial
e Lines Staked	Initial	Initial
P Drills Performed	Initial	Initial
uery inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
See Health and Safety Meeting (one/crew/month)		Initial
A.D.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
st Inspection Before Raising or Lowering		Initial
wn Saver Checked		Initial
or Kills checked		Initial

YEAR 99 | MONTH 02 | DAY 07

RIG NO. 48

FUEL @ 8:00

RIG 1.43m | BOILER 2.5m

WEATHER: TEMPERATURE -30c°; CURRENT CONDITIONS T - 11199; WIND DIRECTION; ROAD T - 52451-1

	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
LAST CASING									
TUBING OR LINER									

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
							9-P-100	NATIONAL	235
							9-P-100	NATIONAL	235
							F-1000	EMSCO	

22 | 23 | 24 | 25 | 26

TY | Kelly Hose | Tugger

2½ | 1½

2½ | ½

TOTALS: 8 | 12 | 4 | 24

SHALE SHAKER(S): NO. | TYPE | SCREENS CHANGED ☐ YES ☑ NO | TOP 50 | TOP 50 | MIDDLE 50 | MIDDLE 50 | BOTTOM 50 | BOTTOM 50

RENTALS/SERVICES | WORK | START | FINISH

RD

☐ OILBASED

	1600
1155	561160
	56
	8.5
7	151.9

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
1160	1150	1870

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

MORNING TOUR

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
411	459	RD	180	15/16

CIRCULATION | PUMP NO. 1 | PUMP NO. 2

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
4800	153	115	152	115

REDUCED PUMP SPEED

@ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
430	1 3/4°	
449	1 7/8°	

DRILLER SIGNATURE: Mark Lamar

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	02:15	2¼	2	DRILL 411m - HOLE FR: 411 - 430
02:15	02:30	¼	7	RIG SERVICE + SERVICE TOP DRIVE
02:30	03:45	1¼	2	DRILL 449m - HOLE FR: 430 - 449
03:45	04:15	½	10	CIRC + SURVEY @ 430
04:15	06:30	2¼	2	DRILL 449m - HOLE FR: 449 - 459
06:30	07:00	½	10	CIRC + SURVEY @ 449
07:00	08:00	1	6	TRIP OUT BIT #2A

NOTES: Crown Saver ✓ Anchor ✓ Fast Line Cut ✓ Brake Linkage ✓ Trailer Rig Down @ 0700 Hrs

HRS. RAN	BOILER	STACK TEMP.	MAXIMUM EXPERIENCED HOOKLOAD	SAFETY TOPIC	ACC
8	10	225°			

ID

☐ OILBASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
1160	1155	1740

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

DAY TOUR

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION | PUMP NO. 1 | PUMP NO. 2

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE: Mark Lamar

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
0600	0830	2½	22	Pump out of Hole Fr: 410m - 370m
0830	0900	½	23	Work on Brakes
0900	0945	3/4	22	Pump out of Hole Fr: 370m - 320m
0945	1015	½	4	Circ + Work Pipe; Clean Hole
1015	1130	1¼	22	Pump out of Hole Fr: 320m - 255.
1130	1215	3/4	6	Pull out of Hole to 111m
1215	1315	1	4	Circ + Work Pipe; Clean Hole
1315	1330	¼	3	Rig Service
1330	2000	6½	8	Wait on Electrician + Repair SCR

NOTES: Crown Saver ✓ Anchor ✓ Fast Line Cut ✓ Brake Linkage ✓ Trailer Rig Down @ 0700 Hrs

HRS. RAN	BOILER	STACK TEMP.	MAXIMUM EXPERIENCED HOOKLOAD	SAFETY TOPIC	ACC
12	10	225°C			

ORD

☐ OILBASED

	24:00
	1155
	57
	9
	179

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
1155	1155	1830

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

EVENING TOUR

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
459				

CIRCULATION | PUMP NO. 1 | PUMP NO. 2

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.
1600	152		152	110

REDUCED PUMP SPEED

@ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE: Mark Lamar

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
22:00	23:45	1¾	8	WAITON PARTS FOR SCR.
23:45	24:00	¼	7	R.C. SERVICE

NOTES: Crown Saver ✓ Anchor ✓ Fast Line Cut ✓ Brake Linkage ✓ Trailer Rig Down @ 1230

HRS. RAN	BOILER	STACK TEMP.	MAXIMUM EXPERIENCED HOOKLOAD	SAFETY TOPIC	ACC
4	10	225°C			

111044

FOLD HERE →

LICENCE NO.: SDL 99

WELL NAME AND NO.: CHEVRON ETAL HARD K-25 60°30'N 123°30'W

OPERATOR: CHEVRON CANADA RESOURCES LTD

CONTRACTOR: AKITA DRILLING.

SURFACE LOCATION: K-25 60°30'N 123°30'W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) H2S Signs Posted (if required)	Initial	Initial
(4) Well Licence & Slick Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually Inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)		Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
(3) Mast Inspection Before Raising or Lowering		Initial
(4) Crown Saver Checked		Initial
(5) Motor Kills checked		Initial

YEAR

RIG NO.

FUEL

RIG 1.95 m

WEATHER: TEMPERATURE; CURRENT CONDITIONS; WIND DIR.; ROAD

TIME-HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV. SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.	T.I.H. DRLG		
MORN.		6					1/2			1												T.I.H. DRLG 1/2		
DAY		17 3/4			1		1/2			1 3/4														
EVE.		3					1/4			3/4														
TOTAL		17 3/4			1		1 3/4			3 1/2												1/2		

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTH
1		.44 m
1		1.59/4.25 m
1		1.68/5.56 m
1		1.47 m
5	D.C.	42.00 m
1	Bellows	1.06 m
1	D.C.	9.22 m
1	JAR	7.08 m
14	D.C.	128.61 m
1	XO	.84 m
		207.53 m
1	HWD.P. STANDS	27.47 m
1	D.P. SINGLES	8.95 m
	KELLY DOWN	m
	TOTAL	244.35 m
WT. OF DC		1000 daN
WT. OF STRING	70	1000 daN

BIT RECORD

BIT NO.	2A
SIZE (mm)	444.5
IADC CODE	
MFG.	REED
TYPE	S581-J4
SERIAL NO.	47700
JETS (mm)	3-14/3-19
DEPTH OUT (m)	—
DEPTH IN (m)	57
TOTAL METRES DRILLED (m)	187
TOTAL HOURS RUN	32 1/2

CUTTING STRUCTURE T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG

TORQUE AT BOTTOM

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	2:00	4:00	6:00
DENSITY kg/m³	1110	1100	1090
FUNNEL VIS. - (S/L)	75	63	70
W.L. (cm³)			
pH	8.5	8.5	9.5
PVT	151.3	151.3	150.3

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
CAUSTIC	1

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
4	1090	1070	1790

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

MORNING TOUR

METRES DRILLED

FROM	TO	CORE RUN CORE-C	PR
179	244	65	

CIRCULATION

LINER SIZE (mm)	S.P.M.
7500	152 110

REDUCED CIRC. SPD.

@

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
197	1/4°
226	1/4°

DRILLER SIGNATURE

Scott Lord

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTH
1		.41 m
1/1	NB Stab/Bit	1.57/4.25 m
1/1	SHS/DC	1.68/5.56 m
1	Stab Sub	1.47 m
5	DC	42.00 m
1	Bit Sub	4.52 m
14	DC	128.61 m
1	XO	.84 m
12	HWDP	109.71 m
	Total	317.60 m
2	D.P. STANDS	41.94 m
	D.P. SINGLES	m
	KELLY DOWN	m
	TOTAL	359.54 m
WT. OF DC		1000 daN
WT. OF STRING	71	1000 daN

BIT RECORD

BIT NO.	2A
SIZE (mm)	444.5
IADC CODE	
MFG.	REED
TYPE	S581-J4
SERIAL NO.	47700
JETS (mm)	3-14.3/1-19
DEPTH OUT (m)	—
DEPTH IN (m)	57
TOTAL METRES DRILLED (m)	197
TOTAL HOURS RUN	41 1/4

CUTTING STRUCTURE T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG

TORQUE AT BOTTOM

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☐ WATER BASED ☐ OIL BASED

TIME	09:00	12:00	15:00
DENSITY kg/m³	1100	1110	1120
FUNNEL VIS. - (S/L)	60	60	66
W.L. (cm³)			
pH	8.5	9.0	9.5
PVT m³	142.6	142.2	146.9

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
Caustic	1 Sx
Detergent	2 pails
Cleaned out Sand Trap	

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
82	1110	1100	1785

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

DAY TOUR

METRES DRILLED

FROM	TO	CORE RUN CORE-C	PR
244	364	120	

CIRCULATION

LINER SIZE (mm)	S.P.M.
9500	152 110

REDUCED CIRC. SPD.

@

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
251	1/2°
286	1°
324	1°
336	missing
343	1 1/2°

DRILLER SIGNATURE

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTH
1		.44 m
1/1	NB Stab/Bit	1.57/4.25 m
1/1	SHS/D.C.	1.68/5.56 m
1	Stab Sub	1.47 m
5	DC	42.00 m
1/1	Bit Sub/D.C.	1.06/9.22 m
14	JAR	7.08 m
14	D.C.	128.61 m
1	XO	.84 m
12	HWDP	109.71 m
	Total	317.64 m
2	D.P. STANDS	45.45 m
	D.P. SINGLES	m
2	KELLY DOWN	8.27 m
	TOTAL	411.36 m
WT. OF DC		1000 daN
WT. OF STRING	74	1000 daN

BIT RECORD

BIT NO.	2A
SIZE (mm)	444.5
IADC CODE	
MFG.	REED
TYPE	S581-J4
SERIAL NO.	47700
JETS (mm)	3-14.3/1-19
DEPTH OUT (m)	—
DEPTH IN (m)	57
TOTAL METRES DRILLED (m)	354
TOTAL HOURS RUN	44 1/4

CUTTING STRUCTURE T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG

TORQUE AT BOTTOM

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE: ☐ WATER BASED ☐ OIL BASED

TIME	18:00	21:00	24:00
DENSITY kg/m³	1125	1125	1130
FUNNEL VIS. - (S/L)	74	59	63
W.L. (cm³)			
pH	8.5	8.5	8.5
PVT m³	145.6	154.6	155.1

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
4	1130	1095	1720

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

EVENING TOUR

METRES DRILLED

FROM	TO	CORE RUN CORE-C	PR
364	Hil	47	

CIRCULATION

LINER SIZE (mm)	S.P.M.
9500	152 110

REDUCED CIRC. SPD.

@

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
373	1 1/2°
401	1 3/4

DRILLER SIGNATURE

FOLD HERE →

CHECKS	OPR.	R.M.
Walk Around Inspection	Initial	Initial
Inspection-Weekly (using checklist)	Initial	Initial
Signs Posted (if required)	Initial	Initial
License & Stick Diagram Posted	Initial	Initial
Lines Staked	Initial	Initial
Drills Performed	Initial	Initial
Daily Inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
Site Health and Safety Meeting (one/crew/month)		Initial
J.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
Inspection Before Raising or Lowering		Initial
Mud Sewer Checked		Initial
Choke Kills checked		Initial

YEAR | MONTH | DAY

RIG NO. 14

FUEL @ 8:00

RIG 1.95m | BOILER 2.35m

WEATHER: TEMPERATURE -21°C; CURRENT CONDITIONS; WIND DIRECTION; ROAD

	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
LAST CASING									
TUBING OR LINER									

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
							9-P-100	NATIONAL	235
							9-P-100	NATIONAL	235
							F1000	EMSCO	254

22 | 23 | 24 | 25 | 26

T.P DP.WC

1/2

1/2

TOTALS: 8 | 12 | 4 | 24

SHALE SHAKER(S): NO. | TYPE

SCREENS CHANGED ☐ YES ☐ NO

TOP 34 | MIDDLE 34 | BOTTOM 34

TOP 34 | 50 | MIDDLE 34 | 50 | BOTTOM 34 | 50

RENTALS/SERVICES | HOURS | TODAY | TOTAL

MORNING TOUR

OIL BASED ☐

6:00 | 1090 | 70 | 9.5 | 150.3

SOLIDS CONTROL

DESILTER: INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE: INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

1090 | 1070 | 1790

METRES DRILLED

FROM	TO	CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
179	244	65	130	15/20

CIRCULATION PRESS. | PUMP NO.1 LINER SIZE (mm) | PUMP NO.1 S.P.M. | PUMP NO.2 LINER SIZE (mm) | PUMP NO.2 S.P.M.

7500 | 152 | 110 | 152 | 110

REDUCED PUMP SPEED @ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
197	1/4°	
226	1/4°	

DRILLER SIGNATURE: Garth Leard

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	02:15	2 1/4	2	DRILL 444mm HOLE FR 175-207
02:15	02:45	1/2	10	CIRC & SURVEY @ 197
02:45	3:15	1/2	2	DRILL 444mm HOLE FR: 207-217
03:15	03:45	1/2	7	R.C. SERVICE + SERVICE T.D. DRIVE.
03:45	05:00	1 1/4	2	DRILL 444mm HOLE FR: 217-235
05:00	05:30	1/2	22	WORK TO GET 2 JNTS/WORKING ON TOP DRIVE
05:30	06:00	1/2	10	SURVEY @ 226m.
06:00	08:00	2	2	DRILL 444mm HOLE FR: 235-244

NOTES: Crew Safety Meeting Regarding Lifting Operations.
Boiler Blow Down @ 0400, 0700

BOILER | HRS. RAN | STACK TEMP. | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | CREW

8 | 105 | 225°C

DAY TOUR

OIL BASED ☐

15:00 | 1120 | 66 | 9.5 | 146.9

SOLIDS CONTROL

DESILTER: INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE: INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

1110 | 1100 | 1780

METRES DRILLED

FROM	TO	CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
244	364	120	11/hr.	2/2

CIRCULATION PRESS. | PUMP NO.1 LINER SIZE (mm) | PUMP NO.1 S.P.M. | PUMP NO.2 LINER SIZE (mm) | PUMP NO.2 S.P.M.

9500 | 152 | 110 | 152 | 110

REDUCED PUMP SPEED @ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
251	1/2°	
280	1°	
308	1°	
336	MISSING	
345	1 1/4	

DRILLER SIGNATURE: Garth Leard

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
0800	0845	3/4	2	DRILL FR: 244m - 261m.
0845	0915	1/2	4	CIRC & WORK PIPE PRIOR TO SURVEY
0915	0930	1/4	10	SURVEY @ 251m
0930	1115	1 3/4	2	DRILL FR: 261m - 289m.
1115	1145	1/2	4	CIRC & WORK PIPE PRIOR TO SURVEY
1145	1200	1/4	10	SURVEY @ 280m.
1200	1345	1 3/4	2	DRILL FR: 289m - 317m.
1345	1415	1/2	7	R.C. SERVICE + SERVICE TURNTABLE
1415	1430	1/4	10	SURVEY @ 308m.
1430	1700	2 1/2	2	DRILL FR: 317m - 346m. 1345 | 1415 | 1/2 | 4 | CIRC & SURVEY
1700	1730	1/2	10	CIRC & SURVEY @ 336m. 1415 | 2000 | 5 1/2 | 2 | DRILL FR: 355-364
1730	1800	1/2	2	DRILL FR: 346m - 355m.

NOTES: Crown Saver / Brake Linkage Adjust Crew.
Rig to Plain on Site Water Tank Hose

BOILER | HRS. RAN | STACK TEMP. | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | CREW

12 | 90 | 225

EVENING TOUR

OIL BASED ☐

24.00 | 1130 | 63 | 8.5 | 155.1

SOLIDS CONTROL

DESILTER: INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE: INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

130 | 1095 | 1720

METRES DRILLED

FROM	TO	CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
364	411	47	150/100	2/2.6

CIRCULATION PRESS. | PUMP NO.1 LINER SIZE (mm) | PUMP NO.1 S.P.M. | PUMP NO.2 LINER SIZE (mm) | PUMP NO.2 S.P.M.

9500 | 152 | 110 | 152 | 110

REDUCED PUMP SPEED @ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
373	1 1/2°	
401	1 3/4	

DRILLER SIGNATURE: Garth Leard

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
20:00	21:00	1	2	DRILL 444mm HOLE FR: 364-382
21:00	21:30	1/2	10	CIRC & SURVEY @ 373m
21:30	23:30	2	2	DRILL 444mm HOLE FR: 382-411
23:30	23:45	1/4	10	SURVEY @ 401
23:45	24:00	1/4	7	R.C. SERVICE.

NOTES: Crown Saver / Brake Linkage
Boiler Blow Down @ 2300

BOILER | HRS. RAN | STACK TEMP. | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | CREW

4 | 10 | °C

RIG

111043

FOLD HERE →

LICENCE NO.: SDI 99

WELL NAME AND NO.: CHEVRON ETAL LIARD K29 60° 30'N 123° 38'W

OPERATOR: CHEVRON CANADA RESOURCES LTD

CONTRACTOR: AKITA DRILLING

SURFACE LOCATION: K29 60° 30'N 123° 30'W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) H²S Signs Posted (if required)	Initial	Initial
(4) Well Licence & Stick Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
(1) Rig Site Hearth and Safety Meeting (one/crew/month)	Initial	
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)	Initial	
(3) Mast Inspection Before Raising or Lowering	Initial	
(4) Crown Saver Checked	Initial	
(5) Motor Kills checked	Initial	

YEAR 99

RIG NO. 40

FUEL

RIG 1.33 m

WEATHER: TEMPERATURE; CURRENT CONDITIONS; WIND DIREC; ROAD

TIME-HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.				
MORN.		7½					½																		
DAY		9¼			1		1¼			1												1½			
EVE.		3								1															
TOTAL		19¾			1		3/4			2												½			

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
1	[illegible] OD		.44 m
1	NB ST SUB		1.59 m
1	SHOCK SUB		4.25 m
1	ST STAB		1.81 m
1	D.C.	279	8.56 m
1	ST STAB		1.47 m
5	D.C.	279	43.00 m
1	BELL SUB		1.06 m
1	DC	228	9.22 m
1	JAR		7.08 m
			m
	D.P.	STANDS	m
	D.P.	SINGLES	m
	KELLY DOWN		m
	TOTAL		78.48 m
WT. OF DC			1000 daN
WT. OF STRING		45	1000 daN

BIT RECORD

BIT NO.	2A
SIZE (mm)	444.5
IADC CODE	
MFG.	REED
TYPE	SS81-J4
SERIAL NO.	87700
JETS (mm)	3-14.3/1-19
DEPTH OUT (m)	
DEPTH IN (m)	57
TOTAL METRES DRILLED (m)	21
TOTAL HOURS RUN	14¼

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	2:00	4:00	6:00
DENSITY kg/m³	1055	1060	1055
FUNNEL VIS. - (S/L)	67	70	71
W.L. (cm³)			
pH	9.5	9.5	9.5
PVT	153.4	152.9	153.9

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
GEL	40 SX
CAUSTIC	1 SX

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
8	1055	1050	1650

METRES DRILLED

FROM	TO	DRD RMR CORE C	ROT R.P.
67	78	11	

CIRCULATION

LINER SIZE (mm)	S.P.M.
152	100

REDUCED PUMP SPEED

@	

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
1	[illegible] OD		.44 m
1	NB ST SUB SHOCK SUB		1.59 4.25 m
1	STAB. STAB.		1.81 m
1	DC.	279	8.56 m
1	STEEL STAB.		1.47 m
5	DC	279	43.00 m
1	BELL SUB.		1.06 m
1	DC.	228	9.22 m
1	JARS		7.08 m
3	DC	228	64.05 m
			m
	D.P.	STANDS	m
	D.P.	SINGLES	m
	KELLY DOWN		m
	TOTAL		142.55 m
WT. OF DC			1000 daN
WT. OF STRING		12	1000 daN

BIT RECORD

BIT NO.	2A
SIZE (mm)	444.5
IADC CODE	
MFG.	REED
TYPE	SS81-J4
SERIAL NO.	87700
JETS (mm)	3-14.3/1-19
DEPTH OUT (m)	57
DEPTH IN (m)	57
TOTAL METRES DRILLED (m)	85
TOTAL HOURS RUN	23½

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG	0-4 ↑ 0-3
TORQUE AT BOTTOM	9 ft. lbs.
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	09:00	12.00	15:00
DENSITY kg/m³	~~1055~~	1060	1055
FUNNEL VIS. - (S/L)	71	72	70
W.L. (cm³)			
pH	10.0	10.0	9.5
PVT m³	145.0	146.0	147.2

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
8	1055	1050	1750

METRES DRILLED

FROM	TO	DRD RMR CORE C	ROT R.P.
78	142	64	54

CIRCULATION

LINER SIZE (mm)	S.P.M.
152	100

REDUCED PUMP SPEED

@	

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
67	3¼°
115	1½°

DRILLER SIGNATURE

EVENING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.			LENGTH
1	[illegible] OD		.44 m
1	NB ST SUB SHOCK SUB		1.59 4.25 m
1	ST STAB		1.81 m
1	D.C.	279	8.56 m
1	ST. STAB		1.47 m
5	D.C.	279	43.00 m
1	BELL SUB		1.06 m
1	D.C.	228	9.22 m
1	JAR		7.08 m
13			~~101.05~~ 130 m
			m
	D.P.	STANDS	m
	D.P.	SINGLES	m
	KELLY DOWN		m
	TOTAL		179.53 m
WT. OF DC			1000 daN
WT. OF STRING		65	1000 daN

BIT RECORD

BIT NO.	2A
SIZE (mm)	444.5
IADC CODE	
MFG.	REED
TYPE	SS81-J4
SERIAL NO.	87700
JETS (mm)	3-14.3/1-19
DEPTH OUT (m)	
DEPTH IN (m)	57
TOTAL METRES DRILLED (m)	122
TOTAL HOURS RUN	26½

CUTTING STRUCTURE: T1 | To | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	18:00	21:00	24:00
DENSITY kg/m³	1055	1060	1070
FUNNEL VIS. - (S/L)	70	62	54
W.L. (cm³)			
pH	9.5	9.5	9.5
PVT m³	148.0	149.3	149.3

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
4	1070	1055	1720

METRES DRILLED

FROM	TO	DRD RMR CORE C	ROT R.P.
142	179	37	15

CIRCULATION

LINER SIZE (mm)	S.P.M.
152	100

REDUCED PUMP SPEED

@	

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
142	½°
170	½°

DRILLER SIGNATURE

FOLD HERE →

CHECKS — OPR. / R.M.

- Daily Walk Around Inspection — Initial / Initial
- Weekly Inspection-Weekly (using checklist) — Initial / Initial
- Safety Signs Posted (if required) — Initial / Initial
- Driller's License & Stick Diagram Posted — Initial / Initial
- Service Lines Staked — Initial / Initial
- Emergency Drills Performed — Initial / Initial
- Weekly Inspect BOP's - Flarelines & Degasser Lines — Initial / Initial
- Pre-Spud Health and Safety Meeting (one/crew/month) — Initial
- Monthly C.O.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
- Derrick Inspection Before Raising or Lowering — Initial
- Crown Saver Checked — Initial
- Choke Manifold Kills checked — Initial

YEAR 94 | MONTH 02 | DAY 05

RIG NO. 44

FUEL @ 8:00

RIG 1.33 m | BOILER # 2 1.94 m

WEATHER: TEMPERATURE -30°C; CURRENT CONDITIONS 100.4; WIND DIRECTION; ROAD 523426

LAST CASING / TUBING OR LINER	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)
							9-P-100	NATIONAL	235
							9-P-100	NATIONAL	235
							9-P-100	EMSCO	

1 22 23 24 25 26 — TOTALS — SHALE SHAKER(S) — RENTALS/SERVICES — MORN / ROAD / RIG

TY — Td Downs

8

12

4

24

SHALE SHAKER(S): NO. / TYPE; SCREENS CHANGED ☐ YES ☑ NO; TOP 38 / TOP 39; MIDDLE 20 / MIDDLE 39; BOTTOM 30 / BOTTOM 39

RD

MORNING TOUR

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
67	78	11	50	15/22

CIRCULATION — PUMP NO.1 LINER SIZE (mm) 152, S.P.M. 100 — PUMP NO.2 LINER SIZE (mm) 152, S.P.M. 100 — 3100

REDUCED PUMP SPEED: @ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER'S SIGNATURE: Brad Lee

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	02:00	2	2	Drill 444mm Hole fr: 67-71
02:00	02:30	½	7	Rig Service + Service Top Drive
02:30	09:00	5½	2	Drill 444mm Hole fr: 71-78

NOTES: ✓ Crown Saver ✓ Brakes ✓ Anchor ✓ Fastline Clamp ✓ Brake Linkage
Rotate Blow Down @ 03:00, 0700

BOILER HRS. RAN 8 | BOILER STACK TEMP? 10 | MAXIMUM EXPERIENCED HOOKLOAD 225T | SAFETY TOPIC | RIG CHECK

OIL BASED

0	6:00
0	1055
0	71
5	9.5
2.9	152.9

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
1055	1050	1650

RD

DAY TOUR

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
78	142	64	50/175	15/35

CIRCULATION — PUMP NO.1 LINER SIZE (mm) 152, S.P.M. 100 — PUMP NO.2 LINER SIZE (mm) 152, S.P.M. 100 — 5800

REDUCED PUMP SPEED: @ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
67m	3/4°	
115	1/2°	

DRILLER'S SIGNATURE: Brad Lee

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
0800	0900	1	2	Drill 444mm Hole fr: 78m - 87m
0900	0915	¼	7	Rig Service Service Top Drive
0915	0930	¼	22	Wash on Additional Joint to Drill
0930	1130	2	2	Drill 87m - 96m
1130	1145	¼	22	Disconnect & Hydraulic Mud Saver Valve on Top Drive
1145	1215	½	12	Circ + Survey @ 87m
1215	1315	1	2	Drill fr: 96m - 104m
1315	1345	½	5	Circ Work Pipe + Mud Condition
1345	1600	2¼	2	Drill 444mm Hole fr: 104m - 127m
1600	1630	½	7	Pipe - Work Pipe While Top Drive Being Serviced
1630	1700	½	10	Survey @ 115m
1700	2000	3	2	Drill 444mm Hole fr: 127m - 142m

NOTES: ✓ Crown Saver ✓ Brakes + Linkage, Anchor, Clamp.
Rotate Blow Down @ 1700

BOILER HRS. RAN 12 | BOILER STACK TEMP? 225° | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | RIG CHECK

OIL BASED

15:00	
1055	
30	
9.5	
147.2	

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
1055	1050	1750

CORD

EVENING TOUR

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
142	179	37	100/150	15/20

CIRCULATION — PUMP NO.1 LINER SIZE (mm) 152, S.P.M. 100 — PUMP NO.2 LINER SIZE (mm) 152, S.P.M. 100 — 5300

REDUCED PUMP SPEED: @ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
142	½°	
170	½°	

DRILLER'S SIGNATURE: Brad Lee

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
20:00	20:30	½	10	Circ - Survey @ 142m
20:30	23:30	3	2	Drill 444mm Hole fr: 142-179
23:30	24:00	½	10	Circ + Survey @ 170

NOTES: ✓ Crown Saver ✓ Brake Linkage ✓ Fastline Clamp ✓ Anchor
Boiler Blow Down @ 2300

BOILER HRS. RAN 4 | BOILER STACK TEMP? 223°C | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | RIG CHECK

111042

FOLD HERE →

LICENCE NO.:	WELL NAME AND NO.:
SDL99	CHEVRON ETAL LIARD K29 60°30'N 123°30'W
OPERATOR:	**CONTRACTOR:**
CHEVRON CANADA RESOURCES LTD	AKITA DRILLING
SURFACE LOCATION:	**UNIQUE ID.:**
K29 60°30'N 123°30'W	
SIGNATURE OF OPERATOR'S REPRESENTATIVE:	**SIGNATURE OF CONTRACTOR'S RIG MANAGER:**

DAILY CHECKS (OPR. / R.M. initials)

(1) Daily Walk Around Inspection
(2) Detailed Inspection-Weekly (using checklist)
(3) HPS Signs Posted (if required)
(4) Well Licence & Sick Diagram Posted
(5) Flare Lines Staked
(6) BOP Drills Performed
(7) Visually Inspect BOP's - Flowlines & Degasser Lines

(1) Rig Site Health and Safety Meeting (one/crew/month)
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)
(3) Mast Inspection Before Raising or Lowering
(4) Crown Saver Checked
(5) Motor Kills checked

YEAR 99 | RIG NO.: | FUEL | RIG 1.0m | WEATHER: TEMPERATURE | CURRENT CONDITIONS | WIND DIRE | ACCESS ROAD

TIME - HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV. SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.	TIGHTEN BOLTS	TRIP OUT	
MORN.		7¼					¼															½		
DAY		5¾			3	2½	¾			1¼													¼	
EVE.		3¾					1¼																	
TOTAL		16¾			3	2½	3			1¼												½	¼	

DRILLING ASSEMBLY (At End of Tour)

NO.		OD (mm)	LENGTH (m)
1			.44
1	NB STAB		1.59
1	SHOCKSUB		4.25
1	ST. STAB		1.41
1	D.C.	279	8.56
1	ST. STAB		1.47
4	D.C	279	34.35
1	XO		.22
1	XO		1.06
			53.73
	D.P.	STANDS	
	D.P.	SINGLES	
D.P.	KELLY DOWN		9.27
	TOTAL		54.00
WT. OF DC			1000 daN
WT. OF STRING		37	1000 daN

BIT RECORD

BIT NO.	RR#1A
SIZE (mm)	444.5
IADC CODE	
MFG.	SECURITY
TYPE	S44F
SERIAL NO.	495679
JETS (mm)	3-17.5
DEPTH OUT (m)	—
DEPTH IN (m)	0
TOTAL METRES DRILLED (m)	54
TOTAL HOURS RUN	12

CUTTING STRUCTURE

T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.
4	5	WT	A	3	I	SH	PR	4.5

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	0200	0400	0600
DENSITY kg/m³	1060	1050	1050
FUNNEL VIS. - (S/L)	40	42	46
W.L. (cm³)			
pH	10	10	9.5
A.V.T	132.4	131.9	130.8

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
GEL	80
SAWDUST	5

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
4	1050	1050	1040

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD WITH CORE C	ROT R
38	54	19	3

LINER SIZE (mm)	S.P.M.	
2100	152	80

REDUCED PUMP SPEED @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER SIGNATURE

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.		OD (mm)	LENGTH (m)
1			.44
1	NB STAB		1.59
1	SS.		4.25
1	STAB STAB		1.81
3	DC	279	8.51
1	STAB STAB		1.47
5	DC	279	43.00
1	BIT		1.06
	D.P.	STANDS	
	D.P.	SINGLES	
	KELLY DOWN		
	TOTAL		62.18
WT. OF DC			1000 daN
WT. OF STRING		41	1000 daN

BIT RECORD

BIT NO.	RR#1H	2A
SIZE (mm)	444.5	444.5
IADC CODE		
MFG.	SEC.	REED
TYPE	S44G.	S581-J4
SERIAL NO.	495679	87700
JETS (mm)	3-17.5	3x14.3 1-19
DEPTH OUT (m)	57	—
DEPTH IN (m)	0	57
TOTAL METRES DRILLED (m)	57	8
TOTAL HOURS RUN	17¾	4

CUTTING STRUCTURE

T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.
4	5	WT	A	3	I	SS	PR	4.7

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	09 00	12:00	15:00
DENSITY kg/m³	1050	1050	1050
FUNNEL VIS. - (S/L)	45	44	40
W.L. (cm³)			
pH	9.5	9.5	9.5
PVI A³	139.6	144.0	154.2

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
Gel	40 5x5

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
8	1050	1050	1240

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD WITH CORE C	ROT R.P.
54	62	8	30

LINER SIZE (mm)	S.P.M.	
2200	150	90

REDUCED PUMP SPEED @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
53	3/4

DRILLER SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.		OD (mm)	LENGTH (m)
1			.44
1	NB STAB		1.59
1	SHOCKSUB		4.25
1	ST. STAB		1.81
3	D.C.	279	8.56
1	ST. STAB		1.47
5	D.C.	279	42.00
1	BIT SUB		1.06
			62.18
	D.P.	STANDS	
	D.P.	SINGLES	
D.C	KELLY DOWN		4.82
	TOTAL		67.00
WT. OF DC			1000 daN
WT. OF STRING		41	1000 daN

BIT RECORD

BIT NO.	2A	
SIZE (mm)	444.5	
IADC CODE		
MFG.	REED	
TYPE	S581-J4	
SERIAL NO.	87700	
JETS (mm)	2-14.3 1-19	
DEPTH OUT (m)	—	
DEPTH IN (m)	57	
TOTAL METRES DRILLED (m)	10	
TOTAL HOURS RUN	7¾	

CUTTING STRUCTURE

T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE: ☑ WATER BASED ☐ OIL BASED

TIME	18:00	24:00	24:00
DENSITY kg/m³	1050	1055	1055
FUNNEL VIS. - (S/L)	46	46	49
W.L. (cm³)			
pH	9.5	9	9
PVI A³	157.8	157.8	155.9

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
4	1055	1050	1820

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD WITH CORE C	ROT R.P.
62	67	5	50

LINER SIZE (mm)	S.P.M.	
2400	152	90

REDUCED PUMP SPEED @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER SIGNATURE

EVENING TOUR

FOLD HERE →

DAILY CHECKS — OPR. / R.M.

- Walk Around Inspection — Initial / Initial
- Detailed Inspection-Weekly (using checklist) — Initial / Initial
- H2S Signs Posted (if required) — Initial / Initial
- Well License & Stick Diagram Posted — Initial / Initial
- Power Lines Staked — Initial / Initial
- BOP Drills Performed — Initial / Initial
- Visually Inspect BOP's - Flarelines & Degasser Lines — Initial / Initial
- Safe Work Site Health and Safety Meeting (one/crew/month) — Initial
- A.A.O.D.C. Rig Safety Inspection Checklist (one/regimen/th) — Initial
- Last Inspection Before Raising or Lowering — Initial
- Crown Saver Checked — Initial
- Gas Buster Checked — Initial

YEAR 99 | MONTH 02 | DAY 04

RIG NO. 418

FUEL @ 8:00

RIG 1.0m³ | BOILER Arctic 3.0m³

WEATHER — TEMPERATURE °C

CURRENT CONDITIONS - 96 11

WIND DIRECTION

ROAD - < 32972

CASING / TUBING OR LINER	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE L" L (mm)
							9-P-100	NATIONAL	235
							9-P-100	NATIONAL	235
							9-P-100	EMSCO	

21 22 23 24 25 26

ETY: TIGHTEN BOLTS ON FOOTBOARD

1/2 | 1/4 | 1/2 | 1/4

TOTALS: 8 | 10 | 4 | 24

SHALE SHAKER(S) — NO. / TYPE

SCREENS CHANGED ☐ YES ☑ NO

TOP 38 | MIDDLE 38 | BOTTOM 38

RENTALS/SERVICES — MORN / EVE / TOUR

MORNING TOUR

RD

OIL BASED ☐

FROM	TO	DRLD / RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
38	54	16	55/110	5/12

CIRCULATION PRESSURE (kPa)	PUMP NO. 1 LINER SIZE (mm)	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE (mm)	PUMP NO. 2 S.P.M.
2100	152	90	152	80

REDUCED PUMP SPEED — @ — @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER'S SIGNATURE: [signature]

TIME LOG FROM	TO	ELAPSED TIME	CODE (NO.)	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	02:45	2¾	2	DRLG 444mm HOLE FR: 38-50 (BOULDERS FR: 44-50)
2:45	03:15	½	22	TIGHTEN BOLTS ON FCM. DSE & TOP DRIVE W/ DERRICK
02:45	07:45	4¼	2	DRLG 444mm HOLE FR 50-54m (MAD DRILLING)
07:45	08:00	¼	7	R.C. SERVICE FOR ADJUSTMENT

NOTES: ✓ CROWN SAVER ✓ BRAKE LINKAGE, CLAMP + ANCHOR ✓ FAST LINE SHEAVE ✓ DRAWWORKS
Boiler Blow Down fr 0300, 0700 #2 Boiler fed at 1900

HRS RAN	BOILER pH	STACK TEMP.	MAX/MIN EXPERIENCED HOOKLOAD	SAFETY TOPIC	ACC
8	9.5	225°C	45 000		

OIL BASED ☐

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
1050	1050	1240

DAY TOUR

RD

OIL BASED ☐

FROM	TO	DRLD / RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
54	62	8	30/90	4/12

CIRCULATION PRESSURE (kPa)	PUMP NO. 1 LINER SIZE (mm)	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE (mm)	PUMP NO. 2 S.P.M.
2200	152	90	152	90

REDUCED PUMP SPEED — @ — @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
53	3/4	

DRILLER'S SIGNATURE: [signature]

TIME LOG FROM	TO	ELAPSED TIME	CODE (NO.)	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	08:45	8¾	2	DRLG 444mm HOLE FR: 54m - 57m
08:45	09:30	¾	5	CIRC. HOLE CLEAN TO SCREEN (CHANGE TANKS)
09:30	09:45	¼	10	SURVEY @ 53m.
09:45	10:00	¼	23	BACK OUT + GRAB FOR TOP DRIVE
10:00	11:30	1½	5	CIRC. POOH T/ BIT TRIP + CHANGE TANKS BACK
11:30	14:00	2½	6	PULL OUT + CHANGE BIT
14:00	14:45	¾	5	BREAK CIRC. + WASH TO BTM.
14:45	15:00	¼	7	RIG SERVICE
15:00	21:00	5	2	DRLG 444mm HOLE FR: 57m - 62m.

NOTES: ✓ CROWN SAVER ✓ BRAKE LINKAGE, CLAMP + ANCHOR
BOILER BLOWDOWN

HRS RAN	BOILER pH	STACK TEMP.	MAX/MIN EXPERIENCED HOOKLOAD	SAFETY TOPIC	ACC
12	9.0	225°			

OIL BASED ☐

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
1050	1050	1240

EVENING TOUR

ORD

OIL BASED ☐

FROM	TO	DRLD / RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
62	67	5	50/70	14/20

CIRCULATION PRESSURE (kPa)	PUMP NO. 1 LINER SIZE (mm)	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE (mm)	PUMP NO. 2 S.P.M.
2400	152	90	152	90

REDUCED PUMP SPEED — @ — @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER'S SIGNATURE: [signature]

TIME LOG FROM	TO	ELAPSED TIME	CODE (NO.)	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
20:00	23:45	3¾	2	DRLG 444mm HOLE FR: 62-67
23:45	24:00	¼	7	R.C. SERVICE

NOTES: ✓ CROWN SAVER ✓ BRAKE LINKAGE ✓ FAST LINE SHEAVE IN + ANCHOR

HRS RAN	BOILER pH	STACK TEMP.	MAX/MIN EXPERIENCED HOOKLOAD	SAFETY TOPIC	ACC
4					

OIL BASED ☐

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
1055	1050	1220

111041

FOLD HERE →

LICENCE NO.:

WELL NAME AND NO.: CHEVRON ET AL LIASD K29 60°30'N 123°30'W

OPERATOR: CHEVRON CANADA RESOURCES

CONTRACTOR: AKITA DRILLING

SURFACE LOCATION: K29 60° 30'N 123° 30' W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS

	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) H²S Signs Posted (if required)	Initial	Initial
(4) Well License & Stick Diagram Posted	Initial	Initial
(5) Flare Lines Started	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually Inspect BOP's - Flexibles & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)		Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
(3) Mast Inspection Before Raising or Lowering		Initial
(4) Crown Saver Checked		Initial
(5) Motor Kills checked		Initial

YEAR 97

RIG NO. 4

FUEL

RIG 1.26 m

WEATHER: TEMPERAT / CURRENT CONDITION / WIND DIR / ACCESS ROADS

TIME HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.			
MORN.	3				1																R.g TO SPUD		BHA	
DAY		4 3/4				4 1/2	1/4			1/4													4	
EVE.					1/2	3/4	1/4																	
TOTAL	3	4 3/4			1 1/2	5 1/4	1/2			1/4													2 1/2 / 1 1/2	

DRILLING ASSEMBLY (At End of Tour)

NO.	OD (mm)		LENGTH (m)
1			.44
1	BIT SUB		.73
2	11" D.C.	279	17.27
1	BALL SUB		1.06
1	XO		.20
1	XO		1.06
			20.76
1	X3 D.P.		9.67
-	-		
	D.P.	STANDS	
	D.P.	SINGLES	
	KELLY DOWN		
	TOTAL		
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	# 1A
SIZE (mm)	444.5
IADC CODE	
MFG.	SECURITY
TYPE	~~FDS~~ S44G
SERIAL NO.	485679
JETS (mm)	3 - 17.5
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME			
DENSITY kg/m³			
FUNNEL VIS. - (S/L)			
W.L. (cm³)			
pH			

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

MORNING TOUR

METRES DRILLED

FROM	TO	DRD RMR CORE-C	RO R

CIRCULATION

LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER SIGNATURE

DRILLING ASSEMBLY (At End of Tour)

NO.	OD (mm)		LENGTH (m)
1			.44
1	NB.		1.59
1	SHORT SUB		4.25
1	STAB. STAB		
1	BIT SUB		.73
2	279 m. DCs /		17.27
1	BALL SUB		1.06
1	X3 DP		9.67
	D.P.	STANDS	
	D.P.	SINGLES	
1	PUP KELLY DOWN		1.51
	TOTAL		38.88
WT. OF DC			1000 daN
WT. OF STRING	12000		1000 daN

BIT RECORD

BIT NO.	# 1A
SIZE (mm)	444.5
IADC CODE	
MFG.	SEC.
TYPE	S44G
SERIAL NO.	485679
JETS (mm)	3 x 17.5
DEPTH OUT (m)	38
DEPTH IN (m)	0
TOTAL METRES DRILLED (m)	38
TOTAL HOURS RUN	4 3/4

CUTTING STRUCTURE T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.
1	2	N	—	2	I	N	BHA	8

HOLE CONDITION

HOLE DRAG	5
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME			
DENSITY kg/m³			
FUNNEL VIS. - (S/L)			
W.L. (cm³)			
pH			

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

DAY TOUR

METRES DRILLED

FROM	TO	DRD RMR CORE-C	RO R
	29		
29			

CIRCULATION

LINER SIZE (mm)	S.P.M.
140	152 / 70

REDUCED PUMP SPEED @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)
29	1/2

DRILLER SIGNATURE

DRILLING ASSEMBLY (At End of Tour)

NO.	OD (mm)		LENGTH (m)
1			.44
1	NB. STAB		1.59
1	SHORT SUB		4.25
1	STAB. STAB		1.81
1	DC		9.56
1	ST STAB		1.47
1	D.C.		9.44
1	D.C.		9.64
1	XO		.90
1	XO		1.04
			37.74
	D.P.	STANDS	
	D.P.	SINGLES	
	KELLY DOWN		
	TOTAL		
WT. OF DC			1000 daN
WT. OF STRING	10 7		1000 daN

BIT RECORD

BIT NO.	RR#1A
SIZE (mm)	444.5
IADC CODE	
MFG.	Security
TYPE	S44G.
SERIAL NO.	485679
JETS (mm)	2 + 17.5
DEPTH OUT (m)	38
DEPTH IN (m)	0
TOTAL METRES DRILLED (m)	38
TOTAL HOURS RUN	4 3/4

CUTTING STRUCTURE T1	T0	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME			22:00
DENSITY kg/m³			44
FUNNEL VIS. - (S/L)			1850
W.L. (cm³)			
pH			4.5
PVT			138

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

EVENING TOUR

METRES DRILLED

FROM	TO	DRD RMR CORE-C	RO R
29			

CIRCULATION

LINER SIZE (mm)	S.P.M.	SP
2100	152	70

REDUCED PUMP SPEED @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER SIGNATURE

FOLD HERE →

CHECKS	OPR.	R.M.
Walk Around Inspection	Initial	Initial
Inspection-Weekly (using checklist)	Initial	Initial
Sign Posted (if required)	Initial	Initial
License & Stick Diagram Posted	Initial	Initial
Lines Staked	Initial	Initial
BOP Drills Performed	Initial	Initial
Daily inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
Site Health and Safety Meeting (one/crew/month)		Initial
A.D.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
Pre-Inspection Before Raising or Lowering		Initial
Crown Saver Checked		Initial
Flow Kills checked		Initial

YEAR	MONTH	DAY
97	02	02

RIG NO. 44

FUEL @ 8:00

RIG 1.26m BOREHOLE 26cm

WEATHER

TEMPERATURE °C

CURRENT CONDITIONS 9358

WIND DIRECTION

ROAD 3 - 522720

	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
LAST CASING									
TUBING OR LINER									

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)

	22	23	24	25	26
	R.g TO Spud	BHA	Circ Trip	Blow Hose	
		4			
			1 1/4	1	
		2 1/2			
		6 1/2	1 1/4	1	

TOTALS

8	
12.	TOP 38
4	MIDDLE 24
7-1	BOTTOM 3X

SHALE SHAKER(S)

NO. | TYPE

SCREENS CHANGED ☐ YES ☑ NO

TOP 38 | TOP 38

MIDDLE 24 | MIDDLE 24

BOTTOM 3X | BOTTOM 3X

RENTALS/SERVICES

MORNING TOUR

RD ☐ OIL BASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION PRESSURE (kPa)

PUMP NO.	LINER SIZE (mm)	S.P.M.	PUMP NO.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	02:00	2	12	Rig To Spud
02:00	06:00	4	23	Make up BHA
06:00		1		Make up 5 Pipe Racks Swivel + Rig Upkelly
	07:00	1	1	Hose
7:00	8:00	1	2	Break Circ Fill Conductor. Mix Mud + Drift Tubulars + 1000 kPa.

NOTES Boiler Blow Down @ 06:00

BOILER HRS. RAN | ph | STACK TEMP.

HRS. RAN	ph	STACK TEMP.
0	11.5	225°C

MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | CREW

DAY TOUR

RD ☐ OIL BASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION PRESSURE (kPa)

PUMP NO.	LINER SIZE (mm)	S.P.M.	PUMP NO.	LINER SIZE (mm)	S.P.M.
1000	152	70	152	80	

REDUCED PUMP SPEED

@ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION
29	1/2	

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
08:00	09:15	1 1/4	2	Spud @ 09:15 + Drill F/ 0-29m
09:15	11:15	1	21	Change Survey Tube
11:15	11:45	1/2	2	Drill F/ 29m - 37m
11:45	11:45	1/2	25	Work Through Boulders
11:45	12:00	1/4	7	Rig Service
12:00	13:15	1 1/4	20	Blow Hose + Safety Pins on Top Drive
13:15	14:45	1 1/2	2	Drill F/ 37m - 39m
14:45	15:15	1/2	25	Work Hole (Boulders) Prep To Survey
15:15	15:30	1/4	1	Survey @ 29m
15:30	20:00	4 1/2	6	Pull out + Pick up Stabilizers.

NOTES Boiler Blow Down @ 14:00 Hrs.

BOILER HRS. RAN | ph | STACK TEMP.

HRS. RAN	ph	STACK TEMP.
12	9.5	230°

MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | CREW

EVENING TOUR

RD ☐ OIL BASED

22:00
44
1050
4.5
138

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)
39				

CIRCULATION PRESSURE (kPa)

PUMP NO.	LINER SIZE (mm)	S.P.M.	PUMP NO.	LINER SIZE (mm)	S.P.M.
2100	152	70	152	80	

REDUCED PUMP SPEED

@ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
20:00	22:30	2 1/2	23	Make up 11" BHA.
22:30	23:00	1/2	5	Break Circulation + Clean To Bottom.
23:00	23:45	3/4	6	Make up Stands in Derrick.
23:45	24:00	1/4	7	Rig Service.

NOTES Pull out + Pick up Stabilizers + BHA. Boiler Blow Down @ 2350

BOILER HRS. RAN | ph | STACK TEMP.

HRS. RAN	ph	STACK TEMP.
4	11.0	224°C

MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | CREW

111040

FOLD HERE →

LICENCE NO.: | WELL NAME AND NO.: CHEVRON ET AL LORD

OPERATOR: Chevron Can. Res. | CONTRACTOR: AKITA Drilling LTD

SURFACE LOCATION: K-79 60° 30'N 125° 30'W | UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE: | SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) H²S Signs Posted (if required)	Initial	Initial
(4) Well License & Stick Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually Inspect BOPs - Flarelines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)	Initial	
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)	Initial	
(3) Mast Inspection Before Raising or Lowering	Initial	
(4) Crown Saver Checked	Initial	
(5) Motor Kills checked	Initial	

YEAR 77 | RIG NO. 4 | FUEL | RIG 144 | WEATHER: TEMPERATURE, CURRENT CONDITIONS, WIND DIR., ROAD

TIME - HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV. SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.			
MORN.	6													2										
DAY														8										
EVE.	11½													11½							½			
TOTAL																								

DRILLING ASSEMBLY (At End of Tour)

NO.	OD (mm)	ID (mm)	LENGTHS
			m
			m
			m
			m
			m
			m
			m
	D.P.	STANDS	m
	D.P.	SINGLES	m
	KELLYDOWN		m
	TOTAL		m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☒ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
Gel	55sx

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

MORNING TOUR

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	R

CIRCULATION

LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@	

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

DAY TOUR

EVENING TOUR

FOLD HERE →

Y CHECKS	OPR.	R.M.
w Walk Around Inspection	Initial	Initial
ekly inspection-Weekly (using checklist)	Initial	Initial
S Signs Posted (if required)	Initial	Initial
n License & Stick Diagram Posted	Initial	Initial
re Lines Staked	Initial	Initial
P Drills Performed	Initial	Initial
ily inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
Site Health and Safety Meeting (one/crew/month)		Initial
A.D.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
st Inspection Before Raising or Lowering		Initial
wn Saver Checked		Initial
r Kills checked		Initial

YEAR 97 | MONTH Oct | DAY 02

RIG NO. 48

FUEL @ 8:00

RIG 144 | BOILER

WEATHER	
TEMPERATURE °C	
CURRENT CONDITIONS	
WIND DIRECTION	
ROAD	

	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)
LAST CASING									
TUBING OR LINER									

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)

	22	23	24	25	26	TOTALS
TY						

SHALE SHAKER(S)

NO. | TYPE

SCREENS CHANGED ☑ YES ☐ NO

TOP	35	TOP	35
MIDDLE	35	MIDDLE	35
BOTTOM	35	BOTTOM	35

RENTALS/SERVICES

	WORK	TRAVEL	STAND

MORNING TOUR

RD

☐ OIL BASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION PRESSURE (kPa)

PUMP NO. 1 LINER SIZE (mm)	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE (mm)	PUMP NO. 2 S.P.M.

REDUCED PUMP SPEED

@ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE (HRS)	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	06:00	6	1	TIGHTEN UP BAR ON TORQUE TUBE / TORQUE UP TOP DRIVE HEAD / NIPPLE UP DIVERTER
06:00	08:00	2	14	MIDDLE UP DIVERTER

NOTES Boiler Blow Down @ 0100

BOILER HRS. RAN | ph² | STACK TEMP² | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | CREW

8 | 8.5 | 225

DAY TOUR

RD

☐ OIL BASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION PRESSURE (kPa)

PUMP NO. 1 LINER SIZE (mm)	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE (mm)	PUMP NO. 2 S.P.M.

REDUCED PUMP SPEED

@ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE (HRS)	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
08:00	16:00	8	14	NIPPLE UP DIVERTER + K.C. (N) FLOWLINE (SCRIBE EXTENSION TO FLOAT) R.C. (N) BOILER LINE FROM DIVERTER TO FLARE P.T.

NOTES Boiler Blow Down @ 08:00, 1230

BOILER HRS. RAN | ph² | STACK TEMP² | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | CREW

8 | 8 | 225°C

EVENING TOUR

ORD

☐ OIL BASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION PRESSURE (kPa)

PUMP NO. 1 LINER SIZE (mm)	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE (mm)	PUMP NO. 2 S.P.M.

REDUCED PUMP SPEED

@ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE (HRS)	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
16:00	17:30	1½	14	RIG DIVERTER LINE TO FLARE PIT
17:30	18:00	½	21	RIG SLOTTED MUD LINE
18:00	24:00	6	1	

NOTES

111039

FOLD HERE →

LICENCE NO.:	WELL NAME AND NO.: CHEVRON ET AL LIARD K-29
OPERATOR: CHEVRON CANADA RESOURCES	CONTRACTOR: AKITA DRILLING LTD
SURFACE LOCATION: K-29 60° 30' 11" 123° 30' 11"	UNIQUE ID.:
SIGNATURE OF OPERATOR'S REPRESENTATIVE:	SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS

	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) H²S Signs Posted (if required)	Initial	Initial
(4) Well Licence & Sour Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)		Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
(3) Mast Inspection Before Raising or Lowering		Initial
(4) Crown Saver Checked		Initial
(5) Motor Kills checked		Initial

YEAR 99 M

RIG NO. 48(1)

FUEL

RIG 1.5 9

WEATHER: TEMPERATU; CURRENT CONDITIONS; WIND DIRE; ROAD

TIME-HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.				
MORN.																									
DAY																									
EVE.																									
TOTAL																									

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD (mm)	LENGTH (m)
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLYDOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROT R.P.

CIRCULATING

LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@ SPM

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD (mm)	LENGTH (m)
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLYDOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROT R.P.

CIRCULATING

LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@ SPM

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

EVENING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD (mm)	LENGTH (m)
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLYDOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☑ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT
CAUSTIC	2 SX
SOD ASH	2 SX
GEL	60 SD

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROT R.P.

CIRCULATING

LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@ SPM

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

FOLD HERE →

SAFETY CHECKS

	OPR.	R.M.
Daily Walk Around Inspection	Initial	Initial
Scheduled Inspection-Weekly (using checklist)	Initial	Initial
H2S Signs Posted (if required)	Initial	Initial
Well Licensee & Stick Diagram Posted	Initial	Initial
Flare Lines Staked	Initial	Initial
BOP Drills Performed	Initial	Initial
Visually inspect BOPs - Flarelines & Degasser Lines	Initial	Initial
Pre-Spud Site Health and Safety Meeting (one/crew/month)		Initial
I.A.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
Last Inspection Before Rasing or Lowering		Initial
Crown Saver Checked		Initial
Choke Kills checked		Initial

YEAR 99 | MONTH 02 | DAY 01

RIG NO. 48 ITE

FUEL @ 8:00

RIG 1.59 | BOILER

WEATHER

	°C
TEMPERATURE	
CURRENT CONDITIONS	
WIND DIRECTION	
ROAD	

LAST CASING TUBING OR LINER

	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)

21 22 23 24 25 26

SAFETY MTG

TOTALS

SHALE SHAKER(S)

NO. | TYPE

SCREENS CHANGED ☐ YES ☐ NO

TOP | TOP

MIDDLE | MIDDLE

BOTTOM | BOTTOM

RENTALS/SERVICES

	#WORN	TODAY	TO MOVE

MORNING TOUR

RD

☐ OIL BASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR'D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION PRESSURE (kPa)	PUMP NO.2 LINER SIZE (mm)	PUMP NO.2 S.P.M.	PUMP NO.3 LINER SIZE (mm)	PUMP NO.3 S.P.M.

REDUCED PUMP SPEED

@ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.
00:00	08:00	8	1

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

Rig up Top Drive

NOTES Bouce Bead Down @ 00:00

BOILER HRS. RAN | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | ACCP

8 | 4.5 | 225°

DAY TOUR

RD

☐ OIL BASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR'D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION PRESSURE (kPa)	PUMP NO.2 LINER SIZE (mm)	PUMP NO.2 S.P.M.	PUMP NO.3 LINER SIZE (mm)	PUMP NO.3 S.P.M.

REDUCED PUMP SPEED

@ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.
08:00	20:00	12	1

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

Rig up DC Power Cable To Top Drive + Hydraulic Lines / Change Fitting To make Hoses Fit / Rig up Rams + Floor

NOTES

BOILER HRS. RAN | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | ACCP

12 | 15 | 225°

EVENING TOUR

RD

☐ OIL BASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR'D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION PRESSURE (kPa)	PUMP NO.2 LINER SIZE (mm)	PUMP NO.2 S.P.M.	PUMP NO.3 LINER SIZE (mm)	PUMP NO.3 S.P.M.

REDUCED PUMP SPEED

@ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.
2:00	24:00	4	1

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

Tighten up Third Buckles on Torque Tube + Torque Shaft Flow Problem With Top Drive

NOTES Boiler Shut Down

BOILER HRS. RAN | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | ACCP

4 | Rn | 225

111038

FOLD HERE →

LICENCE NO.: | WELL NAME AND NO.: CHEVRON ET AL LIARD K-37

OPERATOR: CHEVRON CANADA RESOURCES | CONTRACTOR: AKITA DRILLING LTD

SURFACE LOCATION: K-37 10° 30' N 123°30' W | UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE: | SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) H²S Signs Posted (if required)	Initial	Initial
(4) Well License & Stick Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually Inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)		Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
(3) Mast Inspection Before Raising or Lowering		Initial
(4) Crown Saver Checked		Initial
(5) Motor Kills checked		Initial

YEAR 74 | RIG NO. 45 | FUEL RIG 1:74 | WEATHER: TEMPERATU / CURRENT CONDITIONS / WIND DIRE / ROAD

MORNING TOUR

TIME-HRS

CODE NO.	1 OPER.	2 RIG UP & TEAR DOWN	3 DRILL ACTUAL	4 REAMING	5 CORING	6 COND. MUD & CIRC	7 TRIPS	8 RIG SERVICE	9 REPAIR RIG	10 CUT OFF DRILL LINE	11 DEV. SURVEY	12 WIRE LINE LOGS	13 RUN CASE & CEMENT	14 WAIT ON CEMENT	15 NIPPLE UP B.O.P.	16 TEST B.O.P.	17 DRILL STEM TEST	18 PLUG BACK	19 SQUEEZE CEMENT	20 FISHING	21 DIR. WORK	22 SAFETY MTG.	23	24
	MORN.																							
	DAY																							
	EVE.																							
	TOTAL																							

DRILLING ASSEMBLY (At End of Tour)

NO.	O.D.	LENGTH
		m
		m
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLYDOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROT R.P

CIRCULATING PRESSURE | LINER SIZE (mm) | S.P.M.

REDUCED PUMP SPEED @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

DAY TOUR

TIME-HRS

CODE NO.	1 OPER.	2 RIG UP & TEAR DOWN	3 DRILL ACTUAL	4 REAMING	5 CORING	6 COND. MUD & CIRC	7 TRIPS	8 RIG SERVICE	9 REPAIR RIG	10 CUT OFF DRILL LINE	11 DEV. SURVEY	12 WIRE LINE LOGS	13 RUN CASE & CEMENT	14 WAIT ON CEMENT	15 NIPPLE UP B.O.P.	16 TEST B.O.P.	17 DRILL STEM TEST	18 PLUG BACK	19 SQUEEZE CEMENT	20 FISHING	21 DIR. WORK	22 SAFETY MTG.	23	24
	MORN.																							
	DAY																							
	EVE.																							
	TOTAL																							

DRILLING ASSEMBLY (At End of Tour)

NO.	O.D.	LENGTH
		m
		m
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLYDOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROT R.P

CIRCULATING PRESSURE | LINER SIZE (mm) | S.P.M.

REDUCED PUMP SPEED @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

EVENING TOUR

TIME-HRS

CODE NO.	1 OPER.	2 RIG UP & TEAR DOWN	3 DRILL ACTUAL	4 REAMING	5 CORING	6 COND. MUD & CIRC	7 TRIPS	8 RIG SERVICE	9 REPAIR RIG	10 CUT OFF DRILL LINE	11 DEV. SURVEY	12 WIRE LINE LOGS	13 RUN CASE & CEMENT	14 WAIT ON CEMENT	15 NIPPLE UP B.O.P.	16 TEST B.O.P.	17 DRILL STEM TEST	18 PLUG BACK	19 SQUEEZE CEMENT	20 FISHING	21 DIR. WORK	22 SAFETY MTG.	23	24
	MORN.																							
	DAY																							
	EVE.																							
	TOTAL																							

DRILLING ASSEMBLY (At End of Tour)

NO.	O.D.	LENGTH
		m
		m
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLYDOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROT R.P

CIRCULATING PRESSURE | LINER SIZE (mm) | S.P.M.

REDUCED PUMP SPEED @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

FOLD HERE →

Y CHECKS — OPR. / R.M.

- ily Walk Around Inspection — Initial / Initial
- ewed Inspection-Weekly (using checklist) — Initial / Initial
- S Signs Posted (if required) — Initial / Initial
- el License & Stick Diagram Posted — Initial / Initial
- ire Lines Stared — Initial / Initial
- OP Drills Performed — Initial / Initial
- kly Inspect BOP's - Pressures & Degasser Lines — Initial / Initial
- g See Health and Safety Meeting (one/crew/month) — Initial
- A.D.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
- st Inspection Before Raising or Lowering — Initial
- own Saver Checked — Initial
- or Kills checked — Initial

YEAR 1 | MONTH 11 | DAY 21

RIG NO. 45

FUEL @ 8:00

RIG 1.74 | BOILER

WEATHER: TEMPERATURE °C; CURRENT CONDITIONS; WIND DIRECTION; ROAD

LAST CASING TUBING OR LINER	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)

1 22 23 24 25 26

TOTALS

SHALE SHAKER(S)

NO. TYPE

SCREENS CHANGED ☐ YES ☐ NO

TOP / TOP

MIDDLE / MIDDLE

BOTTOM / BOTTOM

RENTALS/SERVICES — MON. | TOUR | CUM.

RD

OIL BASED

SOLIDS CONTROL

DESILTER: INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE: INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

MORNING TOUR

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION PRESSURE (kPa) | PUMP NO. 1: LINER SIZE (mm), S.P.M. | PUMP NO. 2: LINER SIZE (mm), S.P.M.

REDUCED PUMP SPEED: @ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE: U. Richardson

TIME LOG:

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
00:00	08:00	8	1	Rig up Torque Tube

NOTES: Boiler Blow Down @ 0200, 0600

BOILER HRS. RAN | ph | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC

8 | 8.0 | 275

DAY TOUR

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION PRESSURE (kPa) | PUMP NO. 1: LINER SIZE (mm), S.P.M. | PUMP NO. 2: LINER SIZE (mm), S.P.M.

REDUCED PUMP SPEED: @ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE: Mark Turner

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
08:00	20:00	12	1	R.C. up Top Drive

NOTES: Boiler Blow Down @ 1200, 1700

BOILER HRS. RAN | ph | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC

12 | 9.5 | 275°

EVENING TOUR

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION PRESSURE (kPa) | PUMP NO. 1: LINER SIZE (mm), S.P.M. | PUMP NO. 2: LINER SIZE (mm), S.P.M.

REDUCED PUMP SPEED: @ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE: K. Richardson

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
20:00	24:00	4	1	Rig up Top Drive

NOTES

BOILER HRS. RAN | ph | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC

111037

FOLD HERE →

LICENCE NO.:	WELL NAME AND NO.: CHEVRON ET AL LINDOK-K-14 PC L
OPERATOR: CHEVRON CANADA RESOURCES	CONTRACTOR: AKITA DRILLING LTD
SURFACE LOCATION: K-14 60° 30' N 123° 30'	UNIQUE ID.:
SIGNATURE OF OPERATOR'S REPRESENTATIVE:	SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS

	OPR.	H.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) H²S Signs Posted (if required)	Initial	Initial
(4) Well Licensee & Stick Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)		Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
(3) Mast Inspection Before Raising or Lowering		Initial
(4) Crown Saver Checked		Initial
(5) Motor Kills checked		Initial

YEAR: 77 MO.
RIG NO.: 45
FUEL
RIG: 1771
WEATHER
TEMPERATURE
CURRENT CONDITIONS
WIND DIRE
ROAD

TIME-HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.				
MORN.																									
DAY																									
EVE.																									
TOTAL																									

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour) — #NO. | OD | #LENGTH

				m
				m
				m
				m
				m
				m
				m
				m
D.P.	STANDS			m
D.P.	SINGLES			m
KELLYDOWN				m
TOTAL				m
WT. OF DC			1000 daN	
WT. OF STRING			1000 daN	

BIT RECORD

BIT NO.									
SIZE (mm)									
IADC CODE									
MFG.									
TYPE									
SERIAL NO.									
JETS (mm)									
DEPTH OUT (m)									
DEPTH IN (m)									
TOTAL METRES DRILLED (m)									
TOTAL HOURS RUN									

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME				
DENSITY kg/m³				
FUNNEL VIS. - (S/L)				
W.L. (cm³)				
pH				

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRD RMR CORE C	ROT R.P.

CIRCULATION PRESSURE

	LINER SIZE (mm)	S.P.M.	SIZE

REDUCED PUMP SPEED

@	

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour) — #NO. | OD | #LENGTH

				m
				m
				m
				m
				m
				m
				m
				m
D.P.	STANDS			m
D.P.	SINGLES			m
KELLYDOWN				m
TOTAL				m
WT. OF DC			1000 daN	
WT. OF STRING			1000 daN	

BIT RECORD

BIT NO.									
SIZE (mm)									
IADC CODE									
MFG.									
TYPE									
SERIAL NO.									
JETS (mm)									
DEPTH OUT (m)									
DEPTH IN (m)									
TOTAL METRES DRILLED (m)									
TOTAL HOURS RUN									

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME				
DENSITY kg/m³				
FUNNEL VIS. - (S/L)				
W.L. (cm³)				
pH				

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRD RMR CORE C	ROT R.P.

CIRCULATION PRESSURE

	LINER SIZE (mm)	S.P.M.	SIZE

REDUCED PUMP SPEED

@	

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

EVENING TOUR

DRILLING ASSEMBLY (At End of Tour) — #NO. | OD | #LENGTH

				m
				m
				m
				m
				m
				m
				m
				m
D.P.	STANDS			m
D.P.	SINGLES			m
KELLYDOWN				m
TOTAL				m
WT. OF DC			1000 daN	
WT. OF STRING			1000 daN	

BIT RECORD

BIT NO.									
SIZE (mm)									
IADC CODE									
MFG.									
TYPE									
SERIAL NO.									
JETS (mm)									
DEPTH OUT (m)									
DEPTH IN (m)									
TOTAL METRES DRILLED (m)									
TOTAL HOURS RUN									

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME				
DENSITY kg/m³				
FUNNEL VIS. - (S/L)				
W.L. (cm³)				
pH				

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRD RMR CORE C	ROT R.P.

CIRCULATION PRESSURE

	LINER SIZE (mm)	S.P.M.	SIZE

REDUCED PUMP SPEED

@	

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

FOLD HERE →

DAILY CHECKS	OPR.	R.M.
Safety Walk-Around Inspection	Initial	Initial
Documented Inspection-Weekly (using checklist)	Initial	Initial
WHMIS Signs Posted (if required)	Initial	Initial
Current Licenses & Stick Diagram Posted	Initial	Initial
Fuel Lines Staked	Initial	Initial
BOP Drills Performed	Initial	Initial
Visually Inspect BOP's - Flexibles & Degasser Lines	Initial	Initial
Morning Site Health and Safety Meeting (one/crew/month)		Initial
C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
Derrick Inspection Before Raising or Lowering		Initial
Blowdown Sewer Checked		Initial
Motor Kills checked		Initial

YEAR 87 | MONTH 1 | DAY

RIG NO. 44

FUEL @ 8:00

RIG 1.7.1 | BOILER

WEATHER: TEMPERATURE °C; CURRENT CONDITIONS; WIND DIRECTION; ROAD

LAST CASING / TUBING OR LINER	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)

21	22	23	24	25	26	TOTALS
SAFETY TOPIC						

SHALE SHAKER(S) — NO. | TYPE

SCREENS CHANGED ☐ YES ☐ NO

TOP / TOP

MIDDLE / MIDDLE

BOTTOM / BOTTOM

RENTALS/SERVICES

MORNING TOUR	DAY TOUR	EVENING TOUR

MORNING TOUR

OIL BASED ☐

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION PRESSURE (kPa) | PUMP NO.1 LINER SIZE (mm) | PUMP NO.1 S.P.M. | PUMP NO.2 LINER SIZE (mm) | PUMP NO.2 S.P.M.

REDUCED PUMP SPEED @ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER'S SIGNATURE: I. McWhinnie

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
20:00	04:00	8	1	R.U. UP WATER LINES & FRET WATER CATALOG

NOTES

BOILER HRS. RAN | STACK TEMP. | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | CALC. BOP

DAY TOUR

OIL BASED ☐

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION PRESSURE (kPa) | PUMP NO.1 LINER SIZE (mm) | PUMP NO.1 S.P.M. | PUMP NO.2 LINER SIZE (mm) | PUMP NO.2 S.P.M.

REDUCED PUMP SPEED @ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER'S SIGNATURE: Fred Lowe

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
08:00	20:00	12	1	U. BLOCKS, RIG UP ROTARY TABLE CHAIN, PICK UP SWIVEL, RIG UP FLOOR

NOTES

BOILER HRS. RAN | STACK TEMP. | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | CALC. BOP

EVENING TOUR

OIL BASED ☐

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION PRESSURE (kPa) | PUMP NO.1 LINER SIZE (mm) | PUMP NO.1 S.P.M. | PUMP NO.2 LINER SIZE (mm) | PUMP NO.2 S.P.M.

REDUCED PUMP SPEED @ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER'S SIGNATURE: [illegible]

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
20:00	24:00	4	1	Run Power Cords F/SCR To Top Drive Unit

NOTES

BOILER HRS. RAN | STACK TEMP. | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | CALC. BOP

111036

FOLD HERE →

LICENCE NO.: | WELL NAME AND NO.: PHILLIPS ET AL-EARD K-29

OPERATOR: PHILLIPS CANADIAN ENERGY | CONTRACTOR: A.K.A Drilling Ltd.

SURFACE LOCATION: K-29 (a) 30-0 123 30-0 | UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE: | SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS

	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) H²S Signs Posted (if required)	Initial	Initial
(4) Well License & Stick Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)		Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
(3) Mast Inspection Before Raising or Lowering		Initial
(4) Crown Saver Checked		Initial
(5) Motor Kills checked		Initial

YEAR 77 | RIG NO. 47 | FUEL | RIG | WEATHER: TEMPERATURE, CURRENT CONDITIONS, WIND DIRECTION, ROAD

MORNING TOUR

TIME HRS — CODE NO. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.
MORN.																					
DAY																					
EVE.																					
TOTAL																					

DRILLING ASSEMBLY (At End of Tour) — NO. | OD mm | LENGTH m

D.P. STANDS m
D.P. SINGLES m
KELLYDOWN m
TOTAL m
WT. OF DC 1000 daN
WT. OF STRING 1000 daN

BIT RECORD

BIT NO. | SIZE (mm) | IADC CODE | MFG. | TYPE | SERIAL NO. | JETS (mm) | DEPTH OUT (m) | DEPTH IN (m) | TOTAL METRES DRILLED (m) | TOTAL HOURS RUN

CUTTING STRUCTURE: T_i | T_o | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG | TORQUE AT BOTTOM | FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME | DENSITY kg/m³ | FUNNEL VIS. - (S/L) | W.L. (cm³) | pH

MUD MATERIALS ADDED

PRODUCT | AMOUNT X UNIT

SOLIDS CONTROL

DESILTER: HOURS RUN | INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE: HOURS RUN | INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

HOURS RUN | INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM | TO | DRD RMR CORE-C | ROT R.P.

CIRCULATING PRESSURE | LINER SIZE (mm) | S.P.M.

REDUCED PUMP SPEED @

DEVIATION SURVEY

DEPTH (m) | DEVIATION (°)

DRILLER'S SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour) — NO. | OD mm | LENGTH m

D.P. STANDS m
D.P. SINGLES m
KELLYDOWN m
TOTAL m
WT. OF DC 1000 daN
WT. OF STRING 1000 daN

BIT RECORD

BIT NO. | SIZE (mm) | IADC CODE | MFG. | TYPE | SERIAL NO. | JETS (mm) | DEPTH OUT (m) | DEPTH IN (m) | TOTAL METRES DRILLED (m) | TOTAL HOURS RUN

CUTTING STRUCTURE: T_i | T_o | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG | TORQUE AT BOTTOM | FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME | DENSITY kg/m³ | FUNNEL VIS. - (S/L) | W.L. (cm³) | pH

MUD MATERIALS ADDED

PRODUCT | AMOUNT X UNIT

SOLIDS CONTROL

DESILTER: HOURS RUN | INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE: HOURS RUN | INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

HOURS RUN | INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM | TO | DRD RMR CORE-C | ROT R.P.

CIRCULATING PRESSURE | LINER SIZE (mm) | S.P.M.

REDUCED PUMP SPEED @

DEVIATION SURVEY

DEPTH (m) | DEVIATION (°)

DRILLER'S SIGNATURE

EVENING TOUR

DRILLING ASSEMBLY (At End of Tour) — NO. | OD mm | LENGTH m

D.P. STANDS m
D.P. SINGLES m
KELLYDOWN m
TOTAL m
WT. OF DC 1000 daN
WT. OF STRING 1000 daN

BIT RECORD

BIT NO. | SIZE (mm) | IADC CODE | MFG. | TYPE | SERIAL NO. | JETS (mm) | DEPTH OUT (m) | DEPTH IN (m) | TOTAL METRES DRILLED (m) | TOTAL HOURS RUN

CUTTING STRUCTURE: T_i | T_o | MDC | LOC | B | Gage | ODC | Reason Pulled | Total Run m/hr.

HOLE CONDITION

HOLE DRAG | TORQUE AT BOTTOM | FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME | DENSITY kg/m³ | FUNNEL VIS. - (S/L) | W.L. (cm³) | pH

MUD MATERIALS ADDED

PRODUCT | AMOUNT X UNIT

SOLIDS CONTROL

DESILTER: HOURS RUN | INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE: HOURS RUN | INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

HOURS RUN | INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM | TO | DRD RMR CORE-C | ROT R.P.

CIRCULATING PRESSURE | LINER SIZE (mm) | S.P.M.

REDUCED PUMP SPEED @

DEVIATION SURVEY

DEPTH (m) | DEVIATION (°)

DRILLER'S SIGNATURE

FOLD HERE →

Y CHECKS — OPR. / R.M.

- y Walk Around Inspection — Initial / Initial
- ised Inspection-Weekly (using checklist) — Initial / Initial
- Signs Posted (if required) — Initial / Initial
- t License & Stab Diagram Posted — Initial / Initial
- e Lines Staked — Initial / Initial
- P Drills Performed — Initial / Initial
- uuly inspect BOP's - Flarelines & Degasser Lines — Initial / Initial
- Site Health and Safety Meeting (one/crew/month) — Initial
- O.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
- t Inspection Before Raising or Lowering — Initial
- wn Saver Checked — Initial
- or Kills checked — Initial

YEAR -9-1 | MONTH / | DAY /

RIG NO. 114

FUEL @ 8:00

RIG | BOILER

WEATHER: TEMPERATURE °C; CURRENT CONDITIONS; WIND DIRECTION; ROAD

LAST CASING TUBING OR LINER	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)

22 | 23 | 24 | 25 | 26

TY

TOTALS

SHALE SHAKER(S)

NO. | TYPE

SCREENS CHANGED ☐ YES ☐ NO

TOP | TOP

MIDDLE | MIDDLE

BOTTOM | BOTTOM

RENTALS/SERVICES | WORK | DOWN | TIME

RD

OIL BASED

SOLIDS CONTROL

DESILTER: INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE: INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

D

MORNING TOUR

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION | PUMP NO. 1 | PUMP NO. 2

	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

Scott Lemon

TIME LOG

FROM	TO	ELAP. TIME	CODE MINOR
09:00			

111035

FOLD HERE →

LICENCE NO.: | WELL NAME AND NO.: HUSKY ET AL FIREBAG K-31

OPERATOR: HUSKY ENERGY INC. | CONTRACTOR: H&H Drilling

SURFACE LOCATION: K-31 56° 30' N 1253 | UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE: | SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS — OPR. / R.M.

(1) Daily Walk Around Inspection — Initial / Initial
(2) Detailed Inspection-Weekly (using checklist) — Initial / Initial
(3) H2S Signs Posted (if required) — Initial / Initial
(4) Well License & Slick Diagram Posted — Initial / Initial
(5) Flare Lines Staked — Initial / Initial
(6) BOP Drills Performed — Initial / Initial
(7) Visually Inspect BOP's - Flarelines & Degasser Lines — Initial / Initial

(1) Rig Site Health and Safety Meeting (one/crew/month) — Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
(3) Mast Inspection Before Raising or Lowering — Initial
(4) Crown Saver Checked — Initial
(5) Motor Kills checked — Initial

YEAR 14 | M
RIG NO. 6/4

FUEL
RIG

WEATHER
TEMPERATU
CURRENT CONDITIONS
WIND DIRE
ROAD

TIME - HRS.

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.				
MORN.																									
DAY																									
EVE.																									
TOTAL																									

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	O.D.	LENGTH
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLYDOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T_I	T_O	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
DESILTER				
DESANDER				
CENTRIFUGE				

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROT R.P.

CIRCULATING SYSTEM	LINER SIZE (mm)	S.P.M.	

REDUCED STROKE

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	O.D.	LENGTH
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLYDOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T_I	T_O	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
DESILTER				
DESANDER				
CENTRIFUGE				

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROT R.P.

CIRCULATING SYSTEM	LINER SIZE (mm)	S.P.M.	SI

REDUCED STROKE

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

EVENING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	O.D.	LENGTH
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLYDOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T_I	T_O	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)
DESILTER				
DESANDER				
CENTRIFUGE				

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROTA R.P.

CIRCULATING SYSTEM	LINER SIZE (mm)	S.P.M.	LI SIZE

REDUCED STROKE

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

FOLD HERE →

Y CHECKS — OPR. / R.M.

- ly Walk Around Inspection — Initial / Initial
- ased Inspection-Weekly (using checklist) — Initial / Initial
- H Signs Posted (if required) — Initial / Initial
- et Licenses & Stick Diagram Posted — Initial / Initial
- ine Lines Staked — Initial / Initial
- OP Drills Performed — Initial / Initial
- ekly Inspect BOP's - Flarelines & Degasser Lines — Initial / Initial
- g Site Health and Safety Meeting (one/crew/month) — Initial
- A.D.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
- ost Inspection Before Raising or Lowering — Initial
- own Saver Checked — Initial
- ox Kits checked — Initial

YEAR | MONTH | DAY

RIG NO. 4/8

FUEL @ 8:00

RIG | BOILER

WEATHER

TEMPERATURE °C	
CURRENT CONDITIONS	
WIND DIRECTION	
ROAD	

LAST CASING TUBING OR LINER

O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)

21	22	23	24	25	26	TOTALS
QTY						

SHALE SHAKER(S)

NO. | TYPE

SCREENS CHANGED ☐ YES ☐ NO

TOP	TOP
MIDDLE	MIDDLE
BOTTOM	BOTTOM

RENTALS/SERVICES

MORNING TOUR

RD

☐ OIL BASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

DESANDER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION

PUMP NO.	LINER SIZE (mm)	S.P.M.	PUMP NO.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

	@		@

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	HRS	CODE NO.
08:00	20:00	12	1

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

Ring in Crews / Finish Cleaning Rig. Oil Rig / Start Coolstart + Start 398 CAT & Power up.

NOTES

BOILER HRS RAN | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFE HOOKLOAD

DAY TOUR

RD

☐ OIL BASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

DESANDER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION

PUMP NO.	LINER SIZE (mm)	S.P.M.	PUMP NO.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

	@		@

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	HRS	CODE NO.
04:00	20:00	12	1

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

Drug in Crews, Pick up Centrifuges
Rig up 3½" Aluminum Pipe From Water Tower
Spot Unit on Drum + Tighten up Anchor
Rig up Lights

NOTES

BOILER HRS RAN | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFE HOOKLOAD

EVENING TOUR

ORD

☐ OIL BASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION

PUMP NO.	LINER SIZE (mm)	S.P.M.	PUMP NO.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

	@		@

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER'S SIGNATURE

TIME LOG

FROM	TO	HRS	CODE NO.

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

Digging Test Hole
Unable to Locate Water
Email for Scope of Unit.
Unit not Located to Start
Drilling Unit Left.

NOTES

BOILER HRS RAN | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFE HOOKLOAD

111034

FOLD HERE →

LICENCE NO.:	WELL NAME AND NO.:
OPERATOR:	CONTRACTOR:
SURFACE LOCATION:	UNIQUE ID.:
SIGNATURE OF OPERATOR'S REPRESENTATIVE:	SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS

	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) H²S Signs Posted (if required)	Initial	Initial
(4) Well License & Slick Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)		Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
(3) Mast Inspection Before Raising or Lowering		Initial
(4) Crown Saver Checked		Initial
(5) Motor Kills checked		Initial

YEAR 99 | RIG NO. 4/4

FUEL

RIG

WEATHER: TEMPERATURE | CURRENT CONDITIONS | WIND DIRE | ROAD

TIME-HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.				
MORN.	1																								
DAY	12																								
EVE.																									
TOTAL	13																								

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

	OD	LENGTH
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLY DOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.							
SIZE (mm)							
IADC CODE							
MFG.							
TYPE							
SERIAL NO.							
JETS (mm)							
DEPTH OUT (m)							
DEPTH IN (m)							
TOTAL METRES DRILLED (m)							
TOTAL HOURS RUN							

CUTTING STRUCTURE							
T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE	WATER BASED	OIL BASED
TIME		
DENSITY kg/m³		
FUNNEL VIS. - (S/L)		
W.L. (cm³)		
pH		

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROT. R.P.

	LINER SIZE (mm)	S.P.M.	

REDUCED SPEED @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

	OD	LENGTH
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLY DOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.							
SIZE (mm)							
IADC CODE							
MFG.							
TYPE							
SERIAL NO.							
JETS (mm)							
DEPTH OUT (m)							
DEPTH IN (m)							
TOTAL METRES DRILLED (m)							
TOTAL HOURS RUN							

CUTTING STRUCTURE							
T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE	WATER BASED	OIL BASED
TIME		
DENSITY kg/m³		
FUNNEL VIS. - (S/L)		
W.L. (cm³)		
pH		

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROT. R.P.

	LINER SIZE (mm)	S.P.M.	

REDUCED SPEED @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER SIGNATURE

EVENING TOUR

DRILLING ASSEMBLY (At End of Tour)

	OD	LENGTH
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLY DOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.							
SIZE (mm)							
IADC CODE							
MFG.							
TYPE							
SERIAL NO.							
JETS (mm)							
DEPTH OUT (m)							
DEPTH IN (m)							
TOTAL METRES DRILLED (m)							
TOTAL HOURS RUN							

CUTTING STRUCTURE							
T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE	WATER BASED	OIL BASED
TIME		
DENSITY kg/m³		
FUNNEL VIS. - (S/L)		
W.L. (cm³)		
pH		

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

	HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTA R.P.

	LINER SIZE (mm)	S.P.M.	LI SIZE

REDUCED SPEED @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER SIGNATURE

FOLD HERE →

LY CHECKS — OPR. / R.M.

	OPR.	R.M.
ily Walk Around Inspection	Initial	Initial
dated Inspection-Weekly (using checklist)	Initial	Initial
% Signs Posted (if required)	Initial	Initial
ell License & Stick Diagram Posted	Initial	Initial
ure Lines Staked	Initial	Initial
OP Drills Performed	Initial	Initial
ekly Inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
g Site Health and Safety Meeting (one/crew/month)		Initial
A.D.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
ss Inspection Before Raising or Lowering		Initial
own Saver Checked		Initial
ow Kills-checked		Initial

YEAR 99 | MONTH 01 | DAY 29

RIG NO. 4/4

FUEL @ 8:00

RIG | BOILER

WEATHER: TEMPERATURE °C; CURRENT CONDITIONS; WIND DIRECTION; ROAD

LAST CASING TUBING OR LINER	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)

1 22 23 24 25 26

QTY

TOTALS

SHALE SHAKER(S)

NO. TYPE

SCREENS CHANGED ☐ YES ☐ NO

TOP / TOP

MIDDLE / MIDDLE

BOTTOM / BOTTOM

RENTALS/SERVICES

RD

OIL BASED

SOLIDS CONTROL

INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

MORNING TOUR

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

Brad Lemon

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.
0800	2000	12	1

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

Spot Back Shacks

NOTES

BOILER HRS. RAN | STACK TEMP | EXPERIENCED HOOKLOAD | SAFETY TOPIC

RD

OIL BASED

SOLIDS CONTROL

INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

DAY TOUR

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.
0800	2000	12	1

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

Pull Derrick To Sub. Install Catwalk
Spool Blocks

NOTES

BOILER HRS. RAN | STACK TEMP | EXPERIENCED HOOKLOAD | SAFETY TOPIC

ORD

OIL BASED

SOLIDS CONTROL

INTAKE DENSITY (kg/m³) | OVERFLOW DENSITY (kg/m³) | UNDERFLOW DENSITY (kg/m³)

EVENING TOUR

METRES DRILLED

FROM	TO	DRD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

NOTES

BOILER HRS. RAN | STACK TEMP | EXPERIENCED HOOKLOAD | SAFETY TOPIC

111033

FOLD HERE →

LICENCE NO.: | WELL NAME AND NO.:

OPERATOR: | CONTRACTOR:

SURFACE LOCATION: | UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE: | SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) H²S Signs Posted (if required)	Initial	Initial
(4) Well Licence & Stick Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually Inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)		Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
(3) Mast Inspection Before Raising or Lowering		Initial
(4) Crown Saver Checked		Initial
(5) Motor Kills checked		Initial

YEAR | RIG NO. | FUE | RIG | WEATHER: TEMPERAT | CURRENT CONDITION | WIND DIR | ROAD

TIME-HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.			
MORN.																								
DAY																								
EVE.																								
TOTAL																								

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTH
		m
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLY DOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.		
SIZE (mm)		
IADC CODE		
MFG.		
TYPE		
SERIAL NO.		
JETS (mm)		
DEPTH OUT (m)		
DEPTH IN (m)		
TOTAL METRES DRILLED (m)		
TOTAL HOURS RUN		

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME			
DENSITY kg/m³			
FUNNEL VIS. - (S/L)			
W.L. (cm³)			
pH			

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLG RM-R CORE-C	ROT R.P.

LINER SIZE (mm)	S.P.M.

REDUCED ROTARY SPEED

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTH
		m
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLY DOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.		
SIZE (mm)		
IADC CODE		
MFG.		
TYPE		
SERIAL NO.		
JETS (mm)		
DEPTH OUT (m)		
DEPTH IN (m)		
TOTAL METRES DRILLED (m)		
TOTAL HOURS RUN		

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	OOC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME			
DENSITY kg/m³			
FUNNEL VIS. - (S/L)			
W.L. (cm³)			
pH			

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLG RM-R CORE-C	ROT R.P.

LINER SIZE (mm)	S.P.M.

REDUCED ROTARY SPEED

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

EVENING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTH
		m
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLY DOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.		
SIZE (mm)		
IADC CODE		
MFG.		
TYPE		
SERIAL NO.		
JETS (mm)		
DEPTH OUT (m)		
DEPTH IN (m)		
TOTAL METRES DRILLED (m)		
TOTAL HOURS RUN		

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	OOC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME			
DENSITY kg/m³			
FUNNEL VIS. - (S/L)			
W.L. (cm³)			
pH			

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLG RM-R CORE-C	ROT R.P.

LINER SIZE (mm)	S.P.M.	SIZ

REDUCED ROTARY SPEED

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

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Y CHECKS — OPR. / R.M.

- y Walls Around Inspection — Initial / Initial
- ekend Inspection-Weekly (using checklist) — Initial / Initial
- S Signs Posted (if required) — Initial / Initial
- ft License & Stack Diagram Posted — Initial / Initial
- m Lines Staked — Initial / Initial
- H Drills Performed — Initial / Initial
- ekly Inspect BOP's - Flarelines & Degasser Lines — Initial / Initial
- g Rig Health and Safety Meeting (one/crew/month) — Initial
- A.D.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
- st Inspection Before Raising or Lowering — Initial
- own Saver Checked — Initial
- or Kills checked — Initial

YEAR 77 | MONTH 1 | DAY 24

RIG NO. 4/5

FUEL @ 8:00

RIG | BOILER

WEATHER: TEMPERATURE °C; CURRENT CONDITIONS; WIND DIRECTION; ROAD

LAST CASING TUBING OR LINER

	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)

1	22	23	24	25	26	TOTALS
TY						

SHALE SHAKER(S): NO. | TYPE; SCREENS CHANGED ☐ YES ☐ NO; TOP | TOP; MIDDLE | MIDDLE; BOTTOM | BOTTOM

RENTALS/SERVICES

MORNING TOUR

RD — ☐ ON/RELEASED

METRES DRILLED

FROM	TO	DRLD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

PUMP(S): LINER SIZE (mm) | S.P.M. | LINER SIZE (mm) | S.P.M.

REDUCED PUMP SPEED: @ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE: A. [illegible]

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.
0800	2000	12	1

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

Spot Subs & Pull, Install Dead Works & Doghouse
Pull Derrick & Install Monkey Board

NOTES

BOILER: HRS RAN | STACK TEMP | MAX/MIN EXPERIENCED HOOKLOAD | SAFETY TOPIC | SCR'D

DAY TOUR

RD — ☐ ON/RELEASED

METRES DRILLED

FROM	TO	DRLD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

PUMP(S): LINER SIZE (mm) | S.P.M. | LINER SIZE (mm) | S.P.M.

REDUCED PUMP SPEED: @ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE: A. [illegible]

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.
0800	2000	12	1

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

Spot Subs & Pull, Install Dead Works & Doghouse
Pull Derrick & Install Monkey Board

NOTES

BOILER: HRS RAN | STACK TEMP | MAX/MIN EXPERIENCED HOOKLOAD | SAFETY TOPIC | SCR'D

EVENING TOUR

RD — ☐ ON/RELEASED

METRES DRILLED

FROM	TO	DRLD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

PUMP(S): LINER SIZE (mm) | S.P.M. | LINER SIZE (mm) | S.P.M.

REDUCED PUMP SPEED: @ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE NO.

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

NOTES

BOILER: HRS RAN | STACK TEMP | MAX/MIN EXPERIENCED HOOKLOAD | SAFETY TOPIC | SCR'D

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

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LICENCE NO.:	WELL NAME AND NO.: CHEVRON ET AL LAIRD K-79
OPERATOR: CHEVRON CAN RES	CONTRACTOR: NINTA DRILLING LTD
SURFACE LOCATION: K-79 60° 30'N 123° 30'W	UNIQUE ID.:
SIGNATURE OF OPERATOR'S REPRESENTATIVE:	SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS

	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) H²S Signs Posted (if required)	Initial	Initial
(4) Well License & Block Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually inspect BOP's - Flexibles & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (environment)		Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (environment)		Initial
(3) Meet Inspection Before Raising or Lowering		Initial
(4) Crown Saver Checked		Initial
(5) Motor Kills checked		Initial

YEAR 79

RIG NO.

FUEL

RIG

WEATHER: TEMPERATURE · CURRENT CONDITIONS · WIND DIR. · ROAD

TIME - HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV. SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.			
MORN.																								
DAY																								
EVE.																								
TOTAL																								

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTH
		m
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLY DOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRD RM'R CORE-C	ROT RM'R

LINER SIZE (mm)	S.P.M.

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTH
		m
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLY DOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRD RM'R CORE-C	ROT RM'R

LINER SIZE (mm)	S.P.M.

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

EVENING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTH
		m
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLY DOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRD RM'R CORE-C	ROT RM'R

LINER SIZE (mm)	S.P.M.

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

FOLD HERE →

LY CHECKS — OPR. / R.M.

- ly Walk Around Inspection — Initial / Initial
- ly/Weekly Inspection-Weekly (using checklist) — Initial / Initial
- "S" Signs Posted (if required) — Initial / Initial
- ell License & Stick Diagram Posted — Initial / Initial
- ure Lines Tested — Initial / Initial
- BOP Drills Performed — Initial / Initial
- Weekly Inspect BOP's - Flarelines & Degasser Lines — Initial / Initial
- g Site Health and Safety Meeting (one/crew/month) — Initial
- A.D.O.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
- ost Inspection Before Rigging or Lowering — Initial
- own Saver Checked — Initial
- ator Kills checked — Initial

YEAR | MONTH | DAY

RIG NO.

FUEL @ 8:00

RIG | BOILER

WEATHER: TEMPERATURE °C; CURRENT CONDITIONS; WIND DIRECTION; ROAD

LAST CASING TUBING OR LINER	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)

1 22 23 24 25 26 TOTALS

SHALE SHAKER(S)

NO. | TYPE

SCREENS CHANGED ☐ YES ☐ NO

TOP | TOP

MIDDLE | MIDDLE

BOTTOM | BOTTOM

RENTALS/SERVICES

RD

MORNING TOUR

OIL BASED ☐

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DH-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION | PUMP NO. | PUMP NO.

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	FLAG TIME	CODE INCR

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

NOTES

BOILER | HRS. RAN | STACK TEMP. | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC

DAY TOUR

OIL BASED ☐

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DH-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION | PUMP NO. | PUMP NO.

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

Gail J

TIME LOG

FROM	TO	FLAG TIME	CODE INCR
1900	2000		

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

LAY RIG WAITING

NOTES

BOILER | HRS. RAN | STACK TEMP. | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC

ORD

EVENING TOUR

OIL BASED ☐

SOLIDS CONTROL

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DH-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION | PUMP NO. | PUMP NO.

LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	FLAG TIME	CODE INCR

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

NOTES

BOILER | HRS. RAN | STACK TEMP. | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC

111031

FOLD HERE →

LICENCE NO.:

WELL NAME AND NO.: CHEVRON ET AL LOAD K-29

OPERATOR: CHEVRON CAN. LTD

CONTRACTOR: AKITA DRILLING

SURFACE LOCATION: K-29 60° 30' N, 123° 30° W

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) HPS Signs Posted (if required)	Initial	Initial
(4) Well Licence & Stack Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually Inspect BOP's - Flexibles & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (once/crew/month)		Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (once/rig/month)		Initial
(3) Mast Inspection Before Raising or Lowering		Initial
(4) Crown Saver Checked		Initial
(5) Motor Kills checked		Initial

RIG NO.

FUEL

RIG

WEATHER: TEMPERATU / CURRENT CONDITIONS / WIND DIRE / ROAD

TIME-HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
OPER.	TRIP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC.	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.				
MORN.																									
DAY																									
EVE.																									
TOTAL																									

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	ID	LENGTH
			m
			m
			m
			m
			m
			m
			m
			m
			m
D.P.	STANDS		m
D.P.	SINGLES		m
KELLY DOWN			m
TOTAL			m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.			
SIZE (mm)			
IADC CODE			
MFG.			
TYPE			
SERIAL NO.			
JETS (mm)			
DEPTH OUT (m)			
DEPTH IN (m)			
TOTAL METRES DRILLED (m)			
TOTAL HOURS RUN			

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME			
DENSITY kg/m³			
FUNNEL VIS. - (S/L)			
W.L. (cm³)			
pH			

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROT R.P.

PRODUCTION

LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	ID	LENGTH
			m
			m
			m
			m
			m
			m
			m
			m
			m
D.P.	STANDS		m
D.P.	SINGLES		m
KELLY DOWN			m
TOTAL			m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.			
SIZE (mm)			
IADC CODE			
MFG.			
TYPE			
SERIAL NO.			
JETS (mm)			
DEPTH OUT (m)			
DEPTH IN (m)			
TOTAL METRES DRILLED (m)			
TOTAL HOURS RUN			

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME			
DENSITY kg/m³			
FUNNEL VIS. - (S/L)			
W.L. (cm³)			
pH			

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROT R.P.

PRODUCTION

LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

EVENING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	ID	LENGTH
			m
			m
			m
			m
			m
			m
			m
			m
			m
D.P.	STANDS		m
D.P.	SINGLES		m
KELLY DOWN			m
TOTAL			m
WT. OF DC			1000 daN
WT. OF STRING			1000 daN

BIT RECORD

BIT NO.			
SIZE (mm)			
IADC CODE			
MFG.			
TYPE			
SERIAL NO.			
JETS (mm)			
DEPTH OUT (m)			
DEPTH IN (m)			
TOTAL METRES DRILLED (m)			
TOTAL HOURS RUN			

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME			
DENSITY kg/m³			
FUNNEL VIS. - (S/L)			
W.L. (cm³)			
pH			

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROT R.P.

PRODUCTION

LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

FOLD HERE →

Y CHECKS — OPR. — R.M.

- ily Walls Around Inspecton — Initial ____ Initial ____
- ekly Inspection-Weekly (using checklist) — Initial ____ Initial ____
- S Signs Posted (if required) — Initial ____ Initial ____
- ent Licenses & Stock Diagram Posted — Initial ____ Initial ____
- ure Lines Staked — Initial ____ Initial ____
- OP Drills Performed — Initial ____ Initial ____
- ekly Inspect BOP's - Flarelines & Degasser Lines — Initial ____ Initial ____
- Site Health and Safety Meeting (one/crew/month) — Initial ____
- A.D.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial ____
- ast Inspection Before Raising or Lowering — Initial ____
- Down Saver Checked — Initial ____
- tor Kills checked — Initial ____

YEAR 79 | MONTH 07 | DAY 21

RIG NO.

FUEL @ 8:00

RIG | BOILER

WEATHER

TEMPERATURE	°C
CURRENT CONDITIONS	
WIND DIRECTION	
ROAD	

LAST CASING TUBING OR LINER

	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)

1 22 23 24 25 26

TY

TOTALS

SHALE SHAKER(S)

NO. | TYPE

SCREENS CHANGED ☐ YES ☐ NO

TOP | TOP

MIDDLE | MIDDLE

BOTTOM | BOTTOM

RENTALS/SERVICES

RD

☐ OIL BASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

MORNING TOUR

METRES DRILLED

FROM	TO	DR-Q RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION	PUMP NO.		PUMP NO.	
	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
0800				

NOTES

BOILER

HRS. RAN | pH | STACK TEMP. | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC

RD

☐ OIL BASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

DAY TOUR

METRES DRILLED

FROM	TO	DR-Q RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION	PUMP NO.		PUMP NO.	
	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
0800	1000	12		ASSEMBLE DERRICK SECTIONS PIN SHEAVES SPOT WELL SITE TRAILERS LAY PLANK ON PIKING.

NOTES

BOILER

HRS. RAN | pH | STACK TEMP. | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC

ORD

☐ OIL BASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

EVENING TOUR

METRES DRILLED

FROM	TO	DR-Q RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION	PUMP NO.		PUMP NO.	
	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS

NOTES

BOILER

HRS. RAN | pH | STACK TEMP. | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC

111030

FOLD HERE →

LICENCE NO.:

WELL NAME AND NO.: CHEVRON ET A LAIRD K-29

OPERATOR: CHEVRON

CONTRACTOR: AKITA DRILLING LTD

SURFACE LOCATION:

UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE:

SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS

	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) H²S Signs Posted (if required)	Initial	Initial
(4) Well License & Slick Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/month)		Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/q/month)		Initial
(3) Mast Inspection Before Raising or Lowering		Initial
(4) Crown Saver Checked		Initial
(5) Motor (Kills checked)		Initial

YEAR 2007 | M

RIG NO.: 48

FUEL

WEATHER: TEMPERATU / CURRENT CONDITIONS / WIND DIRE / ROAD

MORNING TOUR

TIME-HRS — CODE NO. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV. SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.
MORN.																					
DAY																					
EVE.																					
TOTAL																					

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTH
		m
		m
		m
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLY DOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROT R.P

CIRCULATION

LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@	SPM

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER SIGNATURE

DAY TOUR

TIME-HRS — CODE NO. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV. SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.
MORN.																					
DAY																					
EVE.																					
TOTAL																					

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTH
		m
		m
		m
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLY DOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROT R.P

CIRCULATION

LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@	SPM

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER SIGNATURE

EVENING TOUR

TIME-HRS — CODE NO. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV. SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.
MORN.																					
DAY																					
EVE.																					
TOTAL																					

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTH
		m
		m
		m
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLY DOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRD RMR CORE-C	ROT R.P

CIRCULATION

LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@	SPM

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER SIGNATURE

FOLD HERE →

LY CHECKS	OPR.	R.M.
Daily Walk Around Inspection	Initial	Initial
Detailed Inspection-Weekly (using checklist)	Initial	Initial
H2S Signs Posted (if required)	Initial	Initial
Well License & Stick Diagram Posted	Initial	Initial
Flare Lines Staked	Initial	Initial
BOP Drills Performed	Initial	Initial
Visually inspect BOPs - Flarelines & Degasser Lines	Initial	Initial
Rig Site Health and Safety Meeting (one/crew/month)		Initial
C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
Mast Inspection Before Raising or Lowering		Initial
Crown Saver Checked		Initial
Motor Kills checked		Initial

YEAR 1 | MONTH 1 | DAY 23

RIG NO. 48

FUEL @ 8:00

HIG | BOILER

WEATHER: TEMPERATURE °C; CURRENT CONDITIONS; WIND DIRECTION; ROAD

LAST CASING TUBING OR LINER	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)

21	22	23	24	25	26
FETY TG					

TOTALS

SHALE SHAKER(S)

NO. | TYPE

SCREENS CHANGED ☐ YES ☐ NO

TOP | TOP

MIDDLE | MIDDLE

BOTTOM | BOTTOM

RENTALS/SERVICES

NORM | FOR | CUM

MORNING TOUR

ORD

☐ ON | ☐ OFF BASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION	PUMP NO.1		PUMP NO.2	
	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
7:00	20:00			TRAVEL TO LOCATION W/ LOAD TRUCKS @ CHEVRON LEASE
				FRIDAY JAN 22/99

NOTES

BOILER | HRS RAN | pH | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFE WORKING LOAD

DAY TOUR

ORD

☐ ON | ☐ OFF BASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION	PUMP NO.1		PUMP NO.2	
	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
7:00	20:00			TRANSF CAMP FROM LICEL LOCATION TO LEASE LOCATION
				SAT JAN 23/99

NOTES

BOILER | HRS RAN | pH | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFE WORKING LOAD

EVENING TOUR

ORD

☐ ON | ☐ OFF BASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION	PUMP NO.1		PUMP NO.2	
	LINER SIZE (mm)	S.P.M.	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@ | @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAP. TIME	CODE	DETAILS OF OPERATION IN SEQUENCE AND REMARKS
				Drill ... Spud

NOTES

BOILER | HRS RAN | pH | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFE WORKING LOAD

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LICENCE NO.: | WELL NAME AND NO.:

OPERATOR: PHILLIPS | CONTRACTOR: ATA DRILLING

SURFACE LOCATION: | UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE: | SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) HPS Signs Posted (if required)	Initial	Initial
(4) Well Licence & Stick Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually Inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (one/crew/7 days)		Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
(3) Mast Inspection Before Raising or Lowering		Initial
(4) Crown Saver Checked		Initial
(5) Motor Kills checked		Initial

YEAR 77 MON 11

RIG NO. 2/4

FUEL (

RIG

WEATHER: TEMPERATURE | CURRENT CONDITIONS | WIND DIREC | ROAD

TIME HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC.	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV. SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.				
MORN.																									
DAY					12	81																			
EVE.																									
TOTAL		0																							

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTH
		m
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLY DOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD RM-R CORE-C	ROT R.P

CIRCULATION

	LINER SIZE (mm)	S.P.M.	S

REDUCED PUMP SPEE

@

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

Mark Lee

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTH
		m
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLY DOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD RM-R CORE-C	ROT R.P

CIRCULATION

	LINER SIZE (mm)	S.P.M.	S

REDUCED PUMP SPEE

@

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

EVENING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	LENGTH
		m
		m
		m
		m
		m
		m
		m
		m
D.P.	STANDS	m
D.P.	SINGLES	m
KELLY DOWN		m
TOTAL		m
WT. OF DC		1000 daN
WT. OF STRING		1000 daN

BIT RECORD

BIT NO.	
SIZE (mm)	
IADC CODE	
MFG.	
TYPE	
SERIAL NO.	
JETS (mm)	
DEPTH OUT (m)	
DEPTH IN (m)	
TOTAL METRES DRILLED (m)	
TOTAL HOURS RUN	

CUTTING STRUCTURE T_i	T_o	MDC	LOC	B	Gage	ODC	Reason Pulled	Total Run m/hr.

HOLE CONDITION

HOLE DRAG	
TORQUE AT BOTTOM	
FILL ON BOTTOM (m)	

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME	
DENSITY kg/m³	
FUNNEL VIS. - (S/L)	
W.L. (cm³)	
pH	

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DRLD RM-R CORE-C	ROT R.P

CIRCULATION

	LINER SIZE (mm)	S.P.M.	S

REDUCED PUMP SPEE

@

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

FOLD HERE →

CHECKS	OPR.	R.M.
Walk Around Inspection	Initial	Initial
...nd Inspection-Weekly (using checklist)	Initial	Initial
...igns Posted (if required)	Initial	Initial
...Licenses & Stick Diagram Posted	Initial	Initial
...Lines Staked	Initial	Initial
...Drills Performed	Initial	Initial
...ay inspect BOP's - Flarelines & Degasser Lines	Initial	Initial
...ds Health and Safety Meeting (one/crew/month)		Initial
...D.C. Rig Safety Inspection Checklist (one/rig/month)		Initial
...Inspection Before Flaring or Lowering		Initial
...n Saver Checked		Initial
...Kills checked		Initial

YEAR | MONTH | DAY: 23

RIG NO. 24

FUEL @ 8:00

RIG | BOILER

WEATHER: TEMPERATURE °C; CURRENT CONDITIONS; WIND DIRECTION; ROAD

LAST CASING TUBING OR LINER

O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) LENGTH	KB. TO CSG HEAD (m)	SET AT (m)

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)

22 | 23 | 24 | 25 | 26

TOTALS

SHALE SHAKER(S)

NO. | TYPE

SCREENS CHANGED ☐ YES ☐ NO

TOP | TOP

MIDDLE | MIDDLE

BOTTOM | BOTTOM

RENTALS/SERVICES | HOURS | COST | YTD

MORNING TOUR

OIL BASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION | PUMP NO. 1 LINER SIZE (mm) | PUMP NO. 1 S.P.M. | PUMP NO. 2 LINER SIZE (mm) | PUMP NO. 2 S.P.M.

REDUCED PUMP SPEED @ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE: Garth Lee

TIME LOG

FROM	TO	LEAD TIME	CODE NO.
FRIDAY JAN/23	TRAVEL TO LOCATION, OFF LOAD MOST TRUCKS @ LOCATION		

NOTES

BOILER HRS RAN | phr | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | HOURS | COST

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

DAY TOUR

OIL BASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION | PUMP NO. 1 LINER SIZE (mm) | PUMP NO. 1 S.P.M. | PUMP NO. 2 LINER SIZE (mm) | PUMP NO. 2 S.P.M.

REDUCED PUMP SPEED @ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE: Garth Lee

TIME LOG

FROM	TO	LEAD TIME	CODE NO.
3800	2000	12	SAT JAN/23
			MOVE CAMP FROM RIVER LOCATION TO LEASE LOC.
			SAFETY MEETING PRIOR TO MOVE

NOTES

BOILER HRS RAN | phr | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | HOURS | COST

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

EVENING TOUR

OIL BASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION | PUMP NO. 1 LINER SIZE (mm) | PUMP NO. 1 S.P.M. | PUMP NO. 2 LINER SIZE (mm) | PUMP NO. 2 S.P.M.

REDUCED PUMP SPEED @ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	LEAD TIME	CODE NO.

NOTES

BOILER HRS RAN | phr | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY TOPIC | HOURS | COST

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

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LICENCE NO.: | WELL NAME AND NO.:

OPERATOR: | CONTRACTOR:

SURFACE LOCATION: | UNIQUE ID.:

SIGNATURE OF OPERATOR'S REPRESENTATIVE: | SIGNATURE OF CONTRACTOR'S RIG MANAGER:

DAILY CHECKS

	OPR.	R.M.
(1) Daily Walk Around Inspection	Initial	Initial
(2) Detailed Inspection-Weekly (using checklist)	Initial	Initial
(3) HPS Signs Posted (if required)	Initial	Initial
(4) Well License & Slick Diagram Posted	Initial	Initial
(5) Flare Lines Staked	Initial	Initial
(6) BOP Drills Performed	Initial	Initial
(7) Visually inspect BOP's - Flexibles & Degasser Lines	Initial	Initial
(1) Rig Site Health and Safety Meeting (once/crew/month)		Initial
(2) C.A.O.D.C. Rig Safety Inspection Checklist (once/rig/month)		Initial
(3) Mast Inspection Before Raising or Lowering		Initial
(4) Crown Saver Checked		Initial
(5) Motor Kills checked		Initial

YEAR: 77 | RIG NO.: 4/5

FUEL | RIG

WEATHER | TEMPERATU | CURRENT CONDITION | WIND DIRE | ROAD

TIME-HRS

CODE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OPER.	RIG UP & TEAR DOWN	DRILL ACTUAL	REAMING	CORING	COND. MUD & CIRC	TRIPS	RIG SERVICE	REPAIR RIG	CUT OFF DRILL LINE	DEV SURVEY	WIRE LINE LOGS	RUN CASE & CEMENT	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DRILL STEM TEST	PLUG BACK	SQUEEZE CEMENT	FISHING	DIR. WORK	SAFETY MTG.			
MORN.																								
DAY																								
EVE.																								
TOTAL																								

MORNING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	ID	LENGTH
			m
			m
			m
			m
			m
			m
			m
D.P.	STANDS		m
D.P.	SINGLES		m
KELLY DOWN			m
TOTAL			m

WT. OF DC 1000 daN

WT. OF STRING 1000 daN

BIT RECORD

BIT NO.								
SIZE (mm)								
IADC CODE								
MFG.								
TYPE								
SERIAL NO.								
JETS (mm)								
DEPTH OUT (m)								
DEPTH IN (m)								
TOTAL METRES DRILLED (m)								
TOTAL HOURS RUN								

CUTTING STRUCTURE				B	Gage	ODC	Reason Pulled	Total Run m/hr.
T_i	T_o	MDC	LOC					

HOLE CONDITION

HOLE DRAG

TORQUE AT BOTTOM

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME

DENSITY kg/m³

FUNNEL VIS. - (S/L)

W.L. (cm³)

pH

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROT R.R.

CIRCULATING

PUMP	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

Scott Lacroix

DAY TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	ID	LENGTH
			m
			m
			m
			m
			m
			m
			m
D.P.	STANDS		m
D.P.	SINGLES		m
KELLY DOWN			m
TOTAL			m

WT. OF DC 1000 daN

WT. OF STRING 1000 daN

BIT RECORD

BIT NO.								
SIZE (mm)								
IADC CODE								
MFG.								
TYPE								
SERIAL NO.								
JETS (mm)								
DEPTH OUT (m)								
DEPTH IN (m)								
TOTAL METRES DRILLED (m)								
TOTAL HOURS RUN								

CUTTING STRUCTURE				B	Gage	ODC	Reason Pulled	Total Run m/hr.
T_i	T_o	MDC	LOC					

HOLE CONDITION

HOLE DRAG

TORQUE AT BOTTOM

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME

DENSITY kg/m³

FUNNEL VIS. - (S/L)

W.L. (cm³)

pH

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROT R.R.

CIRCULATING

PUMP	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

Scott Lacroix

EVENING TOUR

DRILLING ASSEMBLY (At End of Tour)

NO.	OD	ID	LENGTH
			m
			m
			m
			m
			m
			m
			m
D.P.	STANDS		m
D.P.	SINGLES		m
KELLY DOWN			m
TOTAL			m

WT. OF DC 1000 daN

WT. OF STRING 1000 daN

BIT RECORD

BIT NO.								
SIZE (mm)								
IADC CODE								
MFG.								
TYPE								
SERIAL NO.								
JETS (mm)								
DEPTH OUT (m)								
DEPTH IN (m)								
TOTAL METRES DRILLED (m)								
TOTAL HOURS RUN								

CUTTING STRUCTURE				B	Gage	ODC	Reason Pulled	Total Run m/hr.
T_i	T_o	MDC	LOC					

HOLE CONDITION

HOLE DRAG

TORQUE AT BOTTOM

FILL ON BOTTOM (m)

MUD RECORD

MUD TYPE ☐ WATER BASED ☐ OIL BASED

TIME

DENSITY kg/m³

FUNNEL VIS. - (S/L)

W.L. (cm³)

pH

MUD MATERIALS ADDED

PRODUCT	AMOUNT X UNIT

SOLIDS CONTROL

DESILTER

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

HOURS RUN	INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

METRES DRILLED

FROM	TO	DR-D RM-R CORE-C	ROT R.R.

CIRCULATING

PUMP	LINER SIZE (mm)	S.P.M.

REDUCED PUMP SPEED

@

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)

DRILLER'S SIGNATURE

FOLD HERE →

Y CHECKS — OPR. / R.M.

- ly Walk Around Inspection — Initial / Initial
- ated Inspection-Weekly (using checklist) — Initial / Initial
- S Signs Posted (if required) — Initial / Initial
- ell Licenses & Stock Diagram Posted — Initial / Initial
- ure Lines Staked — Initial / Initial
- OP Drills Performed — Initial / Initial
- kly Inspect BOP's - Pipeliines & Degasser Lines — Initial / Initial
- Site Health and Safety Meeting (one/crew/month) — Initial
- A.D.D.C. Rig Safety Inspection Checklist (one/rig/month) — Initial
- st Inspection Before Raising or Lowering — Initial
- own Saver Checked — Initial
- tor Kills checked — Initial

YEAR 99 | MONTH 01 | DAY 20,21

RIG NO. 418

FUEL @ 8:00

RIG | BOILER

WEATHER

TEMPERATURE °C	
CURRENT CONDITIONS	-30
WIND DIRECTION	
ROAD	

LAST CASING TUBING OR LINER

	O.D. (mm)	MIN. I.D. (mm)	kg/m	MAKE	GRADE	NO. OF JOINTS	TOTAL(m) - LENGTH	KB. TO CSG HEAD (m)	SET AT (m)

DC/DP SIZE (mm)	LINEAR MASS (kg/m)	GRADE	MIN. ID (mm)	TOOL JT O.D. (mm)	TYPE THREAD	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LTH. (mm)

1 22 23 24 25 26

TOTALS

SHALE SHAKER(S)

NO. | TYPE

SCREENS CHANGED ☐ YES ☐ NO

TOP | TOP

MIDDLE | MIDDLE

BOTTOM | BOTTOM

RENTALS/SERVICES — MORN / TOUR / EVE

RD

ORGASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

MORNING TOUR

METRES DRILLED

FROM	TO	DRD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION PRESS.	PUMP NO. 1 LINER SIZE (mm)	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE (mm)	PUMP NO. 2 S.P.M.

REDUCED PUMP SPEED @ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAPSED TIME	CODE (DOWN)

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

WEDNESDAY JAN 20/99
HOLD SAFETY MEETING PRIOR TO MOVE.
LOAD OUT R.G LOADS FROM TALISMAN LOCATION

NOTES

BOILER HRS RAN | pH | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY CHECK | ACC

ORGASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

DAY TOUR

METRES DRILLED

FROM	TO	DRD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION PRESS.	PUMP NO. 1 LINER SIZE (mm)	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE (mm)	PUMP NO. 2 S.P.M.

REDUCED PUMP SPEED @ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAPSED TIME	CODE (DOWN)

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

THURSDAY JAN 21/99
HOLD SAFETY MEETING PRIOR TO LAYING OUT TRUCKS

LOAD OUT Rig LOADS FROM TALISMAN LOCATION + CIRCULATE

NOTES

BOILER HRS RAN | pH | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY CHECK | ACC

ORD

ORGASED

SOLIDS CONTROL

DESILTER

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

CENTRIFUGE

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

INTAKE DENSITY (kg/m³)	OVERFLOW DENSITY (kg/m³)	UNDERFLOW DENSITY (kg/m³)

EVENING TOUR

METRES DRILLED

FROM	TO	DRD RM-R CORE-C	ROTARY R.P.M.	WT. ON BIT (1000 daN)

CIRCULATION PRESS.	PUMP NO. 1 LINER SIZE (mm)	PUMP NO. 1 S.P.M.	PUMP NO. 2 LINER SIZE (mm)	PUMP NO. 2 S.P.M.

REDUCED PUMP SPEED @ @

DEVIATION SURVEY

DEPTH (m)	DEVIATION (°)	DIRECTION

DRILLER SIGNATURE

TIME LOG

FROM	TO	ELAPSED TIME	CODE (DOWN)

DETAILS OF OPERATION IN SEQUENCE AND REMARKS

NOTES

BOILER HRS RAN | pH | STACK TEMP | MAXIMUM EXPERIENCED HOOKLOAD | SAFETY CHECK | ACC

FOLD HERE ←

1867

Lard K-29

Job 28199

Jan 30 - Feb 28

Jan 30/99 - Mar 30/99

SURVEY PLAN

OVERSIZED

DOCUMENT

FILMED

ON

35mm

CANADA LANDS SURVEYS RECORDS
8 3 7 6 0
DATE: JUNE 23, 2000

THE SURVEY REPORT FOR THIS PLAN IS RECORDED UNDER No. FB34360 C.L.S.R.

PLAN AND FIELD NOTES OF SURVEY OF

PROPOSED DEVELOPMENT WELL CHEVRON et al LIARD K-29 IN UNIT K, SECTION 29 GRID AREA 60°30´, 123°30´

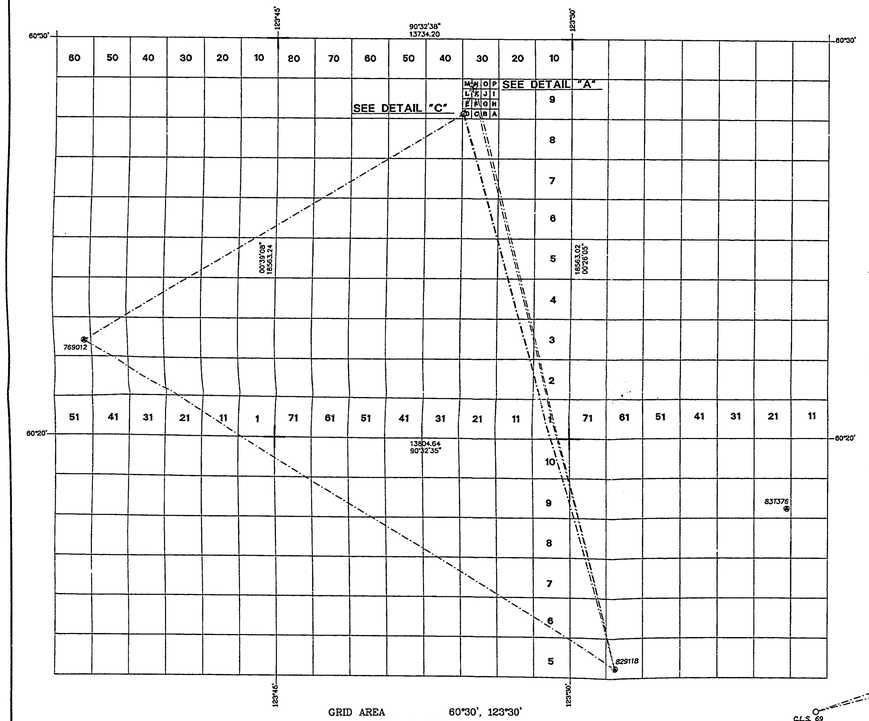
SIGNIFICANT DISCOVERY LICENSE 99

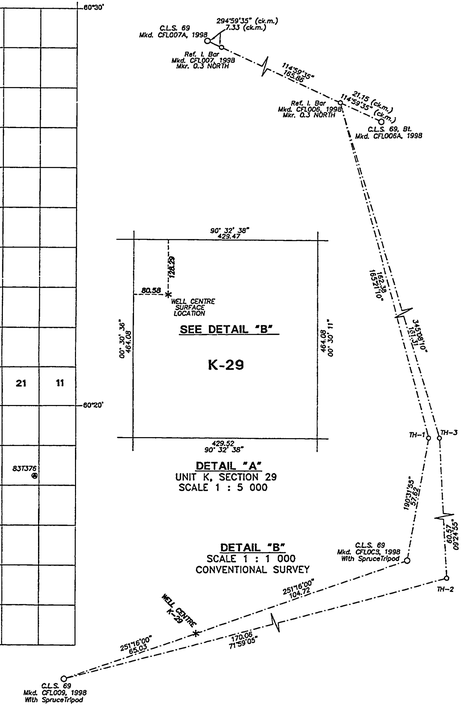
NORTHWEST TERRITORIES
CANADA OIL AND GAS LAND REGULATIONS

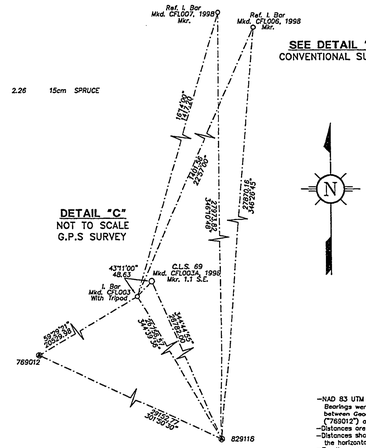
SCALE – 1 : 10 000

SURVEYED FOR
CHEVRON CANADA RESOURCES LIMITED

BY: R. ROBINSON, C.L.S.
2000







BEARING TREES

C.L.S. '69
Mkd. CFL006A 150° 00' 2.26 15cm SPRUCE

–NAD 83 coordinates are based on values for Topographical Survey monuments 829118 ("PETITOT") computed by Geodetic Survey of Canada (Adjustment Line NOMA271985, Jan. 1985) and 769012 ("769012") computed by Geodetic Survey of Canada (Adjustment Line NOMA271979, Jan. 1979).

–NAD 83 UTM coordinates are computed for Zone 10, central meridian 123°W. Bearings were derived from the bearing 301°00'30" computed between Geodetic Survey of Canada monuments 829118 ("PETITOT") and 769012 ("769012") and are referred to meridian 123°W.
–Distances are expressed in metres and decimals thereof.
–Distances shown in traverses are measured distances reduced to the horizontal at general ground level.
–For the computation of coordinates measured distances have been reduced to the UTM plane by multiplying them by an average combined scale factor of 0.999512. Coordinates were then adjusted to fit the control.
–NAD 83 UTM coordinates are converted to NAD 27 using National Tranformation Version 2 (ntv2gric).

–Distances shown on grid are subdivisions are UTM plane.
Authorized control monuments found .....
Monuments placed .....
Traverse lines and Stations .....

Ground elevation at well centre is 408.12.
Elevations were carried from Topographical Survey Monument 837376 (ELEV. 213.18), computed by Geodetic Survey of Canada (Adjustment Line CP83204, June 1991)
Survey was completed prior to drilling, therefore well as drilled may not necessarily agree with proposed location.

I, R. Robinson, of the City of Calgary, Alberta, Canada Land Surveyor, make oath and say that I have in my own proper person, according to law and the Instructions of the Surveyor General of Canada Lands, faithfully and correctly executed the survey shown by this plan and field notes, and that the said plan and field notes are correct and true to the best of my knowledge and belief.
SO HELP ME GOD

Sworn before me at Calgary
this 6th day of JUNE, 2000.

Canada Lands Surveyor

Commissioner for Oaths in and for the Province of Alberta

Name

THIS SURVEY WAS EXECUTED DURING THE PERIOD JULY 21, 1998 TO JANUARY 24, 1999, BY R. ROBINSON, C.L.S.

CHEVRON CANADA RESOURCES LIMITED

(signature, title) .....

(signature) .....
Witness

.....
Date

TABLE OF CO-ORDINATES

STATION	U.T.M. ZONE 10, C.M. 123° (NAD 83)		U.T.M. ZONE 10, C.M. 123° (NAD 27)		LATITUDE	LONGITUDE
	NORTHING	EASTING	NORTHING	EASTING	(NAD 27)	
CONTROL MONUMENTS						
Fd. C.L.S.P. 829118	6677970.16	474381.18	6677758.14	474467.25	60° 14' 15.436"	123° 27' 39.795"
Fd. C.L.S.P. 769012	6693341.14	449632.54	6693130.81	449713.75	60° 22' 23.970"	123° 54' 42.572"
GRID AREA						
N.E.			6706998.06	472532.16	60° 30'	123° 30'
N.W.			6707128.48	458798.58	60° 30'	123° 45'
S.E.			6688433.58	472391.29	60° 20'	123° 30'
S.W.			6688564.42	458587.27	60° 20'	123° 45'
K–29, N.E.			6704716.52	468220.06		
K–29, N.W.			6704720.59	467790.61		
K–29, S.E.			6704252.48	468215.99		
K–29, S.W.			6704256.53	467785.48		
TRAVERSE STATIONS						
CFL003	6703760.97	467310.94	6703548.86	467392.36		
CFL003A	6703795.41	467344.19	6703584.30	467425.62		
CFL006	6700050.99	467857.08	6704838.84	467938.60		
CFL006A	6705042.06	467876.24	6704829.91	467957.77		
CFL007	6705121.03	467706.83	6704908.89	467788.35		
CFL007A	6705124.12	467700.19	6704911.98	467781.71		
TH–1	6704893.97	467898.13	6704681.92	467979.64		
CFL008	6704637.35	467887.60	6704625.20	467969.12		
CFL009	6704782.85	467726.54	6704570.71	467808.44		
TH–2	6704835.43	467888.57	6704623.28	467970.08		
TH–3	6704895.16	467898.47	6704683.01	467979.99		
WELL CENTRE						
•	6704803.73	467788.48	6704591.58	467869.99	60°28'41.044"	123°35'04.102"

SCALE:	DRAWN:	DATE:	CALC NO.:	CHALLENGER GEOMATICS & SERVICES LTD.
AS SHOWN	B.S.S./D.W./G.M./R.R.	May 30/2000	9864W01	EDMONTON – CALGARY
			ACAD NO.: 9864W01r5	

Examined 23-6-00 OK JFC 23/06/2000

SM8571-175 Mem 1998-06-218

30X

ADDITIONAL INFORMATION

WELL TERMINATION RECORD (with attachment)

Office national de l'énergie

WELL TERMINATION RECORD

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

Well Name: Chevron et al Liard K-29 — Area: Liard Basin

Grid Area: 60° 30', 123° 30' — Field / Pool: Exploratory

Interest Identifier: Nahanni — Final Coordinates: TD Lat: 60° 28' 40.15" N Long 123° 34' 41.34" W; Surface 60° 28' 41.04" 123° 35' 04.10"

Drilling Unit: Akita Drilling # 48 — Elevations-KB/RT: 418.8m (ASL) GL/Seafloor: 409.60m

Spud Date: 1999-02-03 — R.R.: 1999-03-30 — Total Depth: 3000 mKB,MD

O.D. (mm)	Weight (kg/m)	Grade	Depth Set (m KB)	Cement (m³)
508	79.55 / 117.15		7.6 / 20	Class 'G' (7.6)
339.7	101.2	K-55	701.3	93.3
244.5	64.94 / 69.9	MN-80	1538 / 2500	96.5

PLUGGING PROGRAM

Approval of the following program was obtained by (person)

from (person) of the

by means of on

Type of Plug	Interval (m KB)	Felt	Cement (m³)

Lost Circulation/Overpressure Zones:

Equipment left on Seafloor (Describe): N/A

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

Cores: NONE Type: Intervals:

Other Downhole Completion/Suspension Equipment: 177.8mm, 43.16kg/m, Hydril 563 tubing & permanent packer

CERTIFICATION

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

Signed: Title: Well Construction Engineer

Name: Miles N. Sweep, P.Eng Date: 1999-08-17

Company: Chevron Canada Resources

Well Status

Suspended ☐

Completed X

Abandoned ☐

Acknowledged by:

Chief Conservation Officer

Date: Nov 4/99

File: 9211-C004-1-1

UWI: 300K29603012330 WID: 1861

Canada
444 Seventh Avenue SW
Calgary, Alberta T2P 0X8

444 Septième Avenue S.-O.

Telephone/Telephone : (403) 292-4800
Facsimile/Télécopieur : (403) 292-5875
http://www.neb.gc.ca

Chevron Canada Resources

Chevron et al Liard K-29

Wellbore

Chevron

Wellbore diagram

Elevations		
	KB	418.6
	GL	409.6
	KB to GL	7.36
	KB to CF	
	KB to TBF	6.56

Surface Casing 329.7 mm 101.16 kg/m K-55 Buttress @ 701.3 m RT

Production Casing 244.5 mm
84.73 kg/m MN-80 Vam Pro surface to 1536m
88.94 kg/m MN-80 Vam Pro 1536m to 2500m

Production tubing 177.8 mm 43.16 kg/m L-80 Hydril 563 tubing

		Length	Depth
	Baker pump out reentry sub 88.9 mm EUE box	0.14	2650.67
	Otis RN nipple 65.02 mm ID (59.16 mm nogo ID)	0.33	2650.34
18 jts	88.9 mm 19.27 kg/m L80 Hydril 533 tubing	172.63	
	Otis R nipple 65.02 mm	0.28	2477.43
1 jt	88.9 mm 19.27 kg/m L80 Hydril 533	9.55	
	Baker SC-2 release extension SDE pin up x Hydril 533 pin down	2.01	
	Baker SC-2 retrievable seal bore packer size 98A4-40	1.76	2464.11
	Baker Oil Tool model G22 locator seal assembly	0.25	
	114.3 mm extension sub L-80	1.22	
	xover L80 114.3 mm NS-CT pin down x 114.3 mm EUE box up	0.25	
	Otis XN nipple 86.85 mm profile (w/ 84.61 mm nogo) Inconley 925	0.40	2481.99
1 jt	114.3 mm 18.75 kg/m CRA (Inconley 925) Hydril 511 tubing	7.00	
	Guberson Magnum HT 244.5 mm Inconley 925 permanent seal bore packer	1.32	2453.67
	Guberson Magnum latch seal assembly 114.3 mm Hydril 533 pin up	0.27	
	xover Inconley 925 114.3 mm Hydril 533 box down x 177.8 mm Hydril 563 box up	0.41	2452.99
1 jt	177.8 mm 56.55 kg/m CRA (SM2550-125) Hydril 563 (with CB ring) tubing	7.84	
	177.8 mm 43.16 kg/m L80 Hydril 563 pup joint	2.44	
189 jts	177.8 mm 43.16 kg/m L80 Hydril 563 (with CB ring) tubing	2411.31	
	177.8 mm 43.16 kg/m L80 Hydril 563 (with CB ring) pup joint	2.99	
	177.8 mm 43.16 kg/m L80 Hydril 563 (with CB ring) pup joint	2.34	
	177.8 mm 43.16 kg/m L80 Hydril 563 (with CB ring) pup joint	1.55	
	177.8 mm 43.16 kg/m L80 Hydril 563 (with CB ring) pup joint	1.24	
	177.8 mm 43.16 kg/m L80 Hydril 563 (with CB ring) pup joint	1.83	
	177.8 mm 43.16 kg/m L80 Hydril 563 (with CB ring) pup joint	1.45	
1 jt	177.8 mm 43.16 kg/m L80 Hydril 563 (with CB ring) tubing	13.10	
	177.8 mm 43.16 kg/m L80 Hydril 563 (with CB ring) double pin pup joint	0.45	
	Barber tubing hanger WCT-7-SCS PN 20810449 SN 36956 001 1	0.30	
	Total Length	2644.45	
	KB to TBF	6.56	
	less squat due to compression 3000 dN	-0.20	
	Landed Depth	2650.81	

177.8 mm 43.16 kg/m L80 Hydril 563 pup joint SR222 epoxy coated

2452.99 — 177.8 mm 56.55 kg/m CRA (SM2550-125) Hydril 563 tubing joint (ends machined to 43.16 kg/m)

xover Inconley 925 Hydril 533 box down x Hydril 563 box up

2453.67 — Guberson latch seal assembly Inconley 925 w/ 2 ATR seal units

Guberson 244.5 mm Magnum HT permanent seal bore packer Inconley 925

114.3 mm 18.75 kg/m Inconley 925 Hydril 511 tubing joint

2481.99 — Otis XN nipple 86.85 mm (w/ 84.61 mm nogo) Inconley 925

Baker G-22 locator seal assembly L80 size 80-40 ATR seals 114.3 mm NS-CT box up coated SM222 epoxy

2464.11 — Baker SC-2P Retrievable seal bore packer size 98A4-40 (0.7m top of packer to center of seals)

Baker SC-2P Release extension 139.7mm seal lok pin x 533 Hydril pin

88.9mm 19.27kg/m L-80 533 Hydril tubing (one joint)

2477.43 — Otis R nipple 65.02 mm ID

2500 — 244.5 mm casing shoe (2 joints into Nahanni dolomite) @ 2500.0 m RT.

88.9mm 19.27 kg/m L80 Hydril 533 tailpipe (18 joints)

Wellbore deviation:		
2484 m	4.4 deg	0.24 DLS
2529 m	7.2 deg	6.08 DLS
2558 m	13.5 deg	8.04 DLS
2588 m	18.2 deg	8.00 DLS
2608 m	22.8 deg	8.99 DLS
2665 m	36.0 deg	6.71 DLS
2983 m	36.0 deg	0.70 DLS

215.9 mm open hole

2650.34 mKB — Otis RN 65.02 mm nipple (w/ 59.16mm no go)

2650.67 mKB — Baker pumpout re-entry sub

3000 mKB TD

COMPLETION SUMMARY (Addnedum to Final Report)

N.E.B. COPY

ADDENDUM TO CHEVRON ET AL FT. LIARD K-29 FINAL REPORT

COMPLETION SUMMARY

Completion operations on the well resumed on July 31, 1999. At that time Akita Rig #48, Lee Tool, and Dowell began operations to replace the 88.9 mm tubing left in the hole in May 1999 with 177.8mm tubing. The 88.9mm packer tailpipe, which was set at 2464.11 remained in the hole, while the upper tubing was pulled. This operation was completed on August 4, 1999, and the Akita rig was torn out.

On September 4, 1999, operations to install the permanent wellhead and flow the well for short term evaluation began. Contractors on location were Norward Testers and Baker Atlas Wireline. The permanent wellhead was installed Sept 4, 1999. Debris in the tailpipe prevented the crew from reaching the Otis RN blanking plug located at the bottom of the tailpipe (2650.34mKB). A decision was made to perforate the tailpipe from 2517 – 2523m to allow the well to flow alongside the tailpipe, then through the perforations. The perforation operation was successful, but the perf gun stuck at 2477.43mKB while pulling out of hole, and the wireline had to be cut to free the wireline from the perf gun. The wireline was cut, and the perf gun fell downhole, taking the cable cutter tool with it. The cable cutter tool and 54 m of cable were successfully fished out of the hole, leaving a fish consisting of the perf gun and approximately 6m of cable in the tailpipe. Total length of the fish was 7.8m and the top was at 2529.3mKB, which is below the perforations (as per wellbore diagram).

The well was flow tested using 4 bottom hole pressure recorders. None were successful in recording flow data, due to downhole temperatures of up to 165°C. On September 18, 1999 the permanent wellhead was installed (as per diagram), and Norward Testerswere moved off location. Well was secured for long term suspension, until production facilities are ready.

GENERAL DATA

Completion Dates:	July 31 – September 18, 1999
Status:	suspended, pending production facilities
Contractors:	Akita Drilling, Lee Tool, Baker Atlas Wireline, Norward Testers
Perforation Interval:	2517-2523mKB (through tailpipe)

FLOW TEST RESULTS

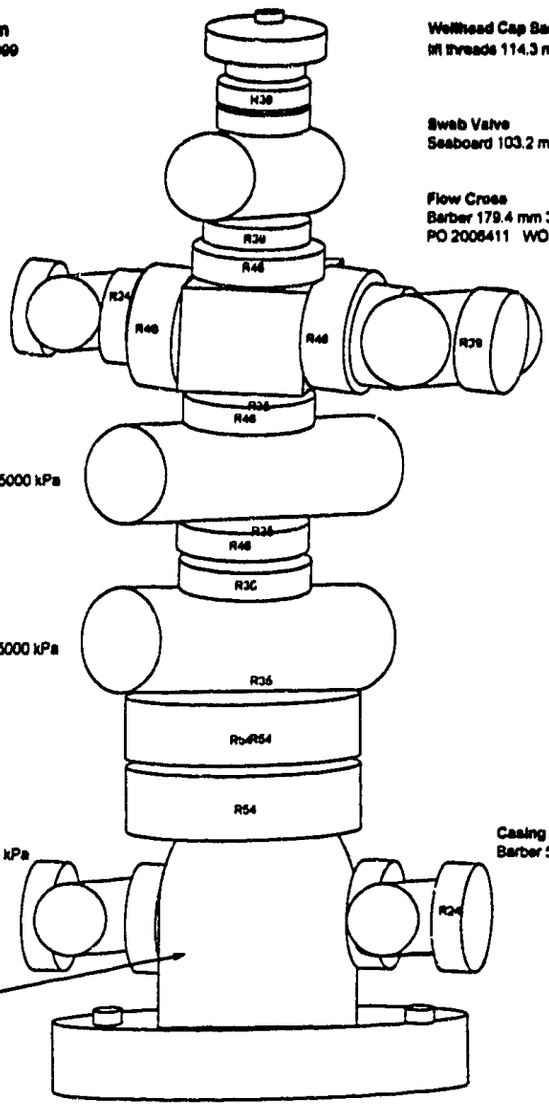
A one day flow test has been completed on the K-29 well to confirm wellbore performance and stabilized wellhead flowing pressures. The blank off plug that was set in the tubing tail pipe at 2650 mKB could not be recovered due to fill in the tubing; the 88.9 mm tail pipe was perforated at a depth of 2517 to 2523 mMD. A three point flow test at rates of 2260 10^3 m^3/day (80 MMCFD), 1680 10^3 m^3/day (60 MMCFD), and at 960 10^3 m^3/day (34 MMCFD) was completed on September 14, 1999 (see Norward Energy Services final report).

ATTACHMENTS: wellhead diagram, wellbore diagram, Norward Energy Services final report

Chevron Canada Resources

Chevron et al Liard K-29
(grid section 60°30', 123°30')

Wellhead Diagram
Sept 04 1999



Wellhead Cap Barber type TA-2
lift threads 114.3 mm EUE

Swab Valve
Seaboard 103.2 mm 35000 kPa

Flow Cross
Barber 179.4 mm 35000 kPa
PO 2006411 WO 23794-1

Offside Wing Valve
Barber 52.4 mm
35000 kPa

Wing Valve
Seaboard 103.2 mm 35000 kPa

Top master valve
Seaboard 181.9 mm 35000 kPa

Bottom master valve
Seaboard 181.9 mm 35000 kPa

Casing Valve
Barber 52.4 mm 35000 kPa

Casing Valve
Barber 52.4 mm 35000 kPa

Tubing Head
WCFT - SP11 5000
SN 32768-001-1
PN 20710281
6A-L-EE PSL3 PR2

Valve Description Summary

	Bottom Master	Top Master	Wing Valve	Swab Valve	Off side Wing Valve	Casing Valve	Casing Valve
Make	Seaboard	Seaboard	Seaboard	Seaboard	Barber	Barber	Barber
model	540	540	500	S	B	B	B
size	6 3/8	6 3/8	4 1/16	4 1/16	2 1/16	2 1/16	2 1/16
MWP	5000	5000	5000	5000	5000	5000	5000
spec	6A	6A	6A	CS	6A	6A	6A
tic	413	413	413		44	44	44
temp	L	L	L	L	L/X	L	L
M/C	HH	EE1	H	EE	EE	DD	DD
PSL	3	2	3	2	2	2	2
PR	1	1	1	2	1	1	1
SN	H17100-1	H16947-1	H15955-1	H13071-1	37563-01	32775061	31744031
Body	ASCRA	CS	AS/CLAD	CS	A487	A487	A487
Bonnet	ASCRA	CS	AS/CLAD	CS	4130	4130	4130
Stem	Inconel	SS	Inconel	SSBRN	CRA718	17-4 PH	17-4 PH
Gate	SSHF	SSHF	SSHF	SSHF	410HF	4130 HF	4130 HF
Seat	SSHF	SSHF	SSHF	SSHF	410HF	4130 HF	4130 HF
PN	A19543-001	A19542-001	A14972022	50053011	50023013	50023011	50023011

Chevron Canada Resources
(grid section 60 deg.30', 123 deg. 30')
Start Test Date: 1999/09/14
Final Test Date: 1999/09/15

FieldNotes

Chevron et al Liard K-29

Job Number: GP99-109

Gas Meter 1

Meter Type:	Orifice Meter	
Meter Size:	146.33	mm
Previous Gas Production:	0.000	10^3m^3
Tap Type:	Flange	
Tap Location:	Downstream	
Gas Gravity (G):	0.780	
CO_2:	21.75	%
H_2S:	0.49	%
N_2:	3.40	%
Critical Temperature (T_c):	213.70	K
Critical Pressure (P_c):	5184.00	kPa

Gas Meter 2

Meter Type:	Orifice Meter	
Meter Size:	193.52	mm
Previous Gas Production:	0.000	10^3m^3
Tap Type:	Flange	
Tap Location:	Downstream	
Gas Gravity (G):	0.780	
CO_2:	21.75	%
H_2S:	0.49	%
N_2:	3.40	%
Critical Temperature (T_c):	213.70	K
Critical Pressure (P_c):	5184.00	kPa

Oil Meter 1

Meter Type:	Produced Volume	
Measurement Type:	Incremental	
Columns for Produced Volume:		
Previous Oil Production:	0.000	m^3
Previous Water Production:	0.000	m^3

Water Meter 1

Meter Type:	Produced Volume	
Measurement type:	Incremental	
Columns for Produced Volume:		
Previous Water Production:	0.000	m^3

Chevron Canada Resources
(grid section 60 deg 30', 123 deg. 30')
Start Test Date: 1999/09/14
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FieldNotes
Field Measurements

Chevron et al Liard K-29

Job Number: GP99-109

	Date	Clock Time	Pt	FP2	FP3	WHT	FT2	Orifice1	Static1 Pres	Diff1 Pres	Temp1	Gas1 Rate	Orifice2	Static2 Pres	Diff2 Pres	Temp2	Gas2 Rate	Tot Gas Rate	Tot Cum Gas	H2O Gain	H2O Rate	Cum H2O	pH	Salinity	WGR
	yyyy/mm/dd	hh:mm:ss	kPa(g)	kPa	kPa(g)	°C	°C	mm	kPa(g)	kPa	°C	$10^3m^3/d$	mm	kPa(g)	kPa	°C	$10^3m^3/d$	$10^3m^3/d$	10^3m^3	m^3	m^3/d	m^3		ppm	$m^3/10^3m^3$
1	1999/09/14	14:00:00	Pressure up to choke and take opening pressure.																						
2	1999/09/14	14:00:00						0.000	0	0.0	0.0	0.00	0.000	0	0.0	0.0	0.00	0.000	0.000	0.00		0.00			
3		14:05:00	17739			23.6	22.0																		
4		14:10:00	17739			23.6	22.2																		
5		14:15:00	17800			23.8	22.5	0.000	0	0.0	0.0	0.00	0.000	0	0.0	0.0	0.00	0.000	0.000	0.00	0.00	0.00			
6		14:15:00	Open to flow to TK37 (gas meter #2) on a 16.67mm adjustable choke and adjust as needed to unload well.																						
7		14:20:00	14483	14116		24.1	16.1																		
8		14:25:00	19066	17952		24.8	38.7																		
9		14:26:00	Fluid to surface.																						
10	1999/09/14	14:30:00	15435	14769		25.1	33.0	107.950	0	0.0	0.0	0.00	0.000	0	0.0	0.0	0.00	0.000	0.000						
11		14:35:00	17275	16371		36.3	40.8																		
12		14:40:00	18288	17308		37.7	42.2																		
13		14:45:00	17995	17574		42.6	49.7		0	0.0	0.0	0.00	133.350	0	0.0	0.0	0.00	0.000	0.000						
14		14:45:00	Open flow to TU29 (gas meter #1) on a 25.4mm adjustable choke.																						
15		14:50:00	16695	16216	16249	60.9	5.5																		
16		14:55:00	15316	14839	14025	68.9	54.9	0.000	0	0.0	0.0	0.00	0.000	0	0.0	0.0	0.00	0.000	0.000						
17		14:55:00	Gas meter #1 in service with a 107.95mm orifice plate. Gas meter #2 in service with a 133.35mm orifice plate.																						
18	1999/09/14	15:00:00	15255	14788	13979	75.3	59.8	107.950	2200	68.5	50.0	980.19	133.350	425	52.5	33.0	610.79	1590.975	5.524	28.50	912.00	28.50	6	114000	0.573
19		15:05:00	14764	14333	12774	81.9	64.3																		
20		15:05:00	Increase choke to TU29 to 27.78mm.																						
21		15:10:00	14501	14074	12545	86.8	68.7																		
22		15:15:00	14776	14330	12795	91.6	73.0	107.950	3000	80.0	54.0	1228.86		387	45.0	35.0	541.91	1770.776	23.033	2.27	217.92	30.77			0.123
23		15:20:00	14727	14272	12749	94.9	75.7																		
24		15:25:00	14077	13365	12203	97.8	79.1																		
25		15:26:00	Choke to TK37 set at 32.54mm.																						
26		15:30:00	13906	13189	12041	100.7	81.9	107.950	2700	79.2	60.0	1147.42		740	62.0	69.0	793.77	1941.190	42.366	2.13	204.48	32.90	7	118000	0.105
27		15:35:00	12823	11507	11077	102.5	84.0																		
28		15:35:00	Increase choke to TK37 to 36.51mm.																						
29		15:40:00	12313	11043	10628	104.6	87.1																		
30		15:40:00	Increase choke to TU29 to 50.8mm, choke is now fully open.																						
31		15:45:00	12045	10811	9853	105.6	87.7	107.950	2750	79.5	70.0	1140.76		1100	73.0	68.0	1033.01	2173.773	63.799	4.50	432.00	37.40			0.199
32		15:45:00	Increase choke to TK37 to 40.48mm.																						
33		15:50:00	11398	9847	9319	107.0	88.8																		
34		15:50:00	Increase choke to TK37 to 46.83mm.																						
35		15:55:00	11306	9762	9249	108.2	89.8																		
36		16:00:00	11138	9450	9109	108.9	90.7	107.950	2500	74.0	78.0	1035.99		1090	72.5	69.0	1023.51	2059.499	85.847	4.35	417.60	41.75			0.203
37		16:00:00	Increase choke to TK37 to 50.8mm, choke is now fully open.																						
38		16:05:00	11175	9487	9145	109.5	92.2																		
39		16:10:00	11050	9389	9063	110.1	93.0																		
40		16:15:00	11035	9368	9048	110.3	93.3	107.950	2500	72.5	79.0	1023.75		1150	72.8	70.0	1049.74	2073.489	107.373	1.95	187.20	43.70			0.090
41		16:20:00	11044	9377	9054	110.4	92.1																		
42		16:25:00	10919	9267	8947	110.6	95.0																		
43		16:30:00	10897	9255	8944	110.7	93.5	107.950	2450	73.0	82.0	1012.33		1155	72.8	73.0	1047.02	2059.350	128.898	1.60	153.60	45.30			0.075
44		16:35:00	10983	9331	9023	110.9	92.3																		
45		16:40:00	10861	9228	8922	110.9	91.5																		
46		16:41:00	Two HP gas samples taken.																						
47		16:45:00	10952	9310	9002	111.2	92.7	107.950	2500	74.0	83.0	1027.88		1160	73.5	73.0	1054.22	2082.104	150.468	1.95	187.20	47.25			0.090

Chevron Canada Resources
(grid section 60 deg.30', 123 deg. 30')
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FieldNotes
Field Measurements

Chevron et al Liard K-29

Job Number: GP99-109

	Date	Clock Time	Pt	FP2	FP3	WHT	FT2	Orifice1	Static1 Pres	Diff1 Pres	Temp1	Gas1 Rate	Orifice2	Static2 Pres	Diff2 Pres	Temp2	Gas2 Rate	Tot Gas Rate	Tot Cum Gas	H2O Gain	H2O Rate	Cum H2O	pH	Salinity	WGR
	yyyy/mm/dd	hh:mm:ss	kPa(g)	kPa	kPa(g)	°C	°C	mm	kPa(g)	kPa	°C	$10^3m^3/d$	mm	kPa(g)	kPa	°C	$10^3m^3/d$	$10^3m^3/d$	10^3m^3	m^3	m^3/d	m^3		ppm	$m^3/10^3m^3$
48	1999/09/14	16:50:00	11062	9398	9099	111.5	92.9																		
49		16:55:00	11019	9371	9063	111.3	91.4																		
50		17:00:00	10986	9344	9032	111.5	92.3	107.950	2500	73.2	83.0	1022.27		1150	73.5	73.0	1050.01	2072.282	172.108	0.65	62.40	47.90	6	162000	0.030
51		17:01:00	H2S by Gastec 0.5%.																						
52		17:05:00	10922	9283	8977	111.5	91.5																		
53		17:10:00	11013	9365	9054	111.6	91.5																		
54		17:15:00	10952	9307	8999	111.6	92.2	107.950	2550	73.5	83.0	1034.44		1175	73.5	73.0	1060.52	2094.964	193.810	1.00	96.00	48.90			0.046
55		17:20:00	10961	9316	8999	111.7	91.9																		
56		17:25:00	11093	9423	9093	111.8	93.9																		
57		17:30:00	11093	9429	9093	112.0	95.1	107.950	2600	78.0	84.0	1074.43		1175	76.5	74.0	1080.63	2155.052	215.945	1.20	115.20	50.10			0.053
58		17:35:00	11074	9414	9081	112.0	95.5																		
59		17:40:00	11062	9405	9072	112.0	94.7																		
60		17:45:00	11096	9432	9093	112.1	94.2	107.950	2600	78.5	84.0	1077.88		1175	78.0	74.0	1091.33	2169.218	238.468	1.10	105.60	51.20			0.049
61		17:50:00	11077	9423	9084	112.1	92.5																		
62		17:55:00	11068	9417	9078	112.2	92.9																		
63	1999/09/14	18:00:00	11047	9398	9057	112.3	93.1	107.950	2600	78.0	84.0	1074.43		1175	77.0	74.0	1084.21	2158.632	261.009	0.90	86.40	52.10	6	202000	0.040
64		18:05:00	11090	9435	9093	112.4	94.2																		
65		18:10:00	11169	9499	9157	112.6	95.7																		
66		18:15:00	11178	9514	9170	112.6	95.2	107.950	2600	80.0	84.0	1088.20		1180	79.0	74.5	1099.74	2187.942	283.647	0.90	86.40	53.00			0.039
67		18:20:00	11172	9505	9164	112.7	95.8																		
68		18:25:00	11193	9524	9185	112.8	96.6																		
69		18:30:00	11205	9530	9197	113.0	94.2	107.950	2600	80.0	84.0	1088.20		1180	80.5	74.5	1110.30	2198.500	306.493	0.90	86.40	53.90			0.039
70		18:35:00	11334	9637	9304	113.3	95.4																		
71		18:40:00	11123	9460	9127	113.2	95.3																		
72		18:45:00	11270	9594	9261	113.2	96.4		2600	79.5	84.0	1084.77		1195	79.5	75.0	1108.91	2193.683	329.369	0.60	57.60	54.50			0.026
73		18:50:00	11288	9612	9276	113.4	96.2																		
74		18:55:00	11358	9670	9331	113.5	96.3																		
75		19:00:00	11328	9649	9307	113.6	96.3		2700	80.0	84.0	1108.71		1225	80.0	75.0	1125.33	2234.047	352.430	0.53	50.88	55.03	6	206000	0.023
76		19:05:00	11337	9661	9316	113.7	95.5																		
77		19:10:00	11376	9691	9353	113.7	95.1																		
78		19:15:00	11379	9698	9362	113.9	96.2		2750	81.0	86.0	1122.35		1220	80.0	75.0	1123.20	2245.545	375.761	0.60	57.60	55.63			0.026
79		19:20:00	11398	9713	9371	114.1	97.0																		
80		19:25:00	11401	9722	9368	114.1	96.5																		
81		19:30:00	11459	9774	9420	114.3	97.6		2750	80.5	84.0	1122.36		1225	82.0	75.0	1139.53	2261.893	399.238	0.65	62.40	56.28			0.028
82		19:35:00	11471	9786	9429	114.6	97.8																		
83		19:40:00	11450	9765	9411	114.7	97.1																		
84		19:45:00	11437	9756	9402	114.9	97.4		2700	81.0	84.0	1115.66		1225	82.0	75.5	1138.67	2254.332	422.760	0.57	54.72	56.85			0.024
85		19:50:00	11462	9777	9429	114.8	98.1																		
86		19:55:00	11459	9774	9420	114.8	98.2																		
87		20:00:00	11419	9743	9389	114.9	98.3		2740	81.0	84.0	1123.83		1215	84.0	75.5	1148.32	2272.143	446.335	0.57	54.72	57.42	6	278000	0.024
88		20:05:00	11389	9716	9362	115.0	98.2																		
89		20:10:00	11373	9701	9350	115.0	98.3																		
90		20:15:00	11398	9722	9368	115.1	98.3		2700	81.0	85.0	1113.92		1210	83.0	75.5	1139.17	2253.088	469.904	0.47	45.12	57.89			0.020
91		20:20:00	11370	9701	9353	115.2	98.2																		
92		20:25:00	11318	9658	9310	115.2	98.5																		
93		20:30:00	11312	9810	9316	115.2	98.4		2700	80.0	85.0	1106.98		1220	83.0	76.0	1142.66	2249.645	493.356	0.59	56.64	58.48			0.025
94		20:31:00	Decrease both chokes to 27.78 mm.																						

Fast

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(grid Section 60 deg.30', 123 deg. 30')
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FieldNotes
Field Measurements

Chevron et al Liard K-29

Job Number: GP99-109

	Date	Clock Time	Pt	FP2	FP3	WHT	FT2	Orifice1	Static1 Pres	Diff1 Pres	Temp1	Gas1 Rate	Orifice2	Static2 Pres	Diff2 Pres	Temp2	Gas2 Rate	Tot Gas Rate	Tot Cum Gas	H2O Gain	H2O Rate	Cum H20	pH	Salinity	WGR
	yyyy/mm/dd	hh:mm:ss	kPa(g)	kPa	kPa(g)	°C	°C	mm	kPa(g)	kPa	°C	$10^3m^3/d$	mm	kPa(g)	kPa	°C	$10^3m^3/d$	$10^3m^3/d$	10^3m^3	m^3	m^3/d	m^3		ppm	$m^3/10^3m^3$
95	1999/09/14	20:35:00	15609	15325	13579	116.9	100.1																		
96		20:40:00	16680	16384	15361	119.1	99.1																		
97		20:42:00	Decrease choke to TU29 to 25.4 mm.																						
98		20:45:00	17177	16881	16237	117.7	99.5		2400	74.0	80.0	1012.14		695	50.5	63.0	702.06	1714.201	514.001	0.10	9.60	58.58			
99		20:50:00	17379	17067	16396	117.1	99.8																		0.008
100		20:50:00	Decrease choke to TU29 to 20.64 mm.																						
101		20:55:00	17742	17433	16945	116.3	100.0																		
102	1999/09/14	21:00:00	17812	17510	17006	116.2	99.9		2400	69.5	75.0	988.50		725	51.0	61.0	721.05	1709.549	531.833	0.25	24.00	58.83			
103		21:00:00	Insufficient fluid being produced to sample.																						0.014
104		21:05:00	17800	17491	16988	116.2	99.7																		
105		21:10:00	17806	17504	17000	116.3	99.6																		
106		21:15:00	17818	17516	17015	116.4	99.7		2250	68.0	75.0	947.14		700	51.5	60.0	714.64	1681.784	549.392	0.20	19.20	59.03			
107		21:20:00	17824	17510	17021	116.6	99.5																		0.012
108		21:25:00	17827	17516	17015	116.7	99.3																		
109		21:30:00	17843	17531	17027	116.9	100.1		2250	68.5	68.0	961.41		700	51.5	59.5	715.20	1676.612	568.779	0.21	20.16	59.24			
110		21:35:00	17849	17537	17046	117.1	100.5																		0.012
111		21:40:00	17858	17549	17055	117.2	100.8																		
112		21:45:00	17864	17546	17052	117.4	100.8		2200	69.0	67.0	955.89		700	53.0	60.0	725.15	1681.040	584.267	0.20	19.20	59.44			
113		21:50:00	17864	17558	17061	117.6	100.9																		0.011
114		21:55:00	17867	17565	17064	117.8	100.0																		
115		22:00:00	20382	20363	19438	118.9	99.7		2300	67.3	72.0	957.05		695	52.5	60.0	719.39	1676.441	601.754	0.20	19.20	59.64			
116		22:01:00	Shut in flowline to TK37; decrease choke to TU29 to 17.86 mm.																						0.011
117		22:05:00	21685	21727	21049	116.1	95.6																		
118		22:10:00	21987		21526	115.0	90.6																		
119		22:15:00	Decrease choke to TU 29 to 17.46 mm.																						
120		22:15:00	21904		21315	114.4	88.9		2250	68.2	69.0	957.73		0	0.0	0.0	0.00	957.734	611.727	0.05	4.80	59.69			
121		22:30:00	22005		21358	113.0	81.9		2260	68.0	67.0	961.54						961.542	621.723	0.05	4.80	59.74			0.005
122		22:45:00	22060		21443	111.8	73.7		2200	68.0	66.0	950.45						950.452	631.681	0.20	19.20	59.94			0.005
123		23:00:00	22072		21443	110.4	66.3		2200	68.0	65.0	952.02						952.016	641.590	0.10	9.60	60.04			0.020
124		23:15:00	22081		21455	109.7	59.6		2200	68.0	66.0	950.45						950.452	651.499	0.30	28.80	60.34			0.010
125		23:30:00	22084		21449	109.0	53.3		2200	68.0	66.0	950.45						950.452	661.399	0.10	9.60	60.44			0.030
126		23:45:00	22091		21448	108.7	49.6		2200	68.0	66.0	950.45						950.452	671.300	0.10	9.60	60.54			0.010
127		23:55:00	Two HP gas samples and two extra stock water samples taken.																						0.010
128	1999/09/15	00:00:00	22091		21437	108.4	46.0		2210	68.0	66.0	952.57						952.574	681.211	0.10	9.60	60.64			
129		00:01:00	End of test. Shut in well and secure wellhead.																						0.010
130		00:01:00						0.000	0	0.0	0.0	0.00	0.000	0	0.0	0.0	0.00	0.000	681.211	0.00	0.00	60.64			

Cindy: 279-7992

AGAT Laboratories

GAS ANALYSIS

Contractor Identification: AGAT 11119
Laboratory Number: CCJBIIPA
Operator Name: CHEVRON CANADA RESOURCES LIMITED
Unique Well Identifier:
Well Name: CHEVRON et al LIARD K-29
Lsd: Sec: Twp: Rge: W4M
Field or Area: LIARD
Pool or Zone: MAHANNI
Name of Sample:
Company: HOWARD ENERGY
Test Type: No:
Test Recovery: MAHANNI DOLOMITE: LOWER FRACTURED ZONE
Test Interval or Perfs:
Sampling Point: METER RUN

	Separator	Treater	Reservoir	Source	Sampled	Received
Gauge Pressure kPa				2850	2460	2680
Temperature °C				72	72	22

Date Sampled (YY-MM-DD): 99-04-18
Date Received (YY-MM-DD): 99-04-21
Date Reported (YY-MM-DD): 99-04-21
Analyst: KA ACO
Other Information: SAMPLED @ 1470CUBIC

Comp	Mole Fraction: Sample As Received	Mole Fraction: Moisture and Acid Gas Free	Petroleum Liquid Content mL/m³
H_2	0.0004	0.0005	
He	0.0010	0.0013	
N_2	0.0340	0.0437	
CO_2	0.2175	0.0000	
H_2S	0.0049	0.0000	
C_1	0.7422	0.9545	
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
C_8			
C_9			
C_{10+}			
TOTAL	1.0000	1.0000	0.0

Gross Heating Value kJ/m³ @ 15°C and 101.325 kPa
Moisture and Acid Gas Free: 36.07
Air Free As Received: 28.18
Vapour Pressure Pentane Plus: 0.0 kPa

Relative Density
Moisture Free Air Sampled — Measured: Calculated: 0.780
Moisture and Acid Gas Free — Measured: Calculated: 0.974

Pseudo Critical Properties Calculated
As Sampled — kPa abs: 5184 kPa; kPa: 213.7
Acid Gas Free — kPa abs: 4544 kPa; kPa: 187.4

Relative Molecular Mass
Total Gas: 22.6
Cr.: 0.0

H_2S (ppm): 7.04

Remarks:

EXCEED NORMAL LIMITS : CO2
FIELD H2S= 4900ppm/LAB= 0.17%

Chevron Canada Resources
(grid section 60 deg 30' 123 deg. 30')
Start Test Date: 1999/09/14
Final Test Date: 1999/09/15

Chevron et al Liard K-29

Chevron et al Liard K-29
Job Number GP99-109

Tubing Pressure	
FP2	
FP3	
H2O Rate	
Tot Gas Rate	

Tubing Pressure, kPa(g)
FP2, kPa
FP3, kPa(g)

40000
28000
30000
21000
20000
14000
10000
7000
0
0

1200
4000
900
3000
600
2000
300
1000
0
0

H2O Rate, m^3/d
Tot Gas Rate, $10^3m^3/d$

14:00:00
1999/9/14
16:00:00
18:00:00
20:00:00
22:00:00
0:00:00
9/15
2:00:00

Cumulative Time

C:\Cindy\FAST32\C\Chevron\Chev407.FLD 04-Oct-99 Ver 1.613

Fast

Chevron Canada Resources

Wellbore

Chevron et al Liard K-29
(grid section 60°30', 123°30')

Chevron

Wellbore Diagram

Elevations: KB 416.8 | GL 408.8 | KB to GL 7.36 | KB to CF | KB to THF 4.56

Surface Casing 339.7 mm 101.19 kg/m K-55 Buttress

Production Casing 244.5 mm
64.73 kg/m MN-80 Vam Pro surface to 1536m
69.94 kg/m MN-80 Vam Pro 1536m to 2500m

Production tubing 177.8 mm 43.16 kg/m L-80 Hydril 563 tubing

		Length	Depth
	Baker pump out reentry sub 88.9 mm EUE box	0.14	2650.67
	Otis RH nipple 86.02 mm ID (36.16 mm nogo ID)	0.33	2650.34
16 jts	88.9 mm 19.27 kg/m L80 Hydril 533 tubing	172.63	
	Otis R nipple 86.02 mm	0.28	2477.43
1 jt	88.9 mm 19.27 kg/m L80 Hydril 533	9.58	
	Baker SC-2 release extension 588 pin up x Hydril 533 pin down	2.01	
	Baker SC-2 retrievable seal bore packer size 96A4-40	1.76	2464.11
	Baker Oil Tool model G22 locator seal assembly	0.25	
	114.3 mm extension sub L 80	1.22	
	cover L80 114.3 mm NS-CT pin down x 114.3 mm EUE box up	0.25	
	Otis XN nipple 96.85 mm profile (w/ 94.61 mm nogo) Inoloy 925	0.40	2461.99
1 jt	114.3 mm 18.75 kg/m CRA (Incoloy 925) Hydril 511 tubing	7.00	
	Guiberson Magnum HT 244.5 mm Inoloy 925 permanent seal bore packer	1.32	2453.67
	Guiberson Magnum latch seal assembly 114.3 mm Hydril 533 pin up	0.27	
	cover Inoloy 925 Hydril 533 box down x Hydril 563 box up	0.41	2452.99
1 jt	177.8 mm 56.56 kg/m CRA (SM2550-125) Hydril 563 (with CB ring) tubing	7.68	
	177.8 mm 43.16 kg/m L80 Hydril 563 pup joint SR222 epoxy coated	2.44	
199 jts	177.8 mm 43.16 kg/m L80 Hydril 563 (with CB ring) tubing	2411.31	
	177.8 mm 43.16 kg/m L80 Hydril 563 (with CB ring) pup joint	2.99	
	177.8 mm 43.16 kg/m L80 Hydril 563 (with CB ring) pup joint	2.34	
	177.8 mm 43.16 kg/m L80 Hydril 563 (with CB ring) pup joint	1.86	
	177.8 mm 43.16 kg/m L80 Hydril 563 (with CB ring) pup joint	1.24	
	177.8 mm 43.16 kg/m L80 Hydril 563 (with CB ring) pup joint	1.83	
	177.8 mm 43.16 kg/m L80 Hydril 563 (with CB ring) pup joint	1.40	
1 jt	177.8 mm 43.16 kg/m L80 Hydril 563 (with CB ring) tubing	13.10	
	177.8 mm 43.16 kg/m L80 Hydril 563 (with CB ring) double pin pup joint	0.45	
	Berber tubing hanger WCT-7-SCS PN 20810449 SN 38868 001.1	0.30	
	Total Length	2644.45	
	KB to THF	6.56	
	less squat due to compression 3000 dN	-0.20	
	Landed Depth	2650.81	

177.8 mm 43.16 kg/m L80 Hydril 563 pup joint SR222 epoxy coated

177.8 mm 56.56 kg/m CRA (SM2550-125) Hydril 563 tubing joint (ends machined to 43.16 kg/m)

2452.99 — cover Inoloy 925 Hydril 533 box down x Hydril 563 box up

2453.67 — Guiberson latch seal assembly Inoloy 925 w/ 2 ATR seal units

Guiberson 244.5 mm Magnum HT permanent seal bore packer Inoloy 925

114.3 mm 18.75 kg/m Inoloy 925 Hydril 511 tubing joint

2461.99 — Otis XN nipple 96.85 mm (w/ 94.61 mm nogo) Inoloy 925

Baker G-22 locator seal assembly L80 size 80-40 ATR seals 114.3 mm NS-CT box up coated SM222 epoxy

2464.11 — Baker SC-2P Retrievable seal bore packer size 96A4-40 (0.7m top of packer to center of seals)

Baker SC-2P Release extension 139.7mm seal tbg pin x 533 Hydril pin

88.9mm 19.27kg/m L-80 533 Hydril tubing (one joint)

2477.43 — Otis R nipple 86.02 mm ID

2500 — 244.5 mm casing shoe (2 joints into Nahanni dolomite)

88.9 mm tailpipe perforations 2517 to 2523 mKB (13 shots per meter)

Wellbore fish - 6 meter perforating gun / CCL - top at 2529.3 mKB

88.9mm 19.27 kg/m L80 Hydril 533 tailpipe (18 joints)

215.9 mm open hole

Debris in tailpipe (sticky black brown clay / thread compound) preventing recovery of Otis plug

Wellbore deviation:

2484 m	4.4 deg	0.24 DLS
2529 m	7.2 deg	6.08 DLS
2568 m	13.5 deg	8.04 DLS
2588 m	18.2 deg	8.00 DLS
2606 m	22.6 deg	6.99 DLS
2665 m	36.0 deg	6.71 DLS
2963 m	36.0 deg	0.70 DLS

2650.34 mKB — Otis RN 86.02 mm nipple (w/ 88.19mm no go)

2650.67 mKB — Baker pumpout re-entry sub

Otis RN plug set in Otis RN nipple (unable to recover due to debris in tailpipe.

3000 mKB — TD

BAKER HUGHES

Baker Atlas

NORWARD ENERGY SERVICES

Customer: Chevron Canada Resources
Wellname: Chevron et al Liard K-29
Well Location: grid section 60°30', 123°30'
Test Dates: Sept 14 - 15, 1999
Formation: Nahanni

File Name: GP99-109, CHEV407.FLD
Supervisors: R. Rutherford, M. Mueller
Customer Reps: Curtis Tromphe
Test Unit/Tank: TK#37, TU#29
Test Type: Multi - Point Test

Gas analysis used was from April 1999 test.

Final Edited Copy

GENERAL INFORMATION

Client Information:

Company: Chevron Canada Resources

Contact:

Phone: Fax: e-mail:

Site Information:

Contact: Curtis Triomphe

Phone: Fax: e-mail:

Well Information:

Name: Chevron et al Liard K-29

Operator: Chevron Canada Resources

Location-Downhole: (grid section 60 deg.30', 123 deg. 30')

Location-Surface:

Test Information:

Company:	Norward Energy Services		
Representative:	Paul Ringrose		
Supervisor:	R. Rutherford, M. Mueller, D.Shaver		
Test Type:	Multi - Rate Test	Job Number:	GP99-109
Test Unit:	TU29, TK37		
Start Date:	1999/09/14	Start Time:	14:00:00
End Date:	1999/09/15	End Time:	00:00:00
Report Date:	1999/10/04	Prepared By:	C. Brunt
Remarks:		Qualified By:	

- Wellhead and flowing pressures and temperatures taken with electronic gauges.
- Pt taken at the top of the wellhead.
- WHT taken after the ESD on the flowline to TU29.
- FP2, FT2 taken upstream of the choke on the flowline to TK37.
- FP3 taken upstream of choke on flowline to TU29.
- Stock water samples taken every 1/2 hr beginning at 17:30 hrs.
- April Gas Analysis used

SURVEY LISTING

N.E.B. COPY

CHEVRON CANADA RESOURCES LTD.
FORT LIARD

K-29
K-29 (60.5degN/123.5degW)
FORT LIARD
N.W.T. Canada

S U R V E Y L I S T I N G

by
Baker Hughes INTEQ

Your ref : CHEVRON FT. LIARD K-29
Our ref : svy9760
License :

Date printed : 21-Jul-1999
Date created : 11-Feb-1999
Last revised : 6-Apr-1999

Field is centred on 467869.990,6704591.610,-123.00000,N
Structure is centred on 467869.990,6704591.610,-123.00000,N

Slot location is n60 28 41.045,w123 35 4.102
Slot Grid coordinates are N 6704591.610, E 467869.990
Slot local coordinates are 0.00 N 0.00 E

Projection type: mercator - UTM, Spheroid: Clarke - 1866

Reference North is True North

FINAL: with lats + longs

CHEVRON CANADA RESOURCES LTD.
FORT LIARD,K-29
FORT LIARD,N.W.T. Canada

SURVEY LISTING Page 1
Your ref : CHEVRON FT. LIARD K-2
Last revised : 6-Apr-1999

Measured Depth	Inclin Degrees	Azimuth Degrees	True Vert Depth	RECTANGULAR COORDINATES		Dogleg Deg/ 30m	Vert Sect	GEOGRAPHIC COORDINATES
0.00	0.00	0.00	0.00	0.00N	0.00E	0.00	0.00	n60 28 41.05 w123 35 04.10
221.00	0.25	1.70	221.00	0.48N	0.01E	0.03	-0.24	n60 28 41.06 w123 35 04.10
306.00	1.25	311.70	305.99	1.28N	0.67W	0.39	-1.25	n60 28 41.09 w123 35 04.15
425.00	2.00	296.70	424.94	3.08N	3.50W	0.22	-4.60	n60 28 41.14 w123 35 04.33
513.00	3.75	71.70	512.89	4.68N	2.14W	1.83	-4.29	n60 28 41.20 w123 35 04.24
538.00	4.35	51.70	537.82	5.52N	0.62W	1.83	-3.45	n60 28 41.22 w123 35 04.14
573.00	4.10	47.70	572.73	7.18N	1.35E	0.33	-2.66	n60 28 41.28 w123 35 04.01
611.00	4.50	42.70	610.62	9.19N	3.37E	0.43	-2.02	n60 28 41.34 w123 35 03.88
642.00	4.00	41.70	641.54	10.90N	4.91E	0.49	-1.61	n60 28 41.40 w123 35 03.78
676.00	3.50	30.80	675.47	12.67N	6.23E	0.77	-1.43	n60 28 41.45 w123 35 03.69
702.00	3.00	30.70	701.42	13.94N	6.99E	0.58	-1.46	n60 28 41.50 w123 35 03.64
742.00	3.25	32.00	741.36	15.80N	8.12E	0.19	-1.49	n60 28 41.56 w123 35 03.57
791.00	3.25	37.00	790.29	18.09N	9.69E	0.17	-1.36	n60 28 41.63 w123 35 03.47
913.00	4.00	49.00	912.04	23.64N	14.99E	0.26	0.18	n60 28 41.81 w123 35 03.12
960.00	3.88	41.00	958.93	25.92N	17.26E	0.36	0.91	n60 28 41.88 w123 35 02.97
1027.00	4.00	38.00	1025.77	29.47N	20.19E	0.11	1.51	n60 28 42.00 w123 35 02.78
1103.00	4.00	32.00	1101.59	33.80N	23.23E	0.17	1.78	n60 28 42.14 w123 35 02.58
1159.00	4.90	35.00	1157.42	37.42N	25.63E	0.50	1.91	n60 28 42.25 w123 35 02.42
1219.00	5.00	56.00	1217.20	40.98N	29.27E	0.90	3.11	n60 28 42.37 w123 35 02.19
1248.00	5.50	59.00	1246.08	42.40N	31.51E	0.59	4.25	n60 28 42.42 w123 35 02.04
1286.00	7.00	57.00	1283.85	44.60N	35.01E	1.20	6.06	n60 28 42.49 w123 35 01.81
1324.00	7.75	55.00	1321.54	47.33N	39.05E	0.63	8.04	n60 28 42.57 w123 35 01.55
1359.50	7.90	59.60	1356.71	49.94N	43.12E	0.54	10.10	n60 28 42.66 w123 35 01.28
1369.00	8.50	60.50	1366.11	50.62N	44.29E	1.94	10.74	n60 28 42.68 w123 35 01.20
1388.10	9.80	62.50	1384.97	52.06N	46.96E	2.10	12.24	n60 28 42.73 w123 35 01.03

All data in meters unless otherwise stated. Calculation uses minimum curvature method.
Coordinates from K-29 (60.5degN/123.5degW) and TVD from rotary table (418.80 M. above mean sea le
Bottom hole distance is 348.88 on azimuth 94.53 degrees from wellhead.
Vertical section is from wellhead on azimuth 122.00 degrees.
Grid is mercator - UTM.
Grid coordinates in METERS and computed using the Clarke - 1866 spheroid
Presented by Baker Hughes INTEQ

CHEVRON CANADA RESOURCES LTD.
FORT LIARD,K-29
FORT LIARD,N.W.T. Canada

SURVEY LISTING Page 2
Your ref : CHEVRON FT. LIARD K-2
Last revised : 6-Apr-1999

Measured Depth	Inclin Degrees	Azimuth Degrees	True Vert Depth	RECTANGULAR COORDINATES		Dogleg Deg/ 30m	Vert Sect	GEOGRAPHIC COORDINATES
1397.70	10.50	61.80	1394.42	52.85N	48.46E	2.22	13.09	n60 28 42.75 w123 35 00.93
1407.30	11.30	62.20	1403.84	53.70N	50.06E	2.51	14.00	n60 28 42.78 w123 35 00.82
1416.90	11.90	62.60	1413.25	54.60N	51.77E	1.89	14.97	n60 28 42.81 w123 35 00.71
1436.10	12.00	62.90	1432.03	56.42N	55.31E	0.18	17.01	n60 28 42.87 w123 35 00.48
1455.30	10.90	56.70	1450.85	58.32N	58.60E	2.58	18.79	n60 28 42.93 w123 35 00.27
1484.00	9.20	50.90	1479.11	61.26N	62.65E	2.07	20.67	n60 28 43.02 w123 35 00.00
1502.00	9.00	52.60	1496.88	63.02N	64.88E	0.56	21.63	n60 28 43.08 w123 34 59.85
1512.70	8.90	55.00	1507.45	64.01N	66.23E	1.08	22.25	n60 28 43.11 w123 34 59.77
1541.40	7.30	59.70	1535.86	66.20N	69.62E	1.81	23.96	n60 28 43.18 w123 34 59.54
1570.20	6.30	56.70	1564.46	67.99N	72.52E	1.11	25.47	n60 28 43.24 w123 34 59.35
1598.90	5.60	52.20	1593.01	69.71N	74.94E	0.88	26.61	n60 28 43.30 w123 34 59.20
1627.60	5.20	60.20	1621.58	71.22N	77.18E	0.89	27.71	n60 28 43.35 w123 34 59.05
1656.40	3.90	68.20	1650.29	72.23N	79.22E	1.50	28.91	n60 28 43.38 w123 34 58.92
1665.90	3.60	67.20	1659.77	72.47N	79.80E	0.97	29.27	n60 28 43.39 w123 34 58.88
1675.50	3.70	64.60	1669.35	72.72N	80.35E	0.60	29.61	n60 28 43.39 w123 34 58.84
1685.10	3.70	66.10	1678.93	72.97N	80.92E	0.30	29.95	n60 28 43.40 w123 34 58.80
1713.80	3.40	80.70	1707.57	73.49N	82.60E	0.99	31.11	n60 28 43.42 w123 34 58.69
1733.00	4.20	74.30	1726.73	73.77N	83.84E	1.41	32.01	n60 28 43.43 w123 34 58.61
1752.20	5.10	63.40	1745.87	74.34N	85.28E	1.96	32.93	n60 28 43.45 w123 34 58.52
1780.90	4.60	50.90	1774.47	75.64N	87.32E	1.22	33.97	n60 28 43.49 w123 34 58.39
1790.40	4.70	49.40	1783.94	76.13N	87.91E	0.50	34.21	n60 28 43.50 w123 34 58.35
1819.10	4.80	59.60	1812.54	77.51N	89.84E	0.89	35.11	n60 28 43.55 w123 34 58.22
1838.30	4.50	67.60	1831.67	78.20N	91.22E	1.12	35.92	n60 28 43.57 w123 34 58.13
1857.50	4.50	69.90	1850.82	78.74N	92.63E	0.28	36.82	n60 28 43.59 w123 34 58.04
1886.20	4.40	72.30	1879.43	79.47N	94.73E	0.22	38.23	n60 28 43.61 w123 34 57.90

All data in meters unless otherwise stated. Calculation uses minimum curvature method.
Coordinates from K-29 (60.5degN/123.5degW) and TVD from rotary table (418.80 M. above mean sea le
Bottom hole distance is 348.88 on azimuth 94.53 degrees from wellhead.
Vertical section is from wellhead on azimuth 122.00 degrees.
Grid is mercator - UTM.
Grid coordinates in METERS and computed using the Clarke - 1866 spheroid
Presented by Baker Hughes INTEQ

CHEVRON CANADA RESOURCES LTD.
FORT LIARD,K-29
FORT LIARD,N.W.T. Canada

SURVEY LISTING Page 3
Your ref : CHEVRON FT. LIARD K-2
Last revised : 6-Apr-1999

Measured Depth	Inclin Degrees	Azimuth Degrees	True Vert Depth	RECTANGULAR COORDINATES		Dogleg Deg/ 30m	Vert Sect	GEOGRAPHIC COORDINATES
1915.00	4.20	73.30	1908.15	80.11N	96.80E	0.22	39.64	n60 28 43.63 w123 34 57.77
1943.80	3.70	70.90	1936.88	80.71N	98.69E	0.55	40.92	n60 28 43.65 w123 34 57.64
1953.30	3.80	70.40	1946.36	80.92N	99.27E	0.33	41.31	n60 28 43.66 w123 34 57.60
1972.50	3.80	62.80	1965.52	81.42N	100.44E	0.79	42.03	n60 28 43.68 w123 34 57.53
2001.20	3.70	56.10	1994.16	82.37N	102.05E	0.47	42.89	n60 28 43.71 w123 34 57.42
2030.00	3.40	63.60	2022.90	83.27N	103.59E	0.58	43.72	n60 28 43.74 w123 34 57.32
2049.10	3.40	59.50	2041.97	83.81N	104.58E	0.38	44.28	n60 28 43.75 w123 34 57.26
2058.70	3.50	61.70	2051.55	84.09N	105.09E	0.52	44.55	n60 28 43.76 w123 34 57.22
2077.80	3.70	75.60	2070.61	84.52N	106.20E	1.40	45.27	n60 28 43.78 w123 34 57.15
2087.40	3.90	79.30	2080.19	84.66N	106.82E	0.99	45.72	n60 28 43.78 w123 34 57.11
2116.20	3.80	90.30	2108.93	84.84N	108.73E	0.78	47.25	n60 28 43.79 w123 34 56.98
2144.50	4.50	85.70	2137.15	84.92N	110.78E	0.82	48.95	n60 28 43.79 w123 34 56.85
2173.30	5.30	72.40	2165.85	85.40N	113.17E	1.44	50.72	n60 28 43.80 w123 34 56.69
2202.00	6.60	60.60	2194.39	86.61N	115.87E	1.86	52.37	n60 28 43.84 w123 34 56.52
2221.20	5.80	60.70	2213.48	87.63N	117.68E	1.25	53.36	n60 28 43.88 w123 34 56.40
2230.70	5.60	60.70	2222.93	88.09N	118.50E	0.63	53.82	n60 28 43.89 w123 34 56.34
2259.50	4.00	52.10	2251.63	89.40N	120.52E	1.82	54.84	n60 28 43.93 w123 34 56.21
2269.00	3.00	40.20	2261.11	89.79N	120.94E	3.89	54.98	n60 28 43.95 w123 34 56.18
2288.20	2.80	25.30	2280.29	90.60N	121.47E	1.21	55.00	n60 28 43.97 w123 34 56.15
2307.30	3.20	22.90	2299.36	91.51N	121.88E	0.66	54.86	n60 28 44.00 w123 34 56.12
2316.90	3.40	27.80	2308.95	92.01N	122.11E	1.08	54.80	n60 28 44.02 w123 34 56.11
2325.40	3.90	32.00	2318.43	92.53N	122.42E	1.79	54.78	n60 28 44.03 w123 34 56.09
2335.90	4.40	34.80	2327.90	93.11N	122.79E	1.70	54.80	n60 28 44.05 w123 34 56.06
2355.10	4.90	49.20	2347.04	94.25N	123.84E	1.98	55.08	n60 28 44.09 w123 34 56.00
2374.30	5.40	59.50	2366.16	95.24N	125.24E	1.64	55.73	n60 28 44.12 w123 34 55.90

All data in meters unless otherwise stated. Calculation uses minimum curvature method.
Coordinates from K-29 (60.5degN/123.5degW) and TVD from rotary table (418.80 M. above mean sea le
Bottom hole distance is 348.88 on azimuth 94.53 degrees from wellhead.
Vertical section is from wellhead on azimuth 122.00 degrees.
Grid is mercator - UTM.
Grid coordinates in METERS and computed using the Clarke - 1866 spheroid
Presented by Baker Hughes INTEQ

CHEVRON CANADA RESOURCES LTD.
FORT LIARD,K-29
FORT LIARD,N.W.T. Canada

SURVEY LISTING Page 4
Your ref : CHEVRON FT. LIARD K-2
Last revised : 6-Apr-1999

Measured Depth	Inclin Degrees	Azimuth Degrees	True Vert Depth	RECTANGULAR COORDINATES		Dogleg Deg/ 30m	Vert Sect	GEOGRAPHIC COORDINATES
2384.00	5.70	62.20	2375.82	95.70N	126.05E	1.23	56.19	n60 28 44.14 w123 34 55.85
2393.70	5.50	64.20	2385.47	96.13N	126.90E	0.86	56.68	n60 28 44.15 w123 34 55.79
2403.30	5.50	68.80	2395.03	96.49N	127.74E	1.38	57.20	n60 28 44.16 w123 34 55.74
2413.10	5.30	69.40	2404.79	96.82N	128.60E	0.64	57.75	n60 28 44.17 w123 34 55.68
2422.70	5.20	69.50	2414.34	97.13N	129.43E	0.31	58.29	n60 28 44.18 w123 34 55.63
2432.40	5.30	68.10	2424.00	97.45N	130.25E	0.50	58.82	n60 28 44.19 w123 34 55.58
2442.00	5.20	66.50	2433.56	97.79N	131.06E	0.55	59.33	n60 28 44.20 w123 34 55.52
2461.40	4.70	60.00	2452.89	98.54N	132.56E	1.16	60.20	n60 28 44.23 w123 34 55.42
2471.00	4.50	62.30	2462.46	98.91N	133.23E	0.85	60.57	n60 28 44.24 w123 34 55.38
2484.00	4.40	62.60	2475.42	99.38N	134.13E	0.24	61.09	n60 28 44.26 w123 34 55.32
2510.00	4.60	71.00	2501.34	100.17N	136.00E	0.79	62.25	n60 28 44.28 w123 34 55.20
2519.60	5.70	91.90	2510.90	100.28N	136.84E	6.74	62.90	n60 28 44.29 w123 34 55.14
2529.30	7.20	103.30	2520.54	100.13N	137.91E	6.08	63.90	n60 28 44.28 w123 34 55.07
2539.00	9.40	107.90	2530.14	99.74N	139.26E	7.10	65.24	n60 28 44.27 w123 34 54.99
2548.60	11.00	112.50	2539.59	99.15N	140.85E	5.61	66.90	n60 28 44.25 w123 34 54.88
2558.30	13.50	115.90	2549.07	98.30N	142.72E	8.04	68.94	n60 28 44.22 w123 34 54.76
2569.70	15.00	120.40	2560.12	96.98N	145.19E	4.90	71.74	n60 28 44.18 w123 34 54.60
2579.30	16.10	122.50	2569.36	95.63N	147.39E	3.86	74.31	n60 28 44.13 w123 34 54.45
2588.80	18.20	126.60	2578.44	94.04N	149.69E	7.65	77.11	n60 28 44.08 w123 34 54.30
2598.40	20.30	129.00	2587.50	92.10N	152.19E	7.01	80.26	n60 28 44.02 w123 34 54.14
2608.00	22.60	128.80	2596.44	89.89N	154.92E	7.19	83.74	n60 28 43.95 w123 34 53.96
2617.50	25.30	129.00	2605.12	87.47N	157.92E	8.53	87.57	n60 28 43.87 w123 34 53.76
2626.90	27.80	128.60	2613.53	84.84N	161.20E	8.00	91.74	n60 28 43.79 w123 34 53.55
2636.40	29.80	126.40	2621.85	82.06N	164.83E	7.15	96.30	n60 28 43.70 w123 34 53.31
2646.00	31.90	123.90	2630.10	79.23N	168.85E	7.69	101.21	n60 28 43.60 w123 34 53.05

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Vertical section is from wellhead on azimuth 122.00 degrees.
Grid is mercator - UTM.
Grid coordinates in METERS and computed using the Clarke - 1866 spheroid
Presented by Baker Hughes INTEQ

CHEVRON CANADA RESOURCES LTD.
FORT LIARD,K-29
FORT LIARD,N.W.T. Canada

SURVEY LISTING Page 5
Your ref : CHEVRON FT. LIARD K-2
Last revised : 6-Apr-1999

Measured Depth	Inclin Degrees	Azimuth Degrees	True Vert Depth	RECTANGULAR COORDINATES		Dogleg Deg/ 30m	Vert Sect	GEOGRAPHIC COORDINATES
2655.60	33.90	123.20	2638.16	76.34N	173.20E	6.36	106.42	n60 28 43.51 w123 34 52.76
2665.20	36.00	122.40	2646.02	73.37N	177.82E	6.72	111.92	n60 28 43.42 w123 34 52.46
2674.80	36.80	121.10	2653.75	70.37N	182.67E	3.47	117.62	n60 28 43.32 w123 34 52.14
2684.50	37.10	120.60	2661.50	67.38N	187.67E	1.31	123.45	n60 28 43.22 w123 34 51.82
2694.20	37.40	121.80	2669.22	64.34N	192.69E	2.43	129.32	n60 28 43.12 w123 34 51.49
2703.90	36.70	122.50	2676.97	61.23N	197.64E	2.53	135.16	n60 28 43.02 w123 34 51.16
2713.50	35.90	121.40	2684.70	58.22N	202.46E	3.22	140.85	n60 28 42.93 w123 34 50.85
2723.20	35.60	120.60	2692.57	55.30N	207.32E	1.72	146.51	n60 28 42.83 w123 34 50.53
2732.90	35.70	121.30	2700.46	52.39N	212.17E	1.30	152.17	n60 28 42.74 w123 34 50.21
2742.60	36.20	122.70	2708.31	49.38N	217.00E	2.98	157.86	n60 28 42.64 w123 34 49.90
2752.20	36.60	123.40	2716.04	46.27N	221.77E	1.80	163.56	n60 28 42.54 w123 34 49.58
2761.90	36.20	121.80	2723.84	43.17N	226.62E	3.19	169.31	n60 28 42.44 w123 34 49.27
2771.60	36.50	122.70	2731.66	40.10N	231.48E	1.89	175.06	n60 28 42.34 w123 34 48.95
2781.20	36.90	122.90	2739.35	36.99N	236.31E	1.30	180.80	n60 28 42.24 w123 34 48.63
2790.90	36.30	122.20	2747.14	33.88N	241.18E	2.26	186.58	n60 28 42.14 w123 34 48.31
2800.60	36.60	122.40	2754.94	30.80N	246.05E	1.00	192.34	n60 28 42.04 w123 34 47.99
2810.20	36.60	121.80	2762.65	27.76N	250.90E	1.12	198.07	n60 28 41.94 w123 34 47.68
2819.90	36.00	121.00	2770.47	24.77N	255.80E	2.36	203.81	n60 28 41.85 w123 34 47.36
2829.60	35.10	118.90	2778.36	21.95N	260.69E	4.69	209.44	n60 28 41.75 w123 34 47.04
2839.30	35.30	119.10	2786.29	19.24N	265.58E	0.71	215.03	n60 28 41.67 w123 34 46.72
2848.90	35.60	120.30	2794.11	16.48N	270.41E	2.37	220.59	n60 28 41.58 w123 34 46.40
2858.60	36.00	119.40	2801.97	13.66N	275.34E	2.04	226.26	n60 28 41.49 w123 34 46.08
2868.30	36.30	120.30	2809.81	10.81N	280.30E	1.89	231.98	n60 28 41.39 w123 34 45.75
2877.80	35.80	120.90	2817.49	7.96N	285.11E	1.93	237.57	n60 28 41.30 w123 34 45.44
2887.30	35.80	119.50	2825.19	5.17N	289.91E	2.59	243.12	n60 28 41.21 w123 34 45.12

All data in meters unless otherwise stated. Calculation uses minimum curvature method.
Coordinates from K-29 (60.5degN/123.5degW) and TVD from rotary table (418.80 M. above mean sea le
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Presented by Baker Hughes INTEQ

Measured Depth	Inclin Degrees	Azimuth Degrees	True Vert Depth	RECTANGULAR COORDINATES		Dogleg Deg/ 30m	Vert Sect	GEOGRAPHIC COORDINATES
2896.80	36.30	120.50	2832.87	2.37N	294.75E	2.44	248.71	n60 28 41.12 w123 34 44.81
2906.40	36.90	120.30	2840.58	0.52S	299.69E	1.91	254.43	n60 28 41.03 w123 34 44.48
2915.90	36.50	119.90	2848.20	3.37S	304.60E	1.47	260.10	n60 28 40.94 w123 34 44.16
2925.50	35.80	118.40	2855.95	6.13S	309.55E	3.53	265.76	n60 28 40.85 w123 34 43.84
2935.20	35.70	119.30	2863.82	8.86S	314.51E	1.66	271.42	n60 28 40.76 w123 34 43.51
2944.90	36.00	119.60	2871.68	11.66S	319.46E	1.08	277.09	n60 28 40.67 w123 34 43.19
2954.60	36.60	119.60	2879.50	14.49S	324.45E	1.86	282.83	n60 28 40.58 w123 34 42.86
2964.30	36.00	119.30	2887.32	17.32S	329.45E	1.94	288.57	n60 28 40.49 w123 34 42.54
2974.00	35.90	119.10	2895.17	20.10S	334.42E	0.48	294.26	n60 28 40.40 w123 34 42.21
2983.00	36.10	119.20	2902.45	22.67S	339.04E	0.69	299.54	n60 28 40.31 w123 34 41.91
3000.00	36.10	119.20	2916.19	27.56S	347.79E	0.00	309.54	n60 28 40.15 w123 34 41.34

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Comments in wellpath

MD	TVD	Rectangular Coords.		Comment
3000.00	2916.19	27.56S	347.79E	EXTRAPOLATION TO TOTAL DEPTH

Casing positions in string 'A'

Top MD	Top TVD	Rectangular Coords.		Bot MD	Bot TVD	Rectangular Coords.		Casing
0.00	0.00	0.00N	0.00E	701.30	700.72	13.91N	6.97E	SURFACE
0.00	0.00	0.00N	0.00E	2500.00	2491.37	99.89N	135.25E	INTERMEDIAT

Targets associated with this wellpath

Target name	Geographic Location	T.V.D.	Rectangular Coordinates		Revised
NAHANNI TARGET AREA		2475.42	83.96N	126.54E	9-Nov-1998
NAHANNI TARGET	468009.780,6704681.800,-123.0	2562.00	91.46N	139.04E	9-Nov-1998

STATIC GRADIENT REPORT

N.E.B. COPY

Chevron Canada Resources

Static Gradient
Chevron Et Al Liard K-29
K-29
Jul 15, 00

Results to :
Chevron Canada Resources
Attn : John Cosgrove
07/28/2000
Time : 3:00 p.m.
Calgary
Lee Tool - Red Deer

Service Company Contact Info

Report Writer	Wade Nicks, 309-7940	Service Company	Lee Tool, Div. of Schlumberger
Operator	Dean Kaziechko, 347-2524	Job ID: K-29gradient	Test Date: Jul 15, 00

Gauge: Lee Memory Recorder Model 3000s (Quartz)
Manufacturer: Lee Tool, Division of Schlumberger Canada Limited

SEP - 7 2000

Static Gradient

Chevron Canada Resources
Alberta, Canada

Jul 15, 00

Chevron Et Al Liard K-29 — K-29 — Ft. Liard, Nahanni

Well

Client	Chevron Canada Resources		Province: Alberta	Country: Canada	
Well Name	Chevron Et Al Liard K-29		Deviated Well: Yes	Well Status: Gas	
Well No.	K-29		KB Elevation: 418.80 m	CF Elevation: 409.60 m	
Field: Ft. Liard	Pool: Nahanni		Pool Datum		

Test

Test Name	Static Gradient		Atmospheric: 101.30 KPa A		
Test Start (mm/dd/yy): 07/15/00	02:30 PM	Test Finish	Casing ID	Tubing ID: 177.80 mm	
On Bottom: 07/15/00	04:58 PM	Off Bottom: 07/15/00	05:28 PM	C. Pres. Before: 0.00 KPa G	T. Pres. Before: 22400.00 KPa G
Shut In		ETO: 07/15/00	02:30 PM	C. Pres. After	T. Pres. After

	Meas. Depth [mCF]	TVD [mCF]	Est. Pressure [KPa G]	Est. Gradient [KPa/m]	Est. Temperature [DegC]
Well Datum					
Run Depth	2531.60	2522.71	27156.40	7.09	
Avg. MPP Depth	2850.00	2793.26	29075.14	7.09	

Grad. Threshold: 2.00 KPa/m
Grad. Recorder: 9446Q-16E

Operator	Dean Kaziechko, 347-2524
Service Company	Lee Tool, Div. of Schlumberger
Remarks	9432Q-16E Bot. Rec. & 9446Q-16E Top Rec.

Depth References

Depth Reference	Offset [m]	Elevation [mMSL]
Casing Flange (CF)		409.60
Kelly Bushing (KB)	CF + 9.20	418.80

Perforations

Perf Top MD, [mCF]	Perf Bottom MD, [mCF]	MPP TVD, [mCF]	Pressure [KPa G]	Gradient [KPa/m]
2700.00	3000.00	2793.26	29075.14	7.09

Top Recorder

Model	Serial	Latest Calibration
LMR-3000S	9446Q-16E	09/01/99

Max. Rated Press.	Max. Rated Temp.
110213.21 KPa G	174.96 DegC

Gradient Stops

Tool String MD, [mCF]	Recorder MD, [mCF]	Recorder TVD, [mCF]	Sample R/T [mmm dd, 24hr]	Pressure [KPa G]	Gradient [KPa/m]	Temperature [DegC]
0.00	-1.50	-1.50	Jul 15, 00 14:53:00	22132.25		17.29
1000.00	998.50	997.32	15:26:00	24296.41	2.17	84.54
2000.00	1998.50	1991.45	15:54:00	26083.94	1.80	129.19
2400.00	2398.50	2390.21	16:14:00	26769.51	1.72	145.92
2457.00	2455.50	2446.98	16:26:00	26885.85	2.05	148.78
2507.00	2505.50	2496.82	16:37:00	26972.79	1.74	150.46
2531.60	2530.10	2521.23	16:52:00	27145.91	7.09	151.53

Fluid Interface	Depth TVD, [mCF]	Gradient Before [KPa/m]	Gradient After [KPa/m]
Interface 1	2499.84	2.05	7.09

Bottom Hole Pressure

	Tool String MD, [mCF]	Sample R/T [mmm dd, yy 24 hr.]	Pressure [KPa G]
Sample 1	2531.60	Jul 15, 00 16:43:00	27138.18
Sample 2		17:12:00	27148.67
Difference:		00:29:00	10.49

Build Up Rate: 21.70 KPa/Hr.

Bottom Recorder

Model	Serial	Latest Calibration
LMR-3000S	9432q-16d	10/27/99

Max. Rated Press.	Max. Rated Temp
110211.63 KPa G	174.96 DegC

Gradient Stops

Tool String MD, [mCF]	Recorder MD, [mCF]	Recorder TVD, [mCF]	Sample R/T [mmm dd, 24hr]	Pressure [KPa G]	Gradient [KPa/m]	Temperature [DegC]
0.00	0.00	-0.00	Jul 15, 00 14:53:00	22129.52		14.26
1000.00	1000.00	998.81	15:26:00	24290.19	2.16	84.25
2000.00	2000.00	1992.94	15:54:00	26085.53	1.81	129.16
2400.00	2400.00	2391.70	16:14:00	26760.18	1.69	145.87
2457.00	2457.00	2448.47	16:26:00	26876.00	2.04	148.64
2507.00	2507.00	2498.32	16:37:00	26961.63	1.72	150.27
2531.60	2531.60	2522.71	16:52:00	27149.00	7.68	151.35

Fluid Interface	Depth TVD, [mCF]	Gradient Before [KPa/m]	Gradient After [KPa/m]
Interface 1	2501.16	2.04	7.68

Bottom Hole Pressure

	Tool String MD, [mCF]	Sample R/T [mmm dd, yy 24 hr.]	Pressure [KPa G]
Sample 1	2531.60	Jul 15, 00 16:43:00	27140.95
Sample 2		17:12:00	27151.74
Difference:		00:29:00	10.79

Build Up Rate: 22.33 KPa/Hr.

Deviated Well Survey

Meas. Depth [mKB]	Inclination [Degrees]	TVD [mKB]	Meas. Depth [mCF]	TVD [mCF]
0.00	0.00	0.00	-9.20	-9.20
221.00	0.25	221.00	211.80	211.80
960.00	3.88	958.93	950.80	949.73
1027.00	4.00	1025.77	1017.80	1016.57
1972.50	3.80	1965.52	1963.30	1956.32
2001.20	3.70	1994.16	1992.00	1984.96
2049.10	3.40	2041.97	2039.90	2032.77
2393.70	5.50	2385.47	2384.50	2376.27
2403.30	5.50	2395.03	2394.10	2385.83
2413.10	5.30	2404.78	2403.90	2395.58
2442.00	5.20	2433.56	2432.80	2424.36
2461.40	4.70	2452.89	2452.20	2443.69
2471.00	4.50	2462.46	2461.80	2453.26
2484.00	4.40	2475.42	2474.80	2466.22
2510.00	4.60	2501.34	2500.80	2492.14
2519.60	5.70	2510.90	2510.40	2501.70
2529.30	7.20	2520.54	2520.10	2511.34
2539.00	9.40	2530.14	2529.80	2520.94
2548.60	11.00	2539.58	2539.40	2530.38
2694.20	37.40	2669.22	2685.00	2660.02
2703.90	36.70	2676.96	2694.70	2667.76
2713.50	35.90	2684.70	2704.30	2675.50
2848.90	35.60	2794.11	2839.70	2784.91
2858.60	36.00	2801.98	2849.40	2792.78
2868.30	36.30	2809.81	2859.10	2800.61
2983.00	36.10	2902.45	2973.80	2893.25
3000.00	36.10	2916.19	2990.80	2906.99

Tool Summary

Chevron Canada Resources
Alberta, Canada

Jul 15, 00

Chevron Et Al Liard K-29 | **K-29** | **Ft. Liard, Nahanni**

Top Recorder

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9446Q-16E	09/01/99	180 C
Landed Depth		**Depth Offset**	**Min. Battery**
		-1.50 m	16.69 V

Program: 512kb-St.Gr.

	Intervals				Expected Samples			Actual Samples				
Mode	Interval [d hh:mm:ss]	Rate [hh:mm:ss]	Delta [KPa]	Periodic [hh:mm:ss]	Regular Samples	Percent Storage	Energy [Ahr]	Regular Samples	Delta Samples	Percent Storage	Energy [Ahr]	Duration [d hh:mm:ss]
HB	10:00	1			600	0.2%	0.0022	600		0.2%	0.0022	10:00
HB	10	10			86400	24.7%	1.8249	2502		0.7%	0.0528	6:57:00
Totals:	10 10:00				87000	24.9%	1.8271	3102		0.9%	0.0550	7:07:00

Bottom Recorder

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9432q-16d	10/27/99	180 C
Landed Depth		**Depth Offset**	**Min. Battery**
		0.00 m	16.50 V

Program: 512kb-St.Gr.

	Intervals				Expected Samples			Actual Samples				
Mode	Interval [d hh:mm:ss]	Rate [hh:mm:ss]	Delta [KPa]	Periodic [hh:mm:ss]	Regular Samples	Percent Storage	Energy [Ahr]	Regular Samples	Delta Samples	Percent Storage	Energy [Ahr]	Duration [d hh:mm:ss]
HB	10:00	1			600	0.7%	0.0022	600		0.7%	0.0022	10:00
HB	10	10			86400	98.9%	1.8249	2480		2.8%	0.0524	6:53:20
Totals:	10 10:00				87000	99.6%	1.8271	3080		3.5%	0.0546	7:03:20

Calibration Summary

Chevron Canada Resources
Alberta, Canada

Jul 15, 00

Chevron Et Al Liard K-29 | **K-29** | **Ft. Liard, Nahanni**

Top Recorder

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9446Q-16E	09/01/99	180 C
Landed Depth		**Depth Offset**	**Min. Battery**
		-1.50 m	16.69 V

Equations

FP = Pres Freq (Hz)
FT = Temp Freq (Hz)

XP = 1.715300e+004 + (1.000000e-002) FP
XT = 5.608600e+004 + (1.000000e-002) FT

P_0 = 1.953501e+001+ (-1.481998e+000) XT + (-1.986578e-002) XT^2 + (1.734426e-007) XT^3 + (-1.375615e-008) XT^4
P_1 = 3.930740e+001+ (-1.933781e-002) XT + (3.293536e-005) XT^2 + (2.424752e-008) XT^3 + (1.592954e-010) XT^4
P_2 = -1.734644e-003+ (1.023965e-005) XT + (-3.693656e-008) XT^2 + (-9.347514e-011) XT^3 + (-3.910415e-013) XT^4
P_3 = 5.799354e-007+ (-4.224041e-009) XT + (1.811928e-011) XT^2 + (6.898616e-014) XT^3 + (3.058980e-016) XT^4
Pressure (psiA) = $P_0 + P_1 XP + P_2 XP^2 + P_3 XP^3$

T_0 = 2.554654e+001
T_1 = -7.310296e-001
T_2 = -8.580091e-004
T_3 = -6.784791e-007
Temperature (degC) = $T_0 + T_1 XT + T_2 XT^2 + T_3 XT^3$

Bottom Recorder

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9432q-16d	10/27/99	180 C
Landed Depth		**Depth Offset**	**Min. Battery**
		0.00 m	16.50 V

Equations

FP = Pres Freq (Hz)
FT = Temp Freq (Hz)

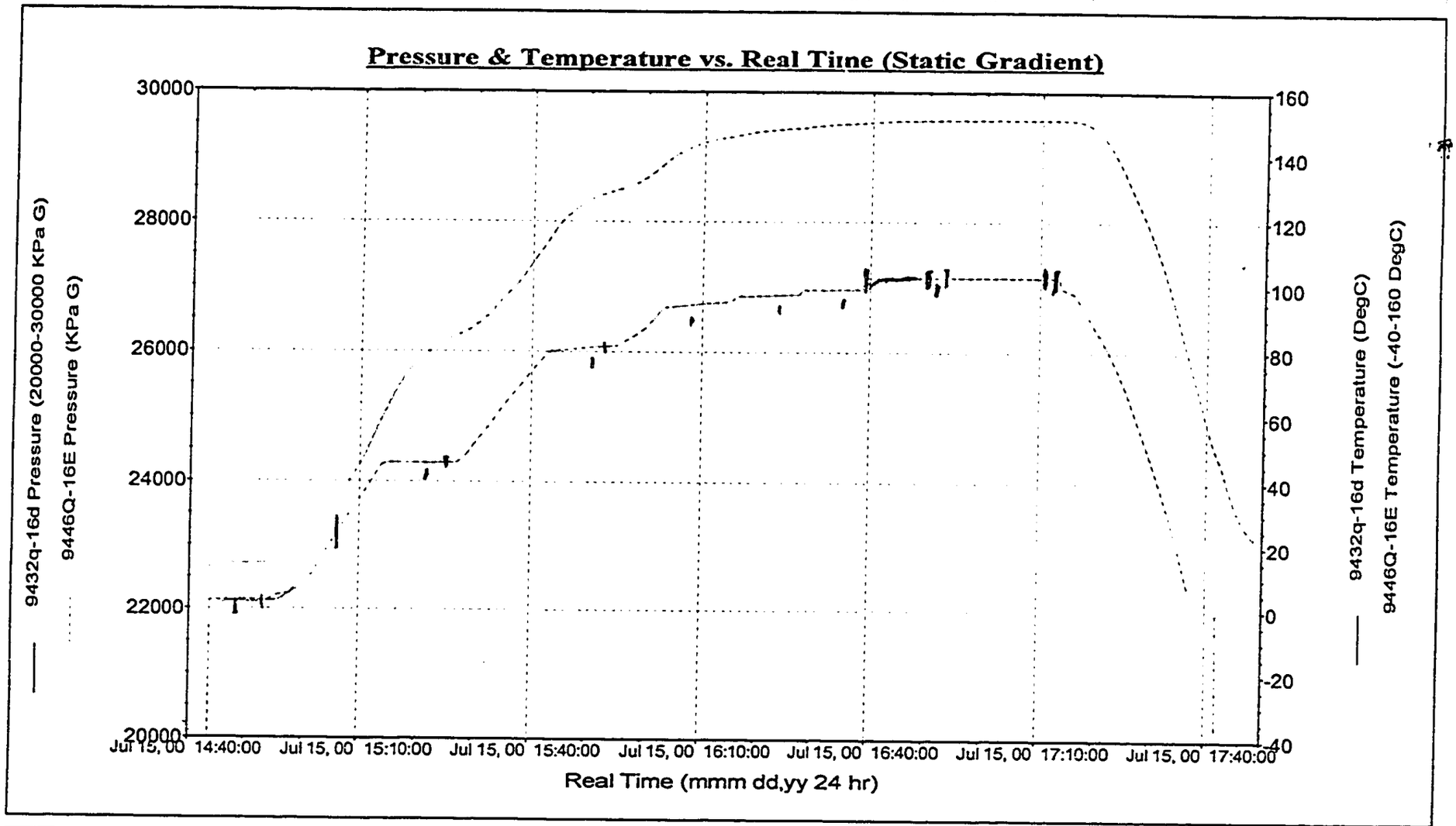
XP = 1.896700e+004 + (1.000000e-002) FP
XT = 5.034800e+004 + (1.000000e-002) FT

P_0 = 1.837109e+001+ (-4.032248e+000) XT + (-1.898848e-002) XT^2 + (1.428917e-005) XT^3 + (1.207189e-008) XT^4
P_1 = 4.280762e+001+ (-1.796351e-002) XT + (3.581352e-005) XT^2 + (2.217229e-008) XT^3 + (1.093314e-010) XT^4
P_2 = -1.411907e-003+ (4.448556e-006) XT + (-7.740793e-008) XT^2 + (-2.175871e-010) XT^3 + (-4.299675e-013) XT^4
P_3 = 6.251524e-007+ (5.425375e-009) XT + (1.202162e-010) XT^2 + (4.680793e-013) XT^3 + (7.567366e-016) XT^4
Pressure (psiA) = $P_0 + P_1 XP + P_2 XP^2 + P_3 XP^3$

T_0 = -9.988637e+000
T_1 = -8.388845e-001
T_2 = -1.061943e-003
T_3 = -8.520823e-007
Temperature (degC) = $T_0 + T_1 XT + T_2 XT^2 + T_3 XT^3$

Well

Client	Well Name	Well No.	Province
Chevron Canada Resources	Chevron Et Al Liard K-29	K-29	Alberta
Test Name	**Test Date**	**Field**	**Pool**
Static Gradient	Jul 15, 00	Ft. Liard	Nahanni

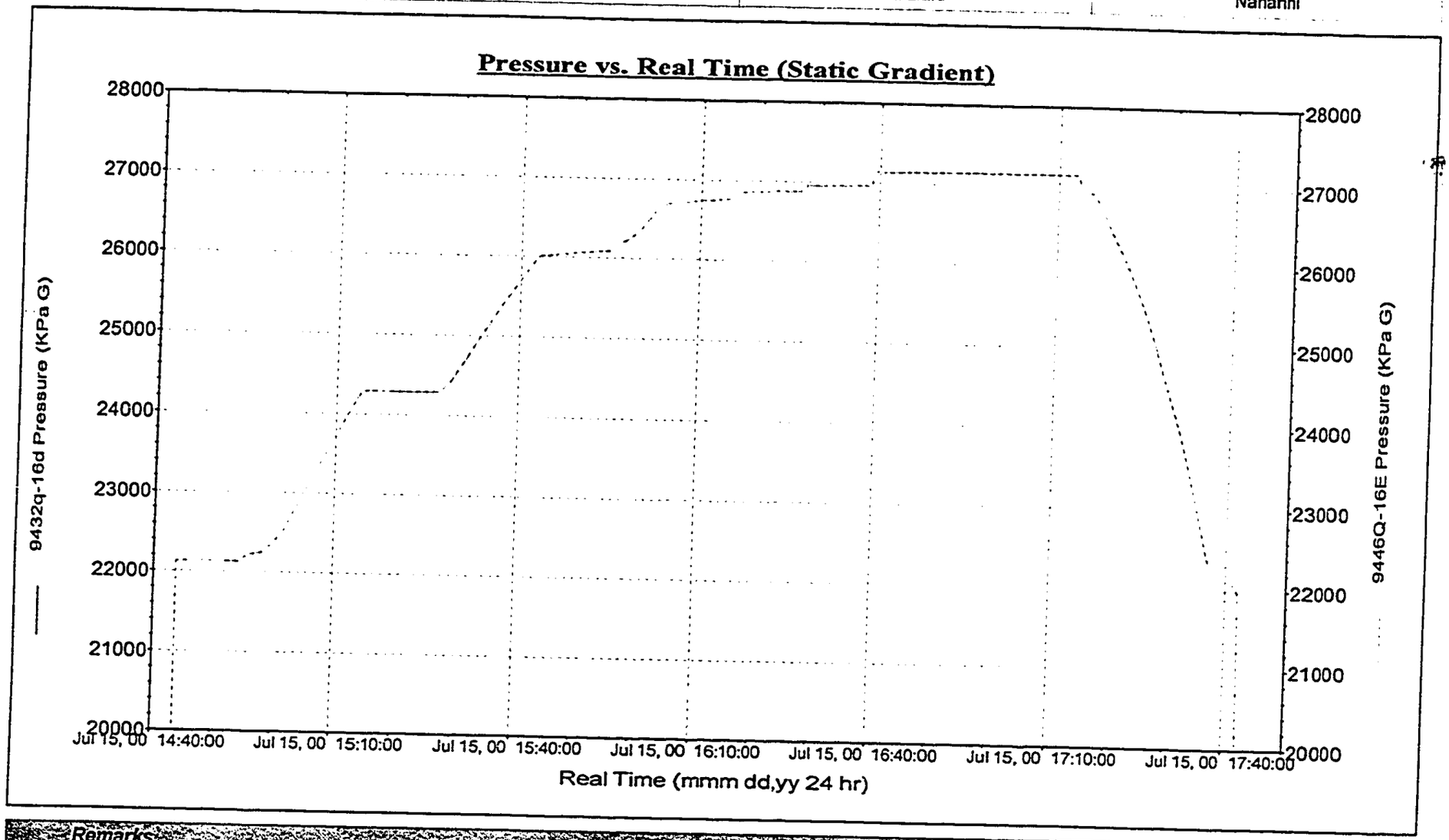


Remarks

9432Q-16E Bot. Rec. & 9446Q-16E Top Rec.

Well

Client	Well Name	Well No.	Province
Chevron Canada Resources	Chevron Et Al Liard K-29	K-29	Alberta
Test Name	**Test Date**	**Field**	**Pool**
Static Gradient	Jul 15, 00	Ft. Liard	Nahanni

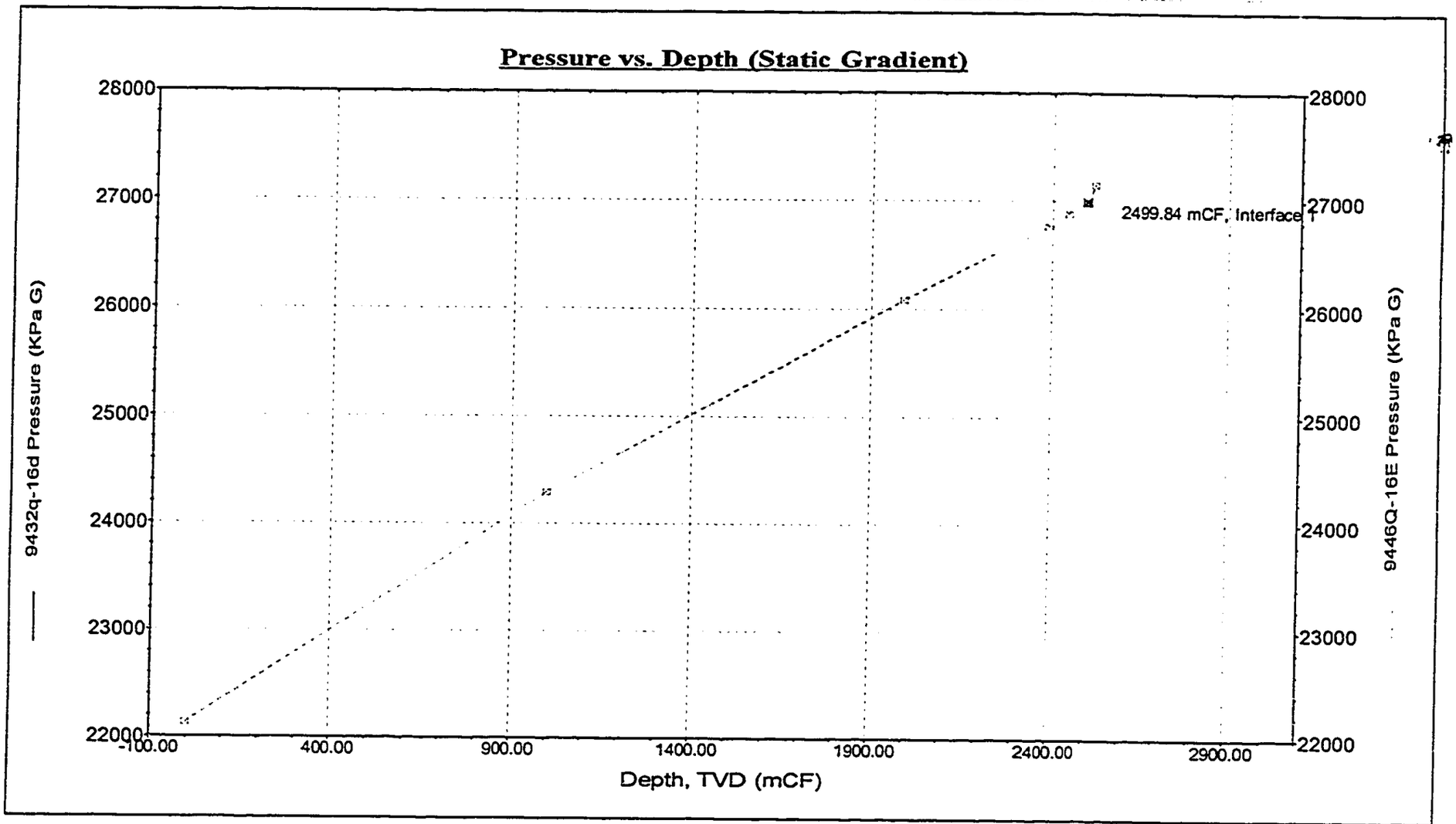


Remarks

9432Q-16E Bot. Rec. & 9446Q-16E Top Rec.

Well

Client	Well Name	Well No.	Province
Chevron Canada Resources	Chevron Et Al Liard K-29	K-29	Alberta
Test Name	**Test Date**	**Field**	**Pool**
Static Gradient	Jul 15, 00	Ft. Liard	Nahanni



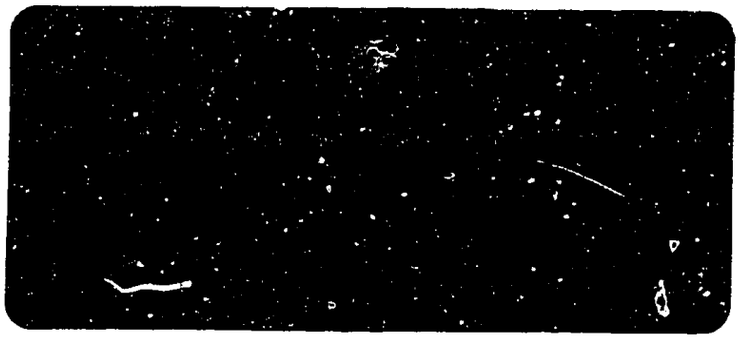
Remarks

9432Q-16E Bot. Rec. & 9446Q-16E Top Rec.

SUB-SURFACE PRESSURE REPORT (Sept. 13-15/99)

N.E.B. COPY

Sub-Surface Pressure Report



LEE TOOL

DIVISION OF SCHLUMBERGER CANADA LIMITED

7449 - 49 Avenue Crescent
Red Deer, Alberta T4P 1X6

Chevon Canada Resources

Flow & Build-Up

Chevron et al Liard K-29

K-29

Sep 13, 99 to Sep 15, 99

Service Company Contact Info			
Report Writer	Vio Tandara, 1-403-347-2524	Service Company	Lee Tool, Div. of Schlumberger
Operator	Dale Sallstrom, 1-780-778-2361	Job ID	k-29ext2
		Test Date	Sep 13, 99 to Sep 15, 99

Gauge: Lee Memory Recorder Model 3000s (Quartz)

Manufacturer: Lee Tool, Division of Schlumberger Canada Limited

Recorded Data

Chevon Canada Resources
Alberta, Canada

Sep 13, 99 to Sep 15, 99

Chevron et al Liard K-29 | **K-29** | **Fort Liard, Nahanni**

Data

9401Q-16E		9401Q-16E	9432Q-16E	9439Q-16E	R49902-16E	9401Q-16E	9432Q-16E	9439Q-16E	R49902-16E
Real Time (mmm dd,yy 24 hr)	Elapsed Time (H.HH)	Pressure (KPa G)	Pressure (KPa G)	Pressure (KPa G)	Pressure (KPa G)	Temperature (DegC)	Temperature (DegC)	Temperature (DegC)	Temperature (DegC)
Sep 13, 99 15:39:00	0.0000	7.7195	36.3758			25.29	24.85		
15:45:00	0.1000	5928.6249	5923.2376			26.60	25.84		
15:51:00	0.2000	6963.6120	6929.6562			21.14	21.24		
15:57:00	0.3000	12104.4607	12079.7647			26.11	25.08		
16:03:00	0.4000	17577.1388	17557.4863			46.98	44.49		
16:09:00	0.5000	23214.7825	23224.8343			76.27	72.64		
16:15:00	0.6000	27005.1035	27080.8730			108.44	104.49		
16:21:00	0.7000	27423.3538	27472.2647			126.66	123.89		
16:27:00	0.8000	27476.5205	27489.3309			133.19	131.57		
16:33:00	0.9000	27317.5115	27336.2828			135.64	134.66		
16:39:00	1.0000	27339.3939	27359.0235			136.55	135.83		
16:45:00	1.1000	27361.0186	27379.9177	-7.7671	-19.7775	137.08	136.49	21.85	20.68
16:51:00	1.2000	27538.8199	27555.9740	6557.8964	6571.8547	137.96	137.38	24.32	24.04
16:57:00	1.3000	27554.9490	27561.1706	6862.2051	6878.5130	137.66	137.15	17.48	17.56
17:03:00	1.4000	27315.3858	27332.5413	10434.8148	10404.1954	137.55	137.11	21.92	21.07
17:09:00	1.5000	27309.9846	27336.3232	15748.8846	15723.2126	137.85	137.39	41.76	39.83
17:15:00	1.6000	27562.0259	27578.9504	21919.3462	21895.3469	137.96	137.43	67.51	64.85
17:21:00	1.7000	27531.8572	27535.2037	27379.2029	27430.5753	137.72	137.23	104.31	100.85
17:27:00	1.8000	27337.8198	27353.4762	27196.8754	27201.0735	137.78	137.33	125.80	123.56
17:33:00	1.9000	27278.0696	27298.5497	27193.4198	27190.2682	138.00	137.55	133.56	132.33
17:39:00	2.0000	27455.9839	27482.4536	27385.5142	27393.3167	138.23	137.73	136.35	135.64
17:45:00	2.1000	27566.9626	27582.6595	27543.8966	27558.0517	138.20	137.67	137.23	136.76
17:51:00	2.2000	27516.8784	27525.9537	27526.6501	27538.2323	138.02	137.53	137.32	137.01
17:57:00	2.3000	27303.6729	27322.4012	27281.3475	27284.1193	138.19	137.74	137.55	137.32
18:03:00	2.4000	27417.0492	27443.3484	27369.5215	27380.4101	138.51	138.03	137.90	137.65
18:09:00	2.5000	27549.3677	27566.0738	27542.0690	27558.2194	138.60	138.07	138.03	137.76
18:15:00	2.6000	27565.0316	27573.8678	27563.4700	27579.7739	138.45	137.95	137.89	137.64
18:21:00	2.7000	27340.6288	27355.9000	27334.5845	27336.3666	138.47	138.02	137.88	137.68
18:27:00	2.8000	27364.0877	27389.1954	27323.4060	27330.7339	138.77	138.30	138.17	137.95
18:33:00	2.9000	27538.8783	27555.9890	27517.4762	27531.4133	138.93	138.41	138.35	138.10
18:39:00	3.0000	27568.7122	27580.5837	27563.6085	27579.6135	138.82	138.30	138.26	138.01
18:45:00	3.1000	27413.5152	27422.8689	27430.7954	27430.8703	138.73	138.27	138.14	137.94
18:51:00	3.2000	27331.6886	27354.5013	27299.7236	27303.8887	138.95	138.50	138.36	138.16
18:57:00	3.3000	27481.3518	27506.6460	27443.4443	27455.8961	139.18	138.68	138.60	138.36
19:03:00	3.4000	27566.1878	27580.9430	27553.8542	27568.3296	139.14	138.62	138.59	138.34
19:09:00	3.5000	27536.3881	27546.1041	27540.5474	27553.5475	138.98	138.49	138.42	138.20
19:15:00	3.6000	27331.6038	27343.3468	27315.2981	27317.9483	139.07	138.62	138.49	138.30
19:21:00	3.7000	27384.8307	27409.7821	27344.7109	27352.0465	139.31	138.84	138.73	138.52
19:27:00	3.8000	27538.3966	27555.7052	27515.9076	27529.2452	139.42	138.90	138.86	138.61
19:33:00	3.9000	27567.9668	27578.3878	27563.4795	27578.7345	139.29	138.78	138.75	138.51
19:39:00	4.0000	27423.5490	27431.9827	27440.3269	27440.2256	139.21	138.74	138.64	138.44
19:45:00	4.1000	27324.1492	27345.3522	27296.4892	27299.6865	139.37	138.91	138.79	138.60
19:51:00	4.2000	27429.8683	27454.9201	27388.2464	27398.0205	139.57	139.08	139.00	138.77
19:57:00	4.3000	27554.7306	27571.9417	27540.6842	27555.0548	139.58	139.06	139.03	138.79
20:03:00	4.4000	27556.1319	27562.4815	27560.5362	27575.0077	139.41	138.91	138.87	138.64
20:09:00	4.5000	27343.7096	27358.1766	27336.7836	27337.8084	139.40	138.94	138.82	138.64
20:15:00	4.6000	27337.1559	27361.9103	27299.6225	27304.1122	139.60	139.14	139.03	138.83
20:21:00	4.7000	27516.4877	27538.9758	27481.7232	27495.3271	139.74	139.23	139.18	138.95
20:27:00	4.8000	27569.8871	27581.5591	27564.1500	27578.6014	139.61	139.10	139.08	138.84

	9401Q-16E		9401Q-16E	9432Q-16E	9439Q-16E	R49902-16E	9401Q-16E	9432Q-16E	9439Q-16E	R49902-16E
	Real Time	apsed Time	Pressure	Pressure	Pressure	Pressure	Temperature	Temperature	Temperature	Temperature
	(mmm dd,yy 24 hr)	(H.HH)	(KPa G)	(KPa G)	(KPa G)	(KPa G)	(DegC)	(DegC)	(DegC)	(DegC)
	20:33:00	4.9000	27429.7459	27433.3816	27458.2234	27455.3583	139.48	139.01	138.91	138.72
	20:39:00	5.0000	27302.2824	27324.3032	27274.4047	27276.5594	139.62	139.17	139.05	138.87
	20:45:00	5.1000	27443.4481	27469.6826	27399.4560	27409.6592	139.82	139.33	139.26	139.04
	20:51:00	5.2000	27563.6260	27579.3214	27550.1380	27564.7969	139.78	139.25	139.24	139.00
	20:57:00	5.3000	27526.7600	27534.2140	27539.0641	27550.2240	139.57	139.09	139.03	138.82
	21:03:00	5.4000	27296.9397	27315.2624	27276.6293	27277.7702	139 64	139.19	139.07	138.89
	21:09:00	5.5000	27383.9834	27413.2211	27337.5750	27345.1942	139.86	139.38	139.30	139.09
	21:15:00	5.6000	27552.4418	27568.0286	27544.4760	27558.3963	139.88	139.36	139.35	139.11
	21:21:00	5.7000	27553.5423	27556.6769	27559.8909	27573.5670	139.68	139.18	139.14	138.92
	21:27:00	5.8000	27299.1006	27316.2585	27282.2903	27283.2675	139.69	139.23	139.12	138.94
	21:33:00	5.9000	27351.6136	27381.0412	27305.2328	27311.1144	139.91	139.43	139.34	139.14
	21:39:00	6.0000	27548.8399	27562.6837	27536.4310	27549.3841	139.97	139.44	139.43	139.19
	21:45:00	6.1000	27563.6037	27571.3000	27564.4004	27578.7936	139.77	139.26	139.23	139.01
	21:51:00	6.2000	27303.8959	27319.5493	27292.2460	27292.0739	139.73	139.28	139.17	138.99
	21:57:00	6.3000	27329.0711	27359.0362	27284.0196	27289.1578	139.96	139.48	139.39	139.20
	22:03:00	6.4000	27544.6622	27559.2949	27527.8084	27540.3874	140.04	139.52	139.50	139.26
	22:09:00	6.5000	27566.9265	27575.8111	27566.1305	27580.2346	139.85	139.34	139.32	139.09
	22:15:00	6.6000	27304.6366	27318.9435	27296.5197	27295.4926	139.78	139.32	139.22	139.05
	22:21:00	6.7000	27320.5417	27350.3106	27276.2347	27281.0301	140.01	139.54	139.45	139.25
	22:27:00	6.8000	27546.7725	27561.7021	27530.7356	27543.1516	140.10	139.58	139.56	139.33
	22:33:00	6.9000	27565.4953	27573.6816	27565.5966	27579.3313	139.90	139.39	139.37	139.14
	22:39:00	7.0000	27294.1366	27309.6428	27281.5345	27281.1930	139.85	139.39	139.29	139.11
	22:45:00	7.1000	27342.9987	27374.2104	27294.9983	27301.0439	140.10	139.62	139.53	139.34
	22:51:00	7.2000	27548.5200	27563.1469	27541.4381	27554.2967	140.15	139.63	139.62	139.38
	22:57:00	7.3000	27559.1882	27563.9481	27561.4969	27575.1765	139.93	139.43	139.41	139.19
	23:03:00	7.4000	27278.9507	27296.8707	27259.7391	27260.3218	139.95	139.49	139.38	139.21
	23:09:00	7.5000	27389.2787	27419.8141	27341.4713	27349.1263	140.20	139.72	139.64	139.43
	23:15:00	7.6000	27558.3418	27575.8045	27546.5994	27560.2476	140.19	139.66	139.66	139.43
	23:21:00	7.7000	27519.7609	27521.4182	27540.0110	27550.0540	139.96	139.48	139.43	139.23
	23:27:00	7.8000	27273.1748	27294.1606	27247.5660	27248.6131	140.08	139.63	139.52	139.35
	23:33:00	7.9000	27467.1535	27493.7135	27431.0991	27441.7424	140.32	139.82	139.77	139.55
	23:39:00	8.0000	27571.2388	27583.8083	27564.6062	27578.0170	140.22	139.69	139.69	139.46
	23:45:00	8.1000	27406.8691	27401.7428	27449.0245	27440.7547	140.04	139.57	139.48	139.30
	23:51:00	8.2000	27307.1010	27335 6790	27267.3974	27270.6339	140.27	139.80	139.70	139.52
	23:57:00	8.3000	27543.3346	27559.2695	27521.2699	27533.1969	140.41	139.89	139.87	139.64
Sep 14, 99	00:03:00	8.4000	27566.9170	27575.7550	27566.4088	27579.8926	140.21	139.70	139.68	139.46
	00:09:00	8.5000	27295.1219	27311.0191	27279.6442	27279.5783	140.18	139.73	139.62	139.45
	00:15:00	8.6000	27400.4953	27430.5700	27357.4752	27364.5575	140.45	139.97	139.89	139.68
	00:21:00	8.7000	27563.8266	27579.1893	27549.9440	27562.0182	140.44	139.91	139.91	139.68
	00:27:00	8.8000	27514.8507	27525.9417	27522.3038	27531.2844	140.20	139.72	139.67	139.47
	00:33:00	8.9000	27285.4883	27310.1784	27254.1188	27255.3764	140.37	139.91	139.81	139.63
	00:39:00	9.0000	27517.1510	27544.5844	27481.3620	27493.4047	140.57	140.06	140.02	139.80
	00:45:00	9.1000	27571.4779	27581.6122	27568.5938	27581.9614	140.40	139.89	139.88	139.65
	00:51:00	9.2000	27312.7635	27324.6143	27307.3778	27305.1855	140.30	139.85	139.74	139.57
	00:57:00	9.3000	27376.7953	27407.3146	27332.8308	27338.7587	140.57	140.09	140.01	139.81
	01:03:00	9.4000	27559.9081	27576.3532	27546.4020	27559.1740	140.58	140.06	140.06	139.82
	01:09:00	9.5000	27517.7370	27522.9142	27534.5823	27543.7647	140.34	139.86	139.80	139.60
	01:15:00	9.6000	27282.5467	27307.0150	27250.5929	27252.1420	140.50	140.04	139.93	139.76
	01:21:00	9.7000	27521.2770	27546.9941	27487.4324	27499.3794	140.70	140.19	140.15	139.92
	01:27:00	9.8000	27571.1814	27580.2394	27568.7067	27582.1949	140.51	140.00	139.99	139.76
	01:33:00	9.9000	27303.1470	27317.2881	27291.2793	27290.2965	140.44	139.98	139.86	139.70
	01:39:00	10.0000	27402.9889	27433.2130	27360.5554	27367.6295	140.71	140.23	140.15	139.95
	01:45:00	10.1000	27566.6930	27581.6012	27555.6353	27567.2563	140.69	140.16	140.16	139.93
	01:51:00	10.2000	27517.1808	27514.9811	27508.8861	27519.9986	140.45	139.98	139.91	139.72
	01:57:00	10.3000	27301.8969	27330.5640	27264.6534	27267.3817	140.66	140.20	140.09	139.91
	02:03:00	10.4000	27545.0173	27561.6221	27523.9857	27534.7602	140.81	140.30	140.27	140.04
	02:09:00	10.5000	27566.4083	27574.3746	27566.0822	27579.4681	140.59	140.09	140.06	139.85
	02:15:00	10.6000	27287.4749	27303.8086	27268.3333	27268.0590	140.59	140.14	140.03	139.86

9401Q-16E		9401Q-16E	9432Q-16E	9439Q-16E	R49902-16E	9401Q-16E	9432Q-16E	9439Q-16E	R49902-16E
Real Time	apsed Time	Pressure	Pressure	Pressure	Pressure	Temperature	Temperature	Temperature	Temperature
(mmm dd,yy 24 hr)	(H.HH)	(KPa G)	(KPa G)	(KPa G)	(KPa G)	(DegC)	(DegC)	(DegC)	(DegC)
02:21:00	10.7000	27445.7581	27473.1682	27407.9179	27416.8510	140.85	140.36	140.29	140.08
02:27:00	10.8000	27571.3604	27584.2001	27365.2080	27578.2173	140.76	140.24	140.24	140.01
02:33:00	10.9000	27402.8833	27394.8757	27440.4527	27431.5420	140.57	140.10	140.01	139.84
02:39:00	11.0000	27337.5079	27368.9898	27294.7462	27298.7577	140.81	140.35	140.25	140.07
02:45:00	11.1000	27554.0680	27570.4641	27544.2843	27556.1086	140.90	140.38	140.37	140.14
02:51:00	11.2000	27553.8941	27552.8387	27559.0100	27571.4521	140.66	140.17	140.13	139.92
02:57:00	11.3000	27282.1404	27304.1911	27255.1650	27255.9706	140.75	140.30	140.19	140.02
03:03:00	11.4000	27507.8722	27536.6303	27473.8510	27484.9204	140.99	140.48	140.43	140.21
03:09:00	11.5000	27572.3294	27582.5520	27569.0910	27582.1744	140.81	140.30	140.29	140.07
03:15:00	11.6000	27306.4481	27319.8003	27293.9131	27292.3642	140.72	140.27	140.16	140.00
03:21:00	11.7000	27419.2829	27449.0433	27379.3858	27386.4269	141.00	140.52	140.44	140.24
03:27:00	11.8000	27569.8234	27583.5871	27561.7990	27574.4239	140.95	140.43	140.43	140.20
03:33:00	11.9000	27455.9553	27436.3362	27505.4736	27500.8834	140.73	140.27	140.18	140.00
03:39:00	12.0000	27338.3933	27369.8669	27296.9983	27300.5860	140.97	140.51	140.41	140.23
03:45:00	12.1000	27552.6739	27570.2147	27541.3516	27552.5696	141.07	140.55	140.54	140.31
03:51:00	12.2000	27555.8542	27555.5261	27559.9205	27572.3296	140.83	140.33	140.30	140.10
03:57:00	12.3000	27287.6114	27311.0723	27259.2343	27259.8623	140.93	140.48	140.37	140.19
04:03:00	12.4000	27514.1746	27543.9634	27481.7037	27493.0136	141.15	140.64	140.60	140.38
04:09:00	12.5000	27572.6554	27581.7147	27569.3685	27582.3905	140.97	140.45	140.44	140.22
04:15:00	12.6000	27304.4866	27318.7774	27290.0186	27289.1544	140.90	140.45	140.34	140.17
04:21:00	12.7000	27432.3036	27461.4264	27395.0511	27402.7431	141.16	140.68	140.61	140.40
04:27:00	12.8000	27570.8743	27583.8256	27564.5291	27576.9228	141.10	140.58	140.58	140.35
04:33:00	12.9000	27422.8757	27408.9724	27461.6993	27452.8810	140.90	140.44	140.35	140.17
04:39:00	13.0000	27360.2302	27391.3561	27319.6051	27323.9036	141.15	140.68	140.59	140.40
04:45:00	13.1000	27558.5676	27575.7074	27542.9607	27553.2510	141.22	140.69	140.69	140.46
04:51:00	13.2000	27542.8603	27537.5226	27554.5509	27565.1689	140.98	140.49	140.45	140.25
04:57:00	13.3000	27304.2598	27332.2078	27270.6995	27272.3577	141.12	140.66	140.56	140.38
05:03:00	13.4000	27534.3087	27554.7066	27508.1279	27518.2673	141.30	140.79	140.76	140.54
05:09:00	13.5000	27570.0878	27578.1288	27568.9574	27581.6911	141.11	140.59	140.58	140.36
05:15:00	13.6000	27294.7310	27313.0068	27274.3492	27273.4183	141.10	140.65	140.54	140.37
05:21:00	13.7000	27475.9181	27505.0184	27446.1066	27455.5077	141.35	140.86	140.80	140.59
05:27:00	13.8000	27573.0799	27584.6022	27568.7425	27581.4493	141.22	140.70	140.70	140.47
05:33:00	13.9000	27327.6625	27337.5882	27321.4870	27318.9713	141.10	140.64	140.54	140.37
05:39:00	14.0000	27420.8900	27450.1033	27383.3626	27389.9134	141.36	140.89	140.81	140.61
05:45:00	14.1000	27570.5845	27583.7311	27564.0332	27576.0275	141.33	140.80	140.81	140.58
05:51:00	14.2000	27440.7794	27422.2221	27481.9302	27471.3883	141.12	140.65	140.56	140.39
05:57:00	14.3000	27371.4803	27401.8810	27332.5326	27336.5825	141.36	140.90	140.80	140.62
06:03:00	14.4000	27563.5223	27579.1411	27550.7285	27559.8106	141.43	140.90	140.90	140.67
06:09:00	14.5000	27530.9834	27528.9419	27547.6813	27556.8847	141.18	140.70	140.64	140.45
06:15:00	14.6000	27322.1221	27351.3005	27287.2070	27289.4337	141.34	140.89	140.78	140.61
06:21:00	14.7000	27545.7537	27567.5366	27522.5998	27532.2319	141.51	140.99	140.97	140.75
06:27:00	14.8000	27568.6136	27576.3466	27568.1075	27580.8366	141.30	140.79	140.77	140.56
06:33:00	14.9000	27299.2330	27321.3901	27272.8109	27272.8258	141.33	140.88	140.77	140.60
06:39:00	15.0000	27500.7348	27530.3259	27472.2154	27482.6956	141.56	141.06	141.01	140.79
06:45:00	15.1000	27574.2290	27585.0504	27570.3689	27583.3739	141.41	140.89	140.88	140.66
06:51:00	15.2000	27324.5358	27334.5725	27314.5342	27312.3302	141.32	140.86	140.76	140.59
06:57:00	15.3000	27444.0027	27472.2137	27409.7289	27417.9738	141.59	141.11	141.03	140.83
07:03:00	15.4000	27572.2400	27584.7296	27567.1778	27579.1626	141.51	140.99	140.99	140.77
07:09:00	15.5000	27392.7484	27384.1289	27414.3619	27407.4433	141.33	140.87	140.77	140.61
07:15:00	15.6000	27392.8392	27423.5331	27355.9104	27360.2806	141.59	141.12	141.03	140.84
07:21:00	15.7000	27570.1923	27583.3411	27564.4209	27575.8832	141.61	141.09	141.09	140.86
07:27:00	15.8000	27521.2896	27532.8885	27526.9705	27535.1148	141.37	140.89	140.83	140.65
07:33:00	15.9000	27341.7286	27375.4860	27302.7121	27305.9988	141.58	141.12	141.02	140.84
07:39:00	16.0000	27561.2134	27577.9570	27542.2688	27551.4722	141.69	141.17	141.16	140.94
07:45:00	16.1000	27561.5027	27560.0369	27564.2933	27576.4561	141.46	140.96	140.93	140.72
07:51:00	16.2000	27317.5965	27346.7280	27284.4198	27285.6864	141.58	141.13	141.02	140.85
07:57:00	16.3000	27538.6219	27565.6485	27513.8556	27523.6235	141.76	141.25	141.22	141.00
08:03:00	16.4000	27571.6020	27579.1312	27570.2770	27582.6885	141.55	141.04	141.02	140.81

9401Q-16E		9401Q-16E	9432Q-16E	9439Q-16E	R49902-16E	9401Q-16E	9432Q-16E	9439Q-16E	R49902-16E
Real Time (mmm dd,yy 24 hr)	Elapsed Time (H.HH)	Pressure (KPa G)	Pressure (KPa G)	Pressure (KPa G)	Pressure (KPa G)	Temperature (DegC)	Temperature (DegC)	Temperature (DegC)	Temperature (DegC)
08:09:00	16.5000	27302.5154	27325.5879	27275.9864	27276.2499	141.58	141.13	141.02	140.85
08:15:00	16.6000	27509.6636	27538.1152	27485.3726	27495.4284	141.81	141.31	141.26	141.05
08:21:00	16.7000	27575.3890	27585.5905	27571.3126	27584.1542	141.64	141.12	141.11	140.89
08:27:00	16.8000	27309.0527	27324.5434	27293.4276	27292.1160	141.58	141.13	141.02	140.85
08:33:00	16.9000	27474.6263	27502.5496	27446.1484	27455.0574	141.84	141.35	141.29	141.08
08:39:00	17.0000	27574.5384	27586.4845	27570.3808	27583.0153	141.72	141.20	141.19	140.97
08:45:00	17.1000	27337.8218	27343.7424	27334.1937	27330.3810	141.58	141.13	141.02	140.86
08:51:00	17.2000	27439.1588	27470.6521	27403.3836	27410.7188	141.86	141.38	141.31	141.11
08:57:00	17.3000	27572.6922	27585.0269	27567.6734	27579.8352	141.79	141.27	141.27	141.05
09:03:00	17.4000	27390.1286	27379.0651	27412.2450	27404.3652	141.60	141.14	141.04	140.88
09:09:00	17.5000	27411.7245	27444.2685	27377.8287	27382.9660	141.88	141.41	141.32	141.13
09:15:00	17.6000	27570.9230	27583.5822	27566.0366	27577.7221	141.85	141.33	141.33	141.10
09:21:00	17.7000	27448.0209	27421.8774	27488.1296	27477.6862	141.63	141.17	141.08	140.91
09:27:00	17.8000	27392.1969	27422.0804	27356.0867	27360.0980	141.89	141.42	141.33	141.15
09:33:00	17.9000	27570.0297	27582.6901	27565.3727	27576.2749	141.91	141.38	141.38	141.16
09:39:00	18.0000	27521.5710	27476.7160	27514.5580	27523.1607	141.66	141.19	141.11	140.94
09:45:00	18.1000	27384.5503	27415.8189	27346.4649	27350.2189	141.92	141.46	141.36	141.18
09:51:00	18.2000	27568.8399	27581.8181	27564.3487	27575.2545	141.94	141.41	141.41	141.19
09:57:00	18.3000	27519.5561	27519.7485	27519.6629	27527.8796	141.69	141.21	141.14	140.97
10:03:00	18.4000	27378.9696	27412.5049	27338.2410	27342.5243	141.96	141.49	141.39	141.21
10:09:00	18.5000	27567.9694	27582.1410	27563.1277	27574.2574	141.96	141.44	141.44	141.22
10:15:00	18.6000	27521.1912	27495.7662	27515.2259	27524.5464	141.71	141.24	141.16	140.99
10:21:00	18.7000	27387.9787	27420.1371	27350.9163	27354.6634	142.00	141.53	141.44	141.25
10:27:00	18.8000	27569.6043	27583.4447	27563.3940	27574.5178	141.98	141.45	141.45	141.23
10:33:00	18.9000	27508.9815	27455.7718	27512.3590	27520.3128	141.74	141.27	141.18	141.02
10:39:00	19.0000	27553.5251	27577.0307	27477.2862	27493.6170	142.16	141.65	141.60	141.38
10:45:00	19.1000	27573.6759	27586.3212	27568.5847	27579.9280	141.92	141.40	141.37	141.17
10:51:00	19.2000	27263.3678	27299.8014	27226.6989	27227.5691	141.98	141.53	141.39	141.23
10:57:00	19.3000	27569.5574	27581.5360	27567.1517	27578.2089	142.06	141.54	141.52	141.30
11:03:00	19.4000	27472.7795	27403.5501	27499.2173	27503.8848	141.77	141.31	141.19	141.03
11:09:00	19.5000	27567.8821	27579.1162	27556.6004	27564.5807	142.16	141.64	141.60	141.38
11:15:00	19.6000	27574.2155	27586.0279	27569.2450	27581.3365	141.90	141.38	141.35	141.15
11:21:00	19.7000	27278.7178	27320.8047	27236.3118	27238.5191	142.02	141.57	141.43	141.27
11:27:00	19.8000	27569.1398	27582.1868	27564.7416	27575.6624	142.06	141.54	141.52	141.30
11:33:00	19.9000	27365.2306	27332.4944	27415.7803	27397.3635	141.80	141.35	141.21	141.06
11:39:00	20.0000	27570.1213	27580.7022	27568.4688	27577.9870	142.18	141.66	141.62	141.40
11:45:00	20.1000	27573.7177	27583.0224	27569.9157	27581.8755	141.90	141.38	141.34	141.14
11:51:00	20.2000	27338.1171	27378.4645	27298.1520	27301.1977	142.14	141.67	141.54	141.36
11:57:00	20.3000	27569.3318	27583.2357	27565.3852	27576.8448	142.05	141.53	141.51	141.30
12:03:00	20.4000	27263.7354	27273.7997	27251.5809	27247.1403	141.88	141.44	141.29	141.14
12:09:00	20.5000	27569.8302	27579.9090	27568.4697	27578.7850	142.18	141.66	141.64	141.41
12:15:00	20.6000	27569.5866	27575.4195	27567.3573	27579.7127	141.89	141.38	141.33	141.13
12:21:00	20.7000	27374.5295	27420.8755	27332.0819	27336.3833	142.20	141.72	141.61	141.42
12:27:00	20.8000	27571.4361	27584.5231	27566.6026	27577.9775	142.06	141.53	141.52	141.30
12:33:00	20.9000	27251.2186	27266.2730	27231.7647	27228.8889	141.94	141.49	141.35	141.20
12:39:00	21.0000	27570.3953	27580.6066	27568.8479	27579.4802	142.20	141.67	141.65	141.43
12:45:00	21.1000	27567.0882	27570.4417	27566.7157	27578.2769	141.90	141.40	141.34	141.15
12:51:00	21.2000	27383.4848	27436.0639	27340.4717	27344.9408	142.23	141.75	141.65	141.45
12:57:00	21.3000	27571.9374	27585.0757	27567.3839	27578.9839	142.08	141.55	141.54	141.32
13:03:00	21.4000	27250.3594	27266.4468	27230.4533	27227.5685	141.97	141.53	141.38	141.23
13:09:00	21.5000	27570.5242	27580.5099	27569.3518	27580.0205	142.22	141.69	141.68	141.45
13:15:00	21.6000	27567.7830	27571.1974	27566.7726	27578.3888	141.93	141.42	141.37	141.18
13:21:00	21.7000	27373.9968	27419.6409	27329.7073	27334.8706	142.25	141.77	141.67	141.47
13:27:00	21.8000	27571.6889	27584.9775	27567.2181	27578.6790	142.11	141.59	141.58	141.36
13:33:00	21.9000	27255.6194	27269.0076	27238.8658	27235.3341	141.98	141.54	141.39	141.25
13:39:00	22.0000	27572.4295	27582.4585	27571.5061	27581.6918	142.26	141.73	141.72	141.50
13:45:00	22.1000	27570.9199	27577.6106	27568.8240	27579.9448	141.98	141.47	141.42	141.23
13:51:00	22.2000	27355.7639	27395.3940	27320.7040	27321.4806	142.26	141.79	141.68	141.49

9401Q-16E		9401Q-16E	9432Q-16E	9439Q-16E	R49902-16E	9401Q-16E	9432Q-16E	9439Q-16E	R49902-16E
Real Time (mmm dd,yy 24 hr)	Elapsed Time (H.HH)	Pressure (KPa G)	Pressure (KPa G)	Pressure (KPa G)	Pressure (KPa G)	Temperature (DegC)	Temperature (DegC)	Temperature (DegC)	Temperature (DegC)
13:57:00	22.3000	27571.7104	27585.2196	27568.9052	27580.3808	142.19	141.66	141.66	141.43
14:03:00	22.4000	27518.5366	27450.7286	27509.8032	27520.2413	141.98	141.51	141.41	141.25
14:09:00	22.5000	27572.5241	27582.8665	27566.6818	27574.4418	142.41	141.89	141.86	141.63
14:15:00	22.6000	26854.0849	27009.3491	26700.3376	26725.7941	142.21	141.65	141.69	141.45
14:21:00	22.7000	24312.0169	24167.7628	24208.1683	24157.5161	144.99	144.25	144.69	144.18
14:27:00	22.8000	22925.3497	23060.8755	22521.4580	22440.9609	148.46	147.70	148.32	147.67
14:33:00	22.9000	23847.7410	23826.7647	23642.9604	23579.9065	150.50	149.97	150.15	149.72
14:39:00	23.0000	24101.3966	24272.5010	23756.8450	23717.9485	151.70	151.24	151.24	150.94
14:45:00	23.1000	23437.2845	23633.4595	23006.9181	-68474.1903	151.72	151.36	151.08	150.89
14:51:00	23.2000	21884.0926	22192.1717	21308.3451	-68333.5934	151.27	151.07	150.42	150.35
14:57:00	23.3000	21214.1800	21381.2714	20703.7647	-68151.4454	150.91	150.88	149.67	149.65
15:03:00	23.4000	20896.0705	21120.8488	20304.4566	-68066.9065	150.84	150.88	149.38	149.32
15:09:00	23.5000	20586.4030	20717.9697	20027.3051	-67968.9569	150.92	150.99	148.98	148.94
15:15:00	23.6000	20573.6939	20745.1733	8489.9180	-67924.0681	150.84	150.85	217.43	148.76
15:21:00	23.7000	20463.5524	20646.8764	8368.1633	-14683.3970	150.86	150.82	217.43	148.63
15:27:00	23.8000	19916.8442	20077.6081	7562.1752	-67779.2152	150.18	150.65	217.43	148.19
15:33:00	23.9000	19462.6301	19687.5573	6876.8946	18780.2365	149.70	150.47	217.43	147.82
15:39:00	24.0000	18790.7211	18985.9977	6021.7362	18092.2243	149.25	149.86	217.43	147.10
15:45:00	24.1000	18530.7620	18733.4109	5633.8001	17801.8545	148.86	149.89	217.43	146.56
15:51:00	24.2000	18090.9394	18277.5226	4993.5292	-67230.6136	148.32	150.28	217.43	145.97
15:57:00	24.3000	18110.5910	18348.3810	16809.5436	-67130.3046	147.98	150.01	150.82	145.56
16:03:00	24.4000	18043.4801	18260.1095	4904.6320	-68228.6191	147.92	149.75	217.43	149.95
16:09:00	24.5000	17853.5686	17901.0588	4651.2150	-67069.3842	147.84	151.54	217.43	145.31
16:15:00	24.6000	17834.8292	17606.8307	4625.6487	17057.4855	147.67	154.63	217.43	145.14
16:21:00	24.7000	17640.3456	7148.8938	4391.1104	16892.2522	147.53	149.94	217.43	144.90
16:27:00	24.8000	17674.0973	-335.4288	4423.1081	16842.7279	147.34	159.93	217.43	144.68
16:33:00	24.9000	17755.5805	-65704.6972	4472.7845	16957.4290	147.24	171.30	217.43	144.58
16:39:00	25.0000	17644.6817	-696.7273	4348.1593	16891.2089	147.09	223.34	217.43	143.95
16:45:00	25.1000	17801.0742	-5025.0371	4538.3013	16850.3324	147.21	193.61	217.43	147.84
16:51:00	25.2000	17804.2246	-52765.6489	4555.1843	17147.8319	147.33	107.95	217.43	144.62
16:57:00	25.3000	17674.2016	-90173.1863	4389.1526	16887.1260	147.26	223.34	217.43	144.56
17:03:00	25.4000	17642.4248	-90173.1863	4358.3773	16871.0907	147.18	223.34	217.43	144.46
17:09:00	25.5000	17765.4544	-90173.1863	4500.3132	16985.4854	147.27	223.34	217.43	144.48
17:15:00	25.6000	17688.0897	-90173.1863	4413.2581	16915.4303	147.21	223.34	217.43	144.47
17:21:00	25.7000	17805.3010	-90173.1863	4555.9184	17035.7496	147.20	223.34	217.43	144.44
17:27:00	25.8000	17897.7645	-90173.1863	4661.0010	17137.8492	147.37	223.34	217.43	144.66
17:33:00	25.9000	17849.6536	-90173.1863	4616.0459	17075.9260	147.38	223.34	217.43	144.59
17:39:00	26.0000	17836.4055	-90173.1863	4598.1243	17066.5662	147.41	223.34	217.43	144.57
17:45:00	26.1000	17878.0982	-90173.1863	4642.3464	17092.2666	147.46	223.34	217.43	144.69
17:51:00	26.2000	17833.2898	-90173.1863	4581.9762	17053.5903	147.41	223.34	217.43	144.57
17:57:00	26.3000	17807.2460	-90173.1863	4557.6923	17124.1995	147.39	223.34	217.43	144.45
18:03:00	26.4000	17856.8400	-90173.1863	4615.9236	17125.7052	147.41	223.34	217.43	144.51
18:09:00	26.5000	17999.4758	-90173.1863	4787.9014	17220.6505	147.55	223.34	217.43	144.59
18:15:00	26.6000	17989.7085	-53032.3493	4771.8794	17203.2603	147.61	-181.72	217.43	144.68
18:21:00	26.7000	18036.4942	-90173.1863	4836.3323	17253.7782	147.64	223.34	217.43	144.71
18:27:00	26.8000	18022.9814	-90173.1863	4826.6708	17468.5226	147.69	223.34	217.43	144.75
18:33:00	26.9000	18186.2956	-90173.1863	5039.5636	17414.1260	147.74	223.34	217.43	144.86
18:39:00	27.0000	18220.0577	-54144.2072	-98355.7652	-67679.8878	147.70	-199.67	217.43	147.79
18:45:00	27.1000	18236.4427	-90173.1863	-98355.7652	-108116.0129	147.87	223.34	217.43	229.78
18:51:00	27.2000	18302.7242	-90173.1863	-98355.7652	-108116.0129	148.02	223.34	217.43	229.78
18:57:00	27.3000	18281.3963	-90173.1863	-98355.7652	-108116.0129	148.09	223.34	217.43	229.78
19:03:00	27.4000	18283.2678	-90173.1863	-98355.7652	17541.3435	148.11	223.34	217.43	145.08
19:09:00	27.5000	18304.0630	-90173.1863	-98355.7652	17515.5393	148.16	223.34	217.43	145.13
19:15:00	27.6000	18277.0955	-90173.1863	-98355.7652	-67025.1335	148.17	223.34	217.43	145.12
19:21:00	27.7000	18298.1844	-90173.1863	-98355.7652	1626.4836	148.22	223.34	217.43	229.78
19:27:00	27.8000	18325.6606	-90173.1863	-98355.7652	1649.0074	148.26	223.34	217.43	229.78
19:33:00	27.9000	18376.2826	-90173.1863	-98355.7652	-108116.0129	148.33	223.34	217.43	229.78
19:39:00	28.0000	18308.1966	-90173.1863	-98355.7652	19596.5122	148.35	223.34	217.43	145.21

	9401Q-16E		9401Q-16E	9432Q-16E	9439Q-16E	R49902-16E	9401Q-16E	9432Q-16E	9439Q-16E	R49902-16E
	Real Time	apsed Time	Pressure	Pressure	Pressure	Pressure	Temperature	Temperature	Temperature	Temperature
	(mmm dd,yy 24 hr)	(H.HH)	(KPa G)	(KPa G)	(KPa G)	(KPa G)	(DegC)	(DegC)	(DegC)	(DegC)
	19:45:00	28.1000	18350.1792	102448.0433	-98355.7652	-67033.2488	148.33	-199.67	217.43	145.16
	19:51:00	28.2000	18356.2040	-90173.1863	-98355.7652	-67045.0073	148.34	223.34	217.43	145.21
	19:57:00	28.3000	18325.2212	-90173.1863	-98355.7652		148.36	223.34	217.43	
	20:03:00	28.4000	18249.5725	-90173.1863	-98355.7652		148.26	223.34	217.43	
	20:09:00	28.5000	18257.3179	-90173.1863	-98355.7652		148.15	223.34	217.43	
	20:15:00	28.6000	18256.8402	-90173.1863	-98355.7652		148.00	223.34	217.43	
	20:21:00	28.7000	18162.4956	-90173.1863	-98355.7652		147.87	223.34	217.43	
	20:27:00	28.8000	18017.5022	-90173.1863	-98355.7652		147.79	223.34	217.43	
	20:33:00	28.9000	20869.5043	-90173.1863			148.40	223.34		
	20:39:00	29.0000	21808.2167	-90173.1863			150.09	223.34		
	20:45:00	29.1000	22347.0849	-90173.1863			150.71	223.34		
	20:51:00	29.2000	22624.9244				150.87			
	20:57:00	29.3000	22743.5957				150.94			
	21:03:00	29.4000	22769.9347				150.95			
	21:09:00	29.5000	22795.7534				150.99			
	21:15:00	29.6000	22806.6339				151.02			
	21:21:00	29.7000	27540.5342				149.00			
	21:27:00	29.8000	27541.1407				148.98			
	21:33:00	29.9000	27541.7455				148.97			
	21:39:00	30.0000	27542.3026				148.96			
	21:45:00	30.1000	27542.9070				148.94			
	21:51:00	30.2000	27543.5113				148.93			
	21:57:00	30.3000	27543.9179				148.92			
	22:03:00	30.4000	27544.5693				148.91			
	22:09:00	30.5000	27545.0246				148.90			
	22:15:00	30.6000	27545.5274				148.89			
	22:21:00	30.7000	27546.0790				148.88			
	22:27:00	30.8000	27546.4835				148.87			
	22:33:00	30.9000	27547.0363				148.86			
	22:39:00	31.0000	27547.4378				148.85			
	22:45:00	31.1000	27547.8393				148.84			
	22:51:00	31.2000	27548.2910				148.83			
	22:57:00	31.3000	27548.7427				148.82			
	23:03:00	31.4000	27549.1466				148.81			
	23:09:00	31.5000	27549.3518				148.80			
	23:15:00	31.6000	27549.8019				148.80			
	23:21:00	31.7000	27550.2518				148.79			
	23:27:00	31.8000	27550.5548				148.78			
	23:33:00	31.9000	27550.9556				148.77			
	23:39:00	32.0000	27551.2572				148.77			
	23:45:00	32.1000	27551.6579				148.76			
	23:51:00	32.2000	27551.9104				148.75			
	23:57:00	32.3000	27552.2118				148.75			
Sep 15, 99	00:03:00	32.4000	27552.6110				148.74			
	00:09:00	32.5000	27552.8131				148.73			
	00:15:00	32.6000	27551.6191				148.75			
	00:21:00	32.7000	27553.2096				148.77			
	00:27:00	32.8000	27553.8526				148.77			
	00:33:00	32.9000	27552.9583				148.78			
	00:39:00	33.0000	27554.1180				148.79			
	00:45:00	33.1000	27554.8192				148.78			
	00:51:00	33.2000	27555.1850				148.76			
	00:57:00	33.3000	27555.4084				148.73			
	01:03:00	33.4000	27555.3767				148.72			
	01:09:00	33.5000	27555.6456				148.69			
	01:15:00	33.6000	27555.8138				148.67			
	01:21:00	33.7000	27555.9747				148.66			
	01:27:00	33.8000	27556.1296				148.65			

9401Q-16E		9401Q-16E	9432Q-16E	9439Q-16E	R49902-16E	9401Q-16E	9432Q-16E	9439Q-16E	R49902-16E
Real Time (mmm dd,yy 24 hr)	apsed Time (H.H:H)	Pressure (KPa G)	Pressure (KPa G)	Pressure (KPa G)	Pressure (KPa G)	Temperature (DegC)	Temperature (DegC)	Temperature (DegC)	Temperature (DegC)
01:33:00	33.9000	27550.4045				148.65			
01:39:00	34.0000	27555.1660				148.73			
01:45:00	34.1000	27556.6704				148.74			
01:51:00	34.2000	27557.3708				148.73			
01:57:00	34.3000	27557.5910				148.71			
02:03:00	34.4000	27557.8609				148.68			
02:09:00	34.5000	27557.9810				148.66			
02:15:00	34.6000	27558.0949				148.65			
02:21:00	34.7000	27556.0863				148.69			
02:27:00	34.8000	27557.6107				148.73			
02:33:00	34.9000	27558.6978				148.72			
02:39:00	35.0000	27559.1174				148.70			
02:45:00	35.1000	27559.1421				148.68			
02:51:00	35.2000	27559.4567				148.65			
02:57:00	35.3000	27559.4248				148.64			
03:03:00	35.4000	27550.6710				148.63			
03:09:00	35.5000	27558.2778				148.71			
03:15:00	35.6000	27559.6367				148.72			
03:21:00	35.7000	27560.2412				148.70			
03:27:00	35.8000	27560.4642				148.68			
03:33:00	35.9000	27560.4883				148.65			
03:39:00	36.0000	27560.7033				148.63			
03:45:00	36.1000	27560.6699				148.62			
03:51:00	36.2000	27560.7776				148.61			
03:57:00	36.3000	27560.9310				148.60			
04:03:00	36.4000	27561.0832				148.59			
04:09:00	36.5000	27561.2354				148.59			
04:15:00	36.6000	27561.3365				148.58			
04:21:00	36.7000	27561.5355				148.58			
04:27:00	36.8000	27561.6355				148.58			
04:33:00	36.9000	27561.8345				148.58			
04:39:00	37.0000	27561.9835				148.57			
04:45:00	37.1000	27562.0835				148.57			
04:51:00	37.2000	27562.2824				148.57			
04:57:00	37.3000	27562.3824				148.57			
05:03:00	37.4000	27562.5324				148.56			
05:09:00	37.5000	27562.7313				148.56			
05:15:00	37.6000	27562.8313				148.56			
05:21:00	37.7000	27562.9322				148.55			
05:27:00	37.8000	27563.0322				148.55			
05:33:00	37.9000	27563.1811				148.55			
05:39:00	38.0000	27563.3300				148.55			
05:45:00	38.1000	27563.4299				148.54			
05:51:00	38.2000	27563.5298				148.54			
05:57:00	38.3000	27563.6787				148.54			
06:03:00	38.4000	27563.8276				148.54			
06:09:00	38.5000	27563.9764				148.54			
06:15:00	38.6000	27564.0763				148.53			
06:21:00	38.7000	27564.1273				148.53			
06:27:00	38.8000	27564.2761				148.53			
06:33:00	38.9000	27564.3261				148.53			
06:39:00	39.0000	27564.5238				148.53			
06:45:00	39.1000	27564.5738				148.52			
06:51:00	39.2000	27564.7226				148.52			
06:57:00	39.3000	27564.8215				148.52			
07:03:00	39.4000	27565.0193				148.52			
07:09:00	39.5000	27565.0692				148.52			
07:15:00	39.6000	27565.1191				148.52			

Data

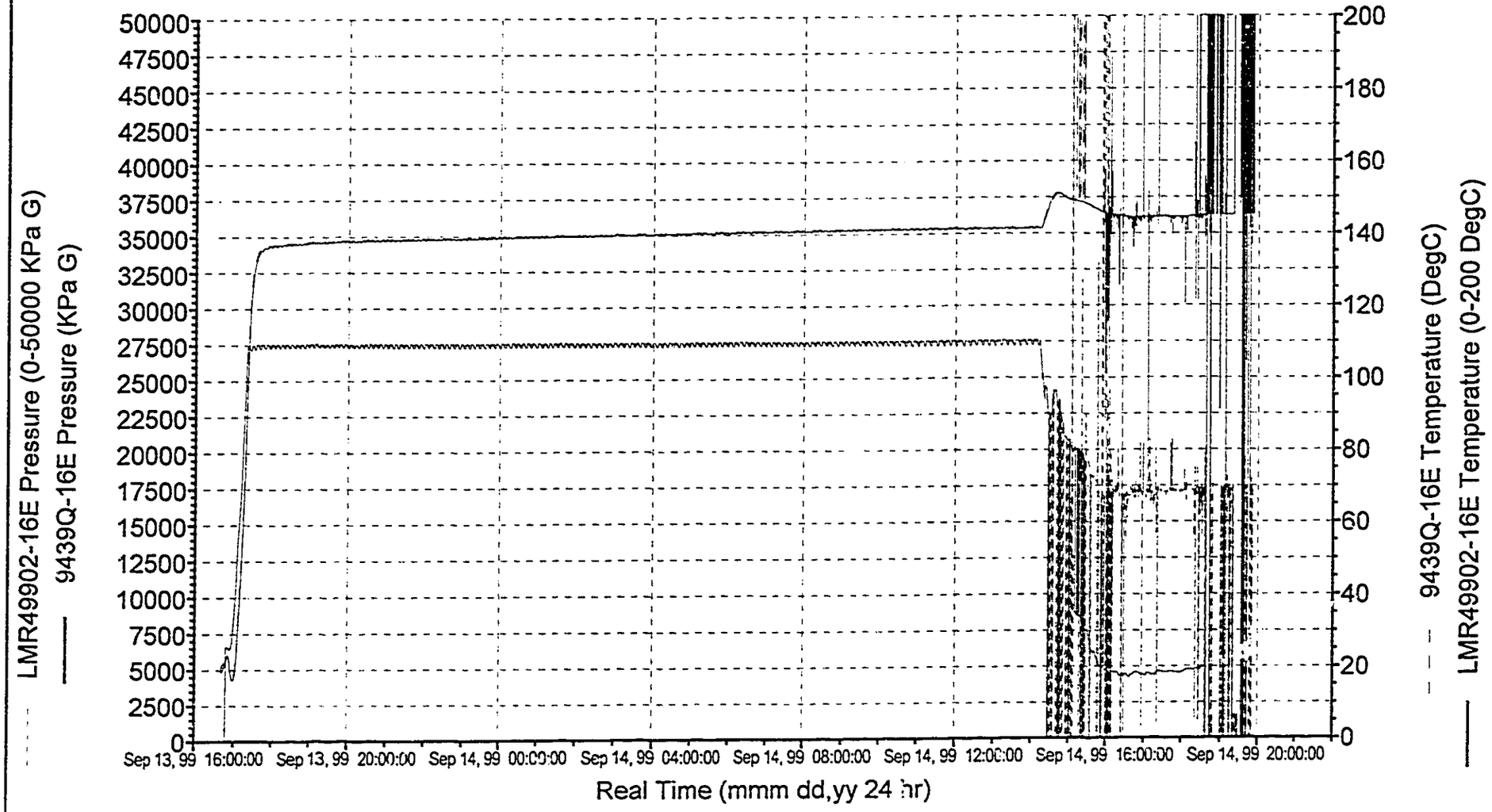
9401Q-16E		9401Q-16E	9432Q-16E	9439Q-16E	R49902-16E	9401Q-16E	9432Q-16E	9439Q-16E	R49902-16E
Real Time (mmm dd,yy 24 hr)	Elapsed Time (H.HH)	Pressure (KPa G)	Pressure (KPa G)	Pressure (KPa G)	Pressure (KPa G)	Temperature (DegC)	Temperature (DegC)	Temperature (DegC)	Temperature (DegC)
07:21:00	39.7000	27565.2180				148.51			
07:27:00	39.8000	27565.4157				148.51			
07:33:00	39.9000	27565.5146				148.51			
07:39:00	40.0000	27565.6135				148.51			
07:45:00	40.1000	27565.6634				148.51			
07:51:00	40.2000	27565.7623				148.51			
07:57:00	40.3000	27565.8611				148.51			
08:03:00	40.4000	27565.9111				148.51			
08:09:00	40.5000	27566.0099				148.50			
08:15:00	40.6000	27566.1088				148.50			
08:21:00	40.7000	27563.6525				148.51			
08:27:00	40.8000	27555.1456				148.60			
08:33:00	40.9000	27566.3023				148.61			
08:39:00	41.0000	27566.8505				148.60			
08:45:00	41.1000	26833.0163				145.19			
08:51:00	41.2000	25034.8616				119.85			
08:57:00	41.3000	22811.6744				79.57			
09:03:00	41.4000	156.1044				41.39			
09:09:02	41.5006		-59517.3576				148.25		
09:15:02	41.6006		-59515.5189				148.24		
09:21:02	41.7006		-59518.4083				148.25		
09:27:02	41.8006		-59537.0678				148.34		
09:33:02	41.9006		27563.0283				148.35		
09:39:02	42.0006		-90173.1863				223.34		
09:45:02	42.1006		-59528.3930				148.30		
09:51:02	42.2006		-59522.8745				148.27		
09:57:02	42.3006		-59517.8829				148.25		
10:03:02	42.4006		-59514.7309				148.24		
10:09:02	42.5006		-59530.4956				148.31		
10:15:02	42.6006		-59537.0678				148.34		
10:21:02	42.7006		-59533.3871				148.32		
10:27:02	42.8006		-90173.1863				223.34		
10:33:02	42.9006		-90173.1863				223.34		
10:39:02	43.0006		-59516.5695				148.25		
10:45:02	43.1006		-59513.1551				148.23		
10:51:02	43.2006		-59515.2562				148.24		
10:57:02	43.3006		-59532.5985				148.32		
11:03:02	43.4006		-59532.0728				148.31		
11:09:02	43.5006		-90173.1863				223.34		
11:15:02	43.6006		-90173.1863				223.34		
11:21:02	43.7006		-59515.7815				148.24		
11:27:02	43.8006		-59511.3169				148.22		
11:33:02	43.9006		-59507.6408				148.21		
11:39:02	44.0006		-59506.0655				148.20		
11:45:02	44.1006		-59505.0154				148.19		
11:51:02	44.2006		-59503.9653				148.19		
11:57:02	44.3006		-59503.1778				148.19		
12:03:02	44.4006		-59502.6529				148.18		
12:09:02	44.5006		-59502.1279				148.18		
12:15:02	44.6006		-59501.3405				148.18		
12:21:02	44.7006		-59500.8155				148.18		
12:27:02	44.8006		-59500.2906				148.17		
12:33:02	44.9006		-59499.7657				148.17		
12:39:02	45.0006		-59499.2408				148.17		
12:45:02	45.1006		-59498.4534				148.16		
12:51:02	45.2006		-59497.9286				148.16		
12:57:02	45.3006		-90173.1863				223.34		
13:03:02	45.4006		-90173.1863				223.34		

DTG

9401Q-16E		9401Q-16E	9432Q-16E	9439Q-16E	R49902-16E	9401Q-16E	9432Q-16E	9439Q-16E	R49902-16E
Real Time (mmm dd,yy 24 hr)	apsed Time (H.HH)	Pressure (KPa G)	Pressure (KPa G)	Pressure (KPa G)	Pressure (KPa G)	Temperature (DegC)	Temperature (DegC)	Temperature (DegC)	Temperature (DegC)
13:09:02	45.5006		-90173.1863				223.34		
13:15:02	45.6006		-90173.1863				223.34		
13:21:02	45.7006		-90173.1863				223.34		
13:27:02	45.8006		-59495.0421				148.15		
13:33:02	45.9006		-59494.2549				148.15		
13:39:02	46.0006		-59493.4678				148.14		
13:45:02	46.1006		-59492.9430				148.14		
13:51:02	46.2006		-59492.4183				148.14		
13:57:02	46.3006		-59491.6312				148.13		
14:03:02	46.4006		-59491.1065				148.13		
14:09:02	46.5006		-90173.1863				223.34		
14:15:02	46.6006		-59490.0572				148.13		
14:21:02	46.7006		-59490.0572				148.13		
14:27:02	46.8006		-59489.7949				148.13		
14:33:02	46.9006		-59489.2702				148.12		
14:39:02	47.0006		27572.0171				148.13		
14:45:02	47.1006		27572.0873				148.13		
14:51:02	47.2006		27571.6779				148.12		
14:57:02	47.3006		27572.0616				148.12		
15:03:02	47.4006		27572.1319				148.12		
15:09:02	47.5006		27572.2021				148.12		
15:15:02	47.6006		27572.3203				148.12		
15:21:02	47.7006		27572.2467				148.12		
15:27:02	47.8006		27572.3872				148.12		
15:33:02	47.9006		27572.5756				148.11		
15:39:02	48.0006		27572.6458				148.11		
15:45:02	48.1006		27573.4885				148.10		
15:51:02	48.2006		27572.8342				148.11		
15:57:02	48.3006		17574.9633				223.34		
16:03:02	48.4006		27572.9747				148.11		
16:09:02	48.5006		27570.5058				148.14		
16:15:02	48.6006		27572.2280				148.23		
16:21:02	48.7006		27573.1712				148.23		
16:27:02	48.8006		-90173.1863				223.34		
16:33:02	48.9006		-90173.1863				223.34		
16:39:02	49.0006		24663.6478				116.53		
16:45:02	49.1006		22742.8892				76.52		
16:51:02	49.2006		97.1221				40.00		

Pressure & Temperature vs. Real Time(extended)

Company:	Lee Tool, Div. of Schlumberger	*Field:*	Fort Liard
Client:	Chevon Canada Resources	*Well Name:*	Chevron et al Liard K-29
Remarks:	9401 bot. set, bot. rec. & 9432 bot. set, top rec.9439 top set, bot. rec. & 49902 top set, top rec.	*Well Number:*	K-29



Flow & Build-Up

Chevon Canada Resources
Alberta, Canada

Sep 13, 99 to Sep 15, 99

Chevron et al Liard K-29 | **K-29** | **Fort Liard, Nahanni**

Well

Client: Chevon Canada Resources		Province: Alberta	Country: Canada
Well Name: Chevron et al Liard K-29		Deviated Well: Yes	Well Status: Gas
Well No.: K-29		KB Elevation: 417.40 m	CF Elevation: 409.60 m
Field: Fort Liard	Pool: Nahanni	Pool Datum: 2500.00 mSS	

Test

Test Type: Flow & Build-Up				Atmospheric: 101.30 KPa A	
Test Start (mm/dd/yy): 09/13/99 03:39 PM		Test Finish: 09/15/99 11:41 AM		Casing ID	Tubing ID: 177.80 mm
On Bottom: 09/13/99 04:17 PM		Off Bottom: 09/15/99 11:12 AM		C. Pres. Before: 0.00 KPa G	T. Pres. Before
Shut In: 09/15/99		ETO: 09/13/99 03:39 PM		C. Pres. After	T. Pres. After

	Meas. Depth [mCF]	TVD [mCF]	Est. Pressure [KPa G]	Est. Gradient [KPa/m]	Est. Temperature [DegC]	Grad. Threshold
Well Datum		2909.60				Grad. Recorder
Landed Depth	2466.00	2457.45				
Avg. MPP Depth						

Operator: Dale Sallstrom, 1-780-778-2361

Service Company: Lee Tool, Div. of Schlumberger

Remarks: 9401 bot. set, bot. rec. & 9432 bot. set, top rec.9439 top set, bot. rec. & 49902 top set, top rec.

Depth References

Depth Reference	Offset [m]	Elevation [mMSL]
Casing Flange (CF)		409.60
Kelly Bushing (KB)	CF + 7.80	417.40

Top Recorder

Model	Serial	Latest Calibration	
LMR-4000S	LMR49902-16E	04/21/99	
Max. Rated Press.: 110213.79 KPa G	Max. Rated Temp.: 174.96 DegC		

Bottom Hole Pressure

	Tool String MD, [mCF]	Sample R/T [mmm dd, yy 24 hr.]	Pressure [KPa G]
Sample 1	2471.00		
Sample 2			
Difference:			Build Up Rate

Recorder

Model	Serial	Latest Calibration	
LMR-3000S	9439Q-16E	08/10/99	
Max. Rated Press. 110213.15 KPa G	Max. Rated Temp. 174.99 DegC		

Bottom Hole Pressure

	Tool String MD, [mCF]	Sample R/T [mmm dd, yy 24 hr.]	Pressure [KPa G]	
Sample 1	2471.00			
Sample 2				
Difference:				Build Up Rate

Recorder 3

Model	Serial	Latest Calibration	
LMR-3000S	9432Q-16E	08/20/99	
Max. Rated Press. 110213.11 KPa G	Max. Rated Temp. 174.98 DegC		

Bottom Hole Pressure

	Tool String MD, [mCF]	Sample R/T [mmm dd, yy 24 hr.]	Pressure [KPa G]	
Sample 1	2471.00			
Sample 2				
Difference:				Build Up Rate

Bottom Recorder

Model	Serial	Latest Calibration	
LMR-3000S	9401Q-16E	11/19/98	
Max. Rated Press. 110209.53 KPa G	Max. Rated Temp. 174.82 DegC		

Bottom Hole Pressure

	Tool String MD, [mCF]	Sample R/T [mmm dd, yy 24 hr.]	Pressure [KPa G]	
Sample 1	2471.00	Sep 15, 99 02:30:10	27558.30	
Sample 2		08:30:00	27565.82	
Difference:		05:59:50	7.52	Build Up Rate 1.25 KPa/Hr.

Deviated Well Survey

Meas. Depth [mKB]	Inclination [Degrees]	TVD [mKB]	Meas. Depth [mCF]	TVD [mCF]
2471.00	4.50	2462.46	2463.20	2454.66
2484.00	4.40	2475.42	2476.20	2467.62

Tool Summary

Chevon Canada Resources
Alberta, Canada

Sep 13, 99 to Sep 15, 99

Chevron et al Liard K-29 | **K-29** | **Fort Liard, Nahanni**

Tool Recorder

Tool	Serial	Latest Calibration	Battery Serial
LMR-4000S	LMR49902-16E	04/21/99	150
Landed Depth	**Depth Offset**	**Min. Battery**	
2465.00 mCF	-1.00 m	0.10 V	

Program: liard-60 day test

	Intervals				Expected Samples			Actual Samples				
Mode	Interval [d hh:mm:ss]	Rate [hh:mm:ss]	Delta [KPa]	Periodic [hh:mm:ss]	Regular Samples	Percent Storage	Energy [Ahr]	Regular Samples	Delta Samples	Percent Storage	Energy [Ahr]	Duration [d hh:mm:ss]
HB	10:00	1			600	0.2%	0.0022	600		0.2%	0.0022	10:00
HB	30	10			259200	74.2%	5.4747	9725		2.8%	0.2054	1 3:00:50
HB	60	1:00			86400	24.7%	10.2249					
Totals:	90 10:00				346200	99.0%	15.7018	10325		3.0%	0.2076	1 3:10:50

Recorder2

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9439Q-16E	08/10/99	150 C
Landed Depth	**Depth Offset**	**Min. Battery**	
2466.00 mCF	0.00 m	0.10 V	

Program: liard-60 day test

	Intervals				Expected Samples			Actual Samples				
Mode	Interval [d hh:mm:ss]	Rate [hh:mm:ss]	Delta [KPa]	Periodic [hh:mm:ss]	Regular Samples	Percent Storage	Energy [Ahr]	Regular Samples	Delta Samples	Percent Storage	Energy [Ahr]	Duration [d hh:mm:ss]
HB	10:00	1			600	0.2%	0.0022	600		0.2%	0.0022	10:00
HB	30	10			259200	74.2%	5.4747	9967		2.9%	0.2105	1 3:41:10
HB	60	1:00			86400	24.7%	10.2249					
Totals:	90 10:00				346200	99.0%	15.7018	10567		3.0%	0.2127	1 3:51:10

Recorder3

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9432Q-16E	08/20/99	150
Landed Depth	**Depth Offset**	**Min. Battery**	
2464.50 mCF	-1.50 m	0.10 V	

Program: Liard-30 days

	Intervals				Expected Samples			Actual Samples				
Mode	Interval [d hh:mm:ss]	Rate [hh:mm:ss]	Delta [KPa]	Periodic [hh:mm:ss]	Regular Samples	Percent Storage	Energy [Ahr]	Regular Samples	Delta Samples	Percent Storage	Energy [Ahr]	Duration [d hh:mm:ss]
HB	10:00	1			600	0.2%	0.0022	600		0.2%	0.0022	10:00
HB	30	10			259200	74.2%	5.4747	17685		5.1%	0.3735	2 1:07:30
HB	15	30			43200	12.4%	2.5925					
Totals:	45 10:00				303000	86.7%	8.0693	18285		5.2%	0.3757	2 1:17:30

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9401Q-16E	11/19/98	150
Landed Depth	**Depth Offset**	**Min. Battery**	
2466.00 mCF	0.00 m	18.83 V	

Program Parameters (Job 2)

	Intervals				Expected Samples			Actual Samples				
Mode	Interval [d hh:mm:ss]	Rate [hh:mm:ss]	Delta [KPa]	Periodic [hh:mm:ss]	Regular Samples	Percent Storage	Energy [Ahr]	Regular Samples	Delta Samples	Percent Storage	Energy [Ahr]	Duration [d hh:mm:ss]
HB	10:00	1			600	0.2%	0.0022	600		0.2%	0.0022	10:00
HB	30	10			259200	74.2%	5.4747	14880		4.3%	0.3143	1 17:20:00
HB	15	30			43200	12.4%	2.5925					
Totals:	45 10:00				303000	86.7%	8.0693	15480		4.4%	0.3165	1 17:30:00

Calibration Summary

Chevon Canada Resources
Alberta, Canada

Sep 13, 99 to Sep 15, 99

Chevron et al Liard K-29 | **K-29** | **Fort Liard, Nahanni**

Top Recorder

Tool	Serial	Latest Calibration	Battery Serial
LMR-4000S	LMR49902-16E	04/21/99	150
Landed Depth	**Depth Offset**	**Min. Battery**	
2465.00 mCF	-1.00 m	0.10 V	

Equations

FP = Pres Freq (Hz)
FT = Temp Freq (Hz)

XP = 2.587700e+004 + (1.000000e-002) FP
XT = 4.960700e+004 + (1.000000e-002) FT

P_0 = 1.938549e+001+ (-1.102970e+000) XT + (-2.105686e-002) XT^2 + (2.726975e-006) XT^3 + (-1.240216e-008) XT^4
P_1 = 4.300392e+001+ (-2.173011e-002) XT + (3.279552e-005) XT^2 + (1.782524e-008) XT^3 + (1.722304e-010) XT^4
P_2 = -1.696746e-003+ (1.256029e-005) XT + (-1.687992e-008) XT^2 + (-1.065681e-010) XT^3 + (-5.951906e-013) XT^4
P_3 = 3.717924e-007+ (-9.475833e-009) XT + (-5.518843e-011) XT^2 + (-5.411052e-014) XT^3 + (4.411910e-016) XT^4
Pressure (psiA) = $P_0 + P_1 XP + P_2 XP^2 + P_3 XP^3$

T_0 = 2.580166e+001
T_1 = -7.245111e-001
T_2 = -8.167484e-004
T_3 = -6.004826e-007
Temperature (degC) = $T_0 + T_1 XT + T_2 XT^2 + T_3 XT^3$

Recorder2

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9439Q-16E	08/10/99	150 C
Landed Depth	**Depth Offset**	**Min. Battery**	
2466.00 mCF	0.00 m	0.10 V	

Equations

FP = Pres Freq (Hz)
FT = Temp Freq (Hz)

XP = 2.602300e+004 + (1.000000e-002) FP
XT = 4.617700e+004 + (1.000000e-002) FT

P_0 = 2.002256e+001+ (-1.604990e+000) XT + (-2.252490e-002) XT^2 + (3.973241e-007) XT^3 + (-1.276300e-008) XT^4
P_1 = 4.310545e+001+ (-2.115897e-002) XT + (3.758977e-005) XT^2 + (2.915778e-008) XT^3 + (1.639741e-010) XT^4
P_2 = -1.762542e-003+ (8.161465e-006) XT + (-1.005207e-007) XT^2 + (-4.225944e-010) XT^3 + (-9.245675e-013) XT^4
P_3 = 6.310796e-007+ (2.138745e-009) XT + (1.618523e-010) XT^2 + (8.813787e-013) XT^3 + (1.696126e-015) XT^4
Pressure (psiA) = $P_0 + P_1 XP + P_2 XP^2 + P_3 XP^3$

T_0 = 2.520539e+001
T_1 = -7.379367e-001
T_2 = -8.338691e-004
T_3 = -5.640936e-007
Temperature (degC) = $T_0 + T_1 XT + T_2 XT^2 + T_3 XT^3$

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9432Q-16E	08/20/99	150
Landed Depth	**Depth Offset**	**Min. Battery**	
2464.50 mCF	-1.50 m	0.10 V	

Equations

FP = Pres Freq (Hz)
FT = Temp Freq (Hz)

XP = 2.504100e+004 + (1.000000e-002) FP
XT = 4.710200e+004 + (1.000000e-002) FT

P_0 = 2.000495e+001+ (-1.584861e+000) XT + (-2.061648e-002) XT^2 + (2.881244e-006) XT^3 + (-9.969509e-009) XT^4
P_1 = 3.971455e+001+ (-2.086061e-002) XT + (2.941225e-005) XT^2 + (-1.198650e-008) XT^3 + (1.030260e-010) XT^4
P_2 = -1.854139e-003+ (1.076376e-005) XT + (-3.257277e-008) XT^2 + (-6.836747e-011) XT^3 + (-3.871155e-013) XT^4
P_3 = 5.465527e-007+ (-3.011634e-009) XT + (2.911474e-011) XT^2 + (1.582671e-013) XT^3 + (5.245827e-016) XT^4
Pressure (psiA) = $P_0 + P_1 XP + P_2 XP^2 + P_3 XP^3$

T_0 = 2.521427e+001
T_1 = -7.462305e-001
T_2 = -8.775839e-004
T_3 = -6.661817e-007
Temperature (degC) = $T_0 + T_1 XT + T_2 XT^2 + T_3 XT^3$

Bottom Recorder

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9401Q-16E	11/19/98	150
Landed Depth	**Depth Offset**	**Min. Battery**	
2466.00 mCF	0.00 m	18.83 V	

Equations

FP = Pres Freq (Hz)
FT = Temp Freq (Hz)

XP = 2.529900e+004 + (1.000000e-002) FP
XT = 5.382900e+004 + (1.000000e-002) FT

P_0 = 1.994289e+001+ (3.277153e-001) XT + (-1.931485e-002) XT^2 + (2.872806e-006) XT^3 + (-1.316248e-008) XT^4
P_1 = 4.068000e+001+ (-1.978860e-002) XT + (3.295403e-005) XT^2 + (1.376352e-008) XT^3 + (1.414274e-010) XT^4
P_2 = -1.792567e-003+ (9.062682e-006) XT + (-5.182607e-008) XT^2 + (-1.451315e-010) XT^3 + (-4.433513e-013) XT^4
P_3 = 6.674909e-007+ (-1.185712e-009) XT + (5.544023e-011) XT^2 + (2.313389e-013) XT^3 + (5.180155e-016) XT^4
Pressure (psiA) = $P_0 + P_1 XP + P_2 XP^2 + P_3 XP^3$

T_0 = 2.537663e+001
T_1 = -7.182610e-001
T_2 = -7.484118e-004
T_3 = -3.879256e-007
Temperature (degC) = $T_0 + T_1 XT + T_2 XT^2 + T_3 XT^3$

Failure report for : Chevron Canada Resources(Eric Furlan)

Tool S.N. : 9439q-16e(lmr 4000s recorder)
Client: Chevron
Well I.D or U.W.i. k-29 Fort Liard
Type of the Test: Flow & Build-Up
Duration of the Test: Approximately 2 days

Downhole Temperature:	150 °C
Downhole Pressure:	28 Mpa
Pressure Range Tool:	110 mpa
Temperature Range Tool:	175 °C

Reason For Failure :	During the first rate of the flow period due to high flowing rate the top set of recorders was unlatched and moved up the hole and then it dropped on the bottom set, which was set 5 meters bellow the top set. The incident has totally or partially damaged all four pressure tools. The top set had a NO-GO attached to the bottom recorder. When pulled the NO-GO had impressions from the impact with the J-head from the bottom set.
The extent of the damage:	As a result of the impact the Quartzdyne sensor had the reference crystal damaged. This was confirmed when replaced with a new one.
	The data from that point on was not valid.

Downhole Conditions:	High flowing rates and fairly high flowing pressures. The temperature was rated as high.

Comments:	This tool will require new reference and temperature crystals and possible a new electronic board.
Investigation Performed By :	Vio Tandara, electronic technician.
Date:	Sept./22/1999

Failure report for : Chevron Canada Resources(Eric Furlan)

Tool S.N. : LMR49902(lmr 4000s recorder)

Client: Chevron

Well I.D or U.W.I. k-29 Fort Liard

Type of the Test: Flow & Build-Up

Duration of the Test: Approximately 2 days

Downhole Temperature:	150 °C
Downhole Pressure:	28 Mpa
Pressure Range Tool:	110 mpa
Temperature Range Tool:	175 °C

Reason For Failure :	During the first rate of the flow period due to high flowing rate the top set of recorders was unlatched and moved up the hole and then it dropped on the bottom set, which was set 5 meters bellow the top set. The incident has totally or partially damaged all four pressure tools. The top set had a NO-GO attached to the bottom recorder. When pulled the NO-GO had impressions from the impact with the J-head from the bottom set.
The extent of the damage:	As a result of the impact the main electronic board had several solder joints damaged. This was confirmed when replaced some components or touched up some of them.
	The data from that point on is not valid.

Downhole Conditions:	High flowing rates and fairly high flowing

	pressures. The temperature was rated as high.
Comments:	This tool will require new main electronic board and for sure a new temperature and reference crystal(for now).
Investigation Performed By :	Vio Tandara, electronic technician.

Date: Sept./22/1999

Failure report for : Chevron Canada Resources(Eric Furlan)

Tool S.N. : LMR9432Q-16E
Client: Chevron
Well I.D or U.W.I. k-29 Fort Liard
Type of the Test: Flow & Build-Up
Duration of the Test: Approximately 2 days

Downhole Temperature:	150 °C
Downhole Pressure:	28 Mpa
Pressure Range Tool:	110 mpa
Temperature Range Tool:	175 °C

Reason For Failure :	During the first rate of the flow period due to high flowing rate the top set of recorders was unlatched and moved up the hole and then it dropped on the bottom set, which was set 5 meters bellow the top set. The incident has totally or partially damaged all four pressure tools. The top set had a NO-GO attached to the bottom recorder. When pulled the NO-GO had impressions from the impact with the J-head from the bottom set.
The extent of the damage:	As a result of the impact the temperature and the reference crystals on the pressure transducer were damaged.
	The data from that point on is not valid.

Downhole Conditions:	High flow rates and fairly high flow pressures. The temperature was rated as high.

Comments:	This tool will require new crystals.
Investigation Performed By :	Vio Tandara, electronic technician.
Date: Oct./04/1999	

Failure report for : Chevron Canada Resources(Eric Furlan)

Tool S.N. : LMR9401Q-16E
Client: Chevron
Well I.D or U.W.I. k-29 Fort Liard
Type of the Test: Flow & Build-Up
Duration of the Test: Approximately 2 days

Downhole Temperature:	150 °C
Downhole Pressure:	28 Mpa
Pressure Range Tool:	110 mpa
Temperature Range Tool:	175 °C

Reason For Failure :	During the first rate of the flow period due to high flowing rate the top set of recorders was unlatched and moved up the hole and then it dropped on the bottom set, which was set 5 meters bellow the top set. The incident has totally or partially damaged all four pressure tools. The top set had a NO-GO attached to the bottom recorder. When pulled the NO-GO had impressions from the impact with the J-head from the bottom set.
The extent of the damage:	As a result after the impact this tool did not record pressure and temperature data for approximately 8 hours, however it recovered and recorded data up to the end of the test.

Downhole Conditions:	High flowing rates and fairly high flow pressures.

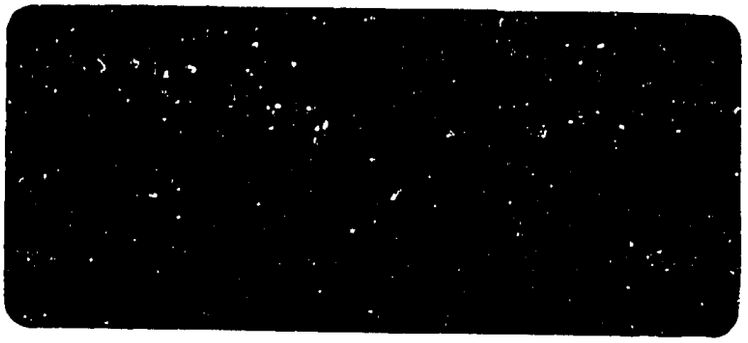
	The temperature was rated as high.
Comments:	The failure could not be replicated in the lab.
Investigation Performed By :	Vio Tandara, electronic technician.
Date:	Oct./04/1999

ADDITIONAL INFORMATION

SUBSURFACE PRESSURE REPORT

(LIARD K-29)

Sub-Surface Pressure Report



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Schlumberger

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Red Deer, Alberta T4P 1X6

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Chevron Canada Resources

Flow & Build-Up
Chevron et al Liard K-29
00/K-29-6030-12330
Sep 13, 02 to Sep 18, 02

Service Company Contact Info

Report Writer	Vio Tandara, 1-403-347-2524(309-7929)	Service Company	Lee Tool, Div. of Schlumberger
Operator	Glenn Doan, 1-403-347-2524	Job ID: ChevronExtK-29	Test Date: Sep 13, 02 to Sep 18, 02

Gauge: Lee Memory Recorder Model 3000s (Quartz)
Manufacturer: Lee Tool, Division of Schlumberger Canada Limited

Flow & Build-Up

Chevron Canada Resources
Northwest Territories, Canada

Sep 13, 02 to Sep 18, 02

Chevron et al Liard K-29 | **00/K-29-6030-12330** | **Ft. Liard, Ft. Liard Nahanni**

Well

Client: Chevron Canada Resources		Province: Northwest Territories	Country: Canada
Well Name: Chevron et al Liard K-29		Deviated Well: Yes	Well Status: Gas
Well No.: 00/K-29-6030-12330		KB Elevation: 418.80 m	CF Elevation: 409.60 m
Field: Ft. Liard	Pool: Ft. Liard Nahanni	Pool Datum: 2215.00 mSS	

Test

Test Name: Flow & Build-Up			Atmospheric: 101.26 KPa A		
Test Start (mm/dd/yy): 09/13/02	01:54 PM	Test Finish: 09/18/02	12:00 PM	Casing ID	Tubing ID: 157.10 mm
On Bottom: 09/13/02	03:18 PM	Off Bottom: 09/18/02	10:45 AM	C. Pres. Before	T. Pres. Before
Shut In: 09/15/02	09:00 AM	ETO: 09/13/02	01:54 PM	C. Pres. After	T. Pres. After

	Meas. Depth [mCF]	TVD [mCF]	Est. Pressure [KPa G]	Est. Gradient [KPa/m]	Est. Temperature [DegC]	Grad. Threshold
Well Datum		2641.20				Grad. Recorder
Landed Depth	2455.00	2420.62				
Avg. MPP Depth	2740.80	2704.98				

Operator: Glenn Doan, 1-403-347-2524 | Service Company: Lee Tool, Div. of Schlumberger

Remarks: WTSR-1707 bottom,WTSR-995 middle & 9452q-16e top.

Depth References

Depth Reference	Offset [m]	Elevation [mMSL]
Casing Flange (CF)		409.60
Kelly Bushing (KB)	CF + 9.20	418.80

Perforations

	Intvl. Top MD, [mKB]	Intvl. Bottom MD, [mKB]	Intvl. Top MD, [mCF]	Intvl. Bottom MD, [mCF]	MPP TVD, [mCF]	Pressure	Gradient
Interval 1	2500.00	3000.00	2490.80	2990.80	2704.98		

Top Recorder

Model	Serial	Latest Calibration
LMR-3000S	9452Q-16E	07/12/02

Max. Rated Press.: 110213.65 KPa G | Max. Rated Temp.: 174.96 DegC

Bottom Hole Pressure

	Tool String MD, [mCF]	Sample R/T [mmm dd, yy 24 hr.]	Pressure [KPa G]
Sample 1	2455.00	Sep 18,02 03:02:00	23755.73
Sample 2		09:02:00	23764.66
Difference:		06:00:00	8.93

Build Up Rate: 1.49 KPa/Hr.

Recorder 2

Model	Serial	Latest Calibration
WTSR	WTSR-996	12/07/02
Max. Rated Press.	Max. Rated Temp.	

Bottom Hole Pressure

	Tool String MD, [mCF]	Sample R/T [mmm dd, yy 24 hr.]	Pressure [KPa G]	
Sample 1	2455.00	Sep 18,02 03:00:00	23765.02	
Sample 2		09:00:00	23774.24	
Difference:		06:00:00	9.23	Build Up Rate 1.54 KPa/Hr.

Bottom Recorder

Model	Serial	Latest Calibration
WTSR	WTSR-1707	04/10/01
Max. Rated Press.	Max. Rated Temp.	

Bottom Hole Pressure

	Tool String MD, [mCF]	Sample R/T [mmm dd, yy 24 hr.]	Pressure [KPa G]	
Sample 1	2455.00	Sep 18,02 03:02:00	23778.90	
Sample 2		09:02:00	23787.68	
Difference:		06:00:00	8.78	Build Up Rate 1.46 KPa/Hr.

Deviated Well Survey

Meas. Depth [ftKB]	Inclination [Degrees]	TVD [ftKB]	Meas. Depth [mCF]	TVD [mCF]
8998.03	36.20	8885.25	2733.40	2699.02
9029.53	36.60	8910.60	2743.00	2706.75

Tool Summary

Chevron Canada Resources
Northwest Territories, Canada

Sep 13, 02 to Sep 18, 02

Chevron et al Liard K-29 — 00/K-29-6030-12330 — Ft. Liard, Ft. Liard Nahanni

Top Recorder

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9452Q-16E	07/12/02	165 C
Landed Depth		**Depth Offset**	**Min. Battery**
2452.00 mCF MD (2417.62 mCF TVD)		-3.00 m	18.64 V

Program: 120 Day Extended --2 Meg

Intervals					Expected Samples			Actual Samples				
Mode	Interval [d hh:mm:ss]	Rate [hh:mm:ss]	Delta [KPa]	Periodic [hh:mm:ss]	Regular Samples	Percent Storage	Energy [Ahr]	Regular Samples	Delta Samples	Percent Storage	Energy [Ahr]	Duration [d hh:mm:ss]
HB	10:00	1			600	0.2%	0.0022	600		0.2%	0.0022	10:00
HB	120	30			345600	98.9%	20.7396	14326		4.1%	0.8597	4 23:23:00
Totals:	120 10:00				346200	99.0%	20.7418	14926		4.3%	0.8619	4 23:33:00

Recorder 2

Tool	Serial	Latest Calibration	Battery Serial
WTSR	WTSR-996	12/07/02	
Landed Depth		**Depth Offset**	**Min. Battery**
2453.50 mCF MD (2419.12 mCF TVD)		-1.50 m	-999.25 V

Program

Intervals					Expected Samples			Actual Samples				
Mode	Interval [d hh:mm:ss]	Rate [hh:mm:ss]	Delta []	Periodic [hh:mm:ss]	Regular Samples	Percent Storage	Energy [Ahr]	Regular Samples	Delta Samples	Percent Storage	Energy [Ahr]	Duration [d hh:mm:ss]
Totals:					0	0.0%	0.0000					

Bottom Recorder

Tool	Serial	Latest Calibration	Battery Serial
WTSR	WTSR-1707	04/10/01	
Landed Depth		**Depth Offset**	**Min. Battery**
2455.00 mCF MD (2420.62 mCF TVD)		0.00 m	-999.25 V

Program

Intervals					Expected Samples			Actual Samples				
Mode	Interval [d hh:mm:ss]	Rate [hh:mm:ss]	Delta []	Periodic [hh:mm:ss]	Regular Samples	Percent Storage	Energy [Ahr]	Regular Samples	Delta Samples	Percent Storage	Energy [Ahr]	Duration [d hh:mm:ss]
Totals:					0	0.0%	0.0000					

Calibration Summary

Chevron Canada Resources
Northwest Territories, Canada

Sep 13, 02 to Sep 18, 02

Chevron et al Liard K-29 **00/K-29-6030-12330** **Ft. Liard, Ft. Liard Nahanni**

Top Recorder

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9452Q-16E	07/12/02	165 C
Landed Depth		**Depth Offset**	**Min. Battery**
2452.00 mCF MD (2417.62 mCF TVD)		-3.00 m	18.64 V

Equations

FP = Pres Freq (Hz)
FT = Temp Freq (Hz)

XP = 1.949700e+004 + (1.000000e-002) FP
XT = 5.686000e+004 + (1.000000e-002) FT

P_0 = 2.002217e+001+ (-1.155088e+000) XT + (-2.046615e-002) XT^2 + (8.164299e-006) XT^3
P_1 = 4.057197e+001+ (-2.125355e-002) XT + (2.244652e-005) XT^2 + (-6.296513e-008) XT^3
P_2 = -1.746631e-003+ (1.141569e-005) XT + (-2.229608e-008) XT^2 + (7.843763e-011) XT^3
P_3 = 5.736277e-007+ (-3.580832e-009) XT + (2.487483e-011) XT^2 + (-1.407354e-014) XT^3
Pressure (psiA) = $P_0 + P_1 XP + P_2 XP^2 + P_3 XP^3$

T_0 = 2.547014e+001
T_1 = -7.532573e-001
T_2 = -9.149916e-004
T_3 = -7.392466e-007
Temperature (degC) = $T_0 + T_1 XT + T_2 XT^2 + T_3 XT^3$

Recorder 2

Tool	Serial	Latest Calibration	Battery Serial
WTSR	WTSR-996	12/07/02	
Landed Depth		**Depth Offset**	**Min. Battery**
2453.50 mCF MD (2419.12 mCF TVD)		-1.50 m	-999.25 V

Equations

FP = Pres Freq (Hz)
FT = Temp Freq (Hz)

XP = 0.000000e+000 + (0.000000e+000) FP
XT = 0.000000e+000 + (0.000000e+000) FT

Bottom Recorder

Tool	Serial	Latest Calibration	Battery Serial
WTSR	WTSR-1707	04/10/01	
Landed Depth		**Depth Offset**	**Min. Battery**
2455.00 mCF MD (2420.62 mCF TVD)		0.00 m	-999.25 V

Equations

FP = Pres Freq (Hz)
FT = Temp Freq (Hz)

XP = 0.000000e+000 + (0.000000e+000) FP
XT = 0.000000e+000 + (0.000000e+000) FT

Recorded Data

Chevron Canada Resources
Northwest Territories, Canada

Sep 13, 02 to Sep 18, 02

Chevron et al Liard K-29 **00/K-29-6030-12330** **Ft. Liard, Ft. Liard Nahanni**

Data

Real Time (mm/dd/yyyy 24 hr.)	Elapsed Time (DDD:HH:MM:SS)	WTSR-1707 Pressure (KPa G)	WTSR-996 Pressure (KPa G)	9452Q-16E Pressure (KPa G)	WTSR-1707 Temperature (DegC)	WTSR-996 Temperature (DegC)	9452Q-16E Temperature (DegC)	Comments
09/13/2002 14:04:00	0:00:10:00		-33.47377			25.83		
14:11:00	0:00:17:00		-25.30355			26.77		WTSR-1707 bottom
14:12:00	0:00:18:00		-22.85593			26.89		WTSR-996 middle
14:13:00	0:00:19:00		-21.51836			26.98		9452q-16e top
14:33:00	0:00:39:00	-1.51683	-15.76128	5.24216	27.25	26.07	21.67	
14:53:00	0:00:59:00	-8.04611	20146.05830	20278.94209	25.81	66.61	88.47	
15:13:00	0:01:19:00	20577.37004	22642.53954	22706.41318	88.09	133.12	138.65	
15:18:00	0:01:24:00	21219.90093	23241.93717	23299.63401	107.09	140.55	144.97	On Bottom
15:38:00	0:01:44:00	23537.51986	23546.87597	23528.54113	144.39	152.36	152.16	
15:58:00	0:02:04:00	23562.71309	23555.43229	23547.87828	152.39	153.10	152.56	
16:18:00	0:02:24:00	23570.89710	23563.72661	23556.53099	152.86	153.11	152.55	
16:38:00	0:02:44:00	23578.73637	23570.56616	23563.28664	152.85	153.07	152.52	
16:58:00	0:03:04:00	23585.34839	23567.93927	23561.82810	152.81	153.11	152.56	
17:18:00	0:03:24:00	23585.78276	23563.03025	23370.81912	152.87	153.08	152.52	
17:38:00	0:03:44:00	23444.00704	22936.72949	22870.44113	152.84	153.00	152.35	
17:58:00	0:04:04:00	22845.93319	22519.96556	22490.92009	152.67	152.70	152.13	
18:18:00	0:04:24:00	22492.71081	22319.08847	22291.65797	152.45	152.63	152.06	
18:38:00	0:04:44:00	22305.20944	22099.22339	22071.23422	152.38	152.51	151.91	
18:58:00	0:05:04:00	22062.47463	21894.74037	21868.62801	152.21	152.96	152.55	
19:18:00	0:05:24:00	21901.18692	21851.36582	21821.74268	152.84	153.34	152.80	
19:38:00	0:05:44:00	21832.35713	21752.37861	21731.17186	153.11	153.47	152.95	
19:58:00	0:06:04:00	21748.49000	21608.44485	21591.20336	153.27	153.57	153.04	
20:18:00	0:06:24:00	21612.30588	21491.08327	21469.56084	153.37	153.66	153.12	
20:38:00	0:06:44:00	21492.20021	21361.95243	21342.33350	153.44	153.71	153.16	
20:58:00	0:07:04:00	21371.40506	21277.47857	21262.11405	153.49	153.73	153.19	
21:18:00	0:07:24:00	21294.74289	21234.50390	21216.60713	153.51	153.76	153.21	
21:38:00	0:07:44:00	21247.61073	21201.89197	21184.30614	153.53	153.77	153.21	
21:58:00	0:08:04:00	21216.50873	21176.34021	21163.77708	153.54	153.77	153.22	
22:18:00	0:08:24:00	21196.10042	21140.52914	21118.76279	153.55	153.78	153.22	
22:38:00	0:08:44:00	21157.95205	21097.20974	21081.90859	153.55	153.78	153.22	
22:58:00	0:09:04:00	21112.68145	21091.73535	21069.63665	153.55	153.78	153.23	
23:18:00	0:09:24:00	21103.78039	21056.05528	21039.70799	153.56	153.78	153.23	

Data

WTSR-1707 Real Time (mm/dd/yyyy 24 hr.)	Elapsed Time (DDD:HH:MM:SS)	WTSR-1707 Pressure (KPa G)	WTSR-996 Pressure (KPa G)	9452Q-16E Pressure (KPa G)	WTSR-1707 Temperature (DegC)	WTSR-996 Temperature (DegC)	9452Q-16E Temperature (DegC)	Comments
23:38:00	0:09:44:00	21070.25836	21027.43538	21013.68635	153.56	153.78	153.23	
23:58:00	0:10:04:00	21049.32605	21010.72262	20992.90689	153.56	153.78	153.23	
09/14/2002 00:18:00	0:10:24:00	21026.77348	20991.22441	20981.77489	153.56	153.78	153.23	
00:38:00	0:10:44:00	21017.78280	20995.29228	20981.02781	153.56	153.79	153.24	
00:58:00	0:11:04:00	21018.25164	20992.26551	20971.67731	153.57	153.79	153.24	
01:18:00	0:11:24:00	21013.48740	20988.34243	20970.48994	153.57	153.79	153.24	
01:38:00	0:11:44:00	21002.95230	20983.83329	20959.65515	153.57	153.79	153.24	
01:58:00	0:12:04:00	20998.64311	20985.32944	20967.47130	153.57	153.79	153.24	
02:18:00	0:12:24:00	20995.26471	20982.71635	20963.66105	153.57	153.79	153.24	
02:38:00	0:12:44:00	20997.18833	20976.69728	20956.83435	153.57	153.79	153.24	
02:58:00	0:13:04:00	20995.26471	20970.46447	20950.20632	153.57	153.79	153.24	
03:18:00	0:13:24:00	20986.94970	20966.44486	20953.76771	153.57	153.79	153.24	
03:38:00	0:13:44:00	20985.62592	20981.90967	20959.40778	153.57	153.79	153.24	
03:58:00	0:14:04:00	21001.75951	20978.10380	20965.64225	153.57	153.79	153.24	
04:18:00	0:14:24:00	21006.11696	20964.47298	20950.50777	153.57	153.79	153.23	
04:38:00	0:14:44:00	20980.63415	20959.70874	20939.27164	153.56	153.79	153.24	
04:58:00	0:15:04:00	20977.11786	20962.03225	20943.97017	153.56	153.79	153.24	
05:18:00	0:15:24:00	20967.12743	20954.57219	20946.09602	153.57	153.79	153.24	
05:38:00	0:15:44:00	20975.65618	20948.85648	20935.60889	153.57	153.79	153.24	
05:58:00	0:16:04:00	20971.00226	20948.35317	20931.79929	153.57	153.79	153.24	
06:18:00	0:16:24:00	20974.24966	20939.41764	20925.86305	153.57	153.79	153.24	
06:38:00	0:16:44:00	20953.80687	20931.06126	20909.93269	153.57	153.79	153.24	
06:58:00	0:17:04:00	20948.49796	20915.21034	20898.50456	153.57	153.79	153.24	
07:18:00	0:17:24:00	20935.54971	20889.17596	20876.68532	153.56	153.79	153.24	
07:38:00	0:17:44:00	20909.88074	20875.71061	20853.33286	153.56	153.79	153.24	
07:58:00	0:18:04:00	20886.89381	20857.83265	20836.75767	153.56	153.79	153.24	
08:18:00	0:18:24:00	20868.36775	20838.81707	20814.19324	153.56	153.79	153.24	
08:38:00	0:18:44:00	20855.37124	20809.26638	20811.27600	153.56	153.79	153.24	
08:58:00	0:19:04:00	20849.19359	20812.27937	20799.79462	153.56	153.79	153.24	
09:18:00	0:19:24:00	20831.32253	20806.97045	20792.42314	153.57	153.79	153.24	
09:38:00	0:19:44:00	20824.17273	20791.29880	20772.08880	153.57	153.79	153.24	
09:58:00	0:20:04:00	20810.47296	20782.03921	20772.83101	153.56	153.79	153.24	
10:18:00	0:20:24:00	20808.92854	20778.93660	20763.23282	153.56	153.79	153.23	
10:38:00	0:20:44:00	20794.98057	20786.66556	20752.29972	153.56	153.79	153.23	
10:58:00	0:21:04:00	20795.41493	20781.85306	20765.65628	153.56	153.79	153.24	
11:18:00	0:21:24:00	20798.44860	20774.83425	20749.97184	153.56	153.78	153.23	
11:38:00	0:21:44:00	20791.40911	20767.80855	20747.39993	153.56	153.78	153.23	
11:58:00	0:22:04:00	20787.96176	20759.36255	20738.74064	153.56	153.78	153.23	
12:18:00	0:22:24:00	20779.83980	20742.49121	20719.64525	153.56	153.78	153.23	

Data

WTSR-1707 Real Time (mm/dd/yyyy 24 hr.)	Elapsed Time (DDD:HH:MM:SS)	WTSR-1707 Pressure (KPa G)	WTSR-996 Pressure (KPa G)	9452Q-16E Pressure (KPa G)	WTSR-1707 Temperature (DegC)	WTSR-996 Temperature (DegC)	9452Q-16E Temperature (DegC)	Comments
12:38:00	0:22:44:00	20764.29226	20749.73065	20718.45531	153.56	153.78	153.23	
12:58:00	0:23:04:00	20764.27157	20740.19528	20719.84200	153.56	153.78	153.23	
13:18:00	0:23:24:00	20756.25304	20736.18946	20710.73843	153.56	153.78	153.23	
13:38:00	0:23:44:00	20750.45459	20722.91716	20706.23792	153.55	153.78	153.23	
13:58:00	1:00:04:00	20744.82162	20714.17466	20699.16312	153.55	153.78	153.23	
14:18:00	1:00:24:00	20733.73333	20721.42791	20698.51863	153.55	153.78	153.23	
14:38:00	1:00:44:00	20729.90149	20708.98987	20688.32390	153.55	153.77	153.23	
14:58:00	1:01:04:00	20731.22527	20706.45262	20693.57034	153.55	153.78	153.23	
15:18:00	1:01:24:00	20725.37857	20709.75518	20705.93982	153.55	153.78	153.23	
15:38:00	1:01:44:00	20737.67182	20724.41331	20713.95479	153.55	153.78	153.23	
15:58:00	1:02:04:00	20746.85556	20722.13117	20708.71204	153.56	153.78	153.23	
16:18:00	1:02:24:00	20752.29548	20751.44053	20728.45305	153.55	153.78	153.23	
16:38:00	1:02:44:00	20773.60700	20760.11407	20747.40447	153.56	153.78	153.23	
16:58:00	1:03:04:00	20786.74140	20764.92120	20765.76185	153.55	153.78	153.23	
17:18:00	1:03:24:00	20804.04710	20791.88485	20775.26315	153.56	153.77	153.23	
17:38:00	1:03:44:00	20815.34081	20799.62759	20788.42478	153.55	153.77	153.23	
17:58:00	1:04:04:00	20822.48352	20803.03358	20790.05760	153.55	153.78	153.23	
18:18:00	1:04:24:00	20828.01307	20801.93732	20782.14511	153.55	153.77	153.22	
18:38:00	1:04:44:00	20822.10432	20797.62813	20778.72996	153.55	153.77	153.22	
18:58:00	1:05:04:00	20822.29737	20787.61013	20775.66114	153.55	153.77	153.23	
19:18:00	1:05:24:00	20815.93356	20795.00125	20780.36065	153.55	153.77	153.23	
19:38:00	1:05:44:00	20812.00358	20795.31841	20773.63247	153.55	153.77	153.23	
19:58:00	1:06:04:00	20817.52623	20784.36273	20775.11794	153.55	153.77	153.22	
20:18:00	1:06:24:00	20803.25421	20784.57646	20766.90318	153.55	153.77	153.23	
20:38:00	1:06:44:00	20805.10199	20779.03312	20757.40406	153.55	153.77	153.22	
20:58:00	1:07:04:00	20797.08345	20779.13654	20758.88737	153.55	153.77	153.23	
21:18:00	1:07:24:00	20792.96731	20781.43248	20763.98165	153.55	153.77	153.23	
21:38:00	1:07:44:00	20805.37088	20784.87983	20762.59950	153.55	153.77	153.22	
21:58:00	1:08:04:00	20798.27623	20771.71095	20761.11509	153.55	153.77	153.22	
22:18:00	1:08:24:00	20788.22376	20768.51181	20752.35705	153.55	153.77	153.22	
22:38:00	1:08:44:00	20793.96704	20775.50304	20755.07737	153.55	153.77	153.23	
22:58:00	1:09:04:00	20791.74695	20787.06545	20769.22657	153.55	153.77	153.23	
23:18:00	1:09:24:00	20802.15105	20786.05882	20760.76763	153.55	153.77	153.23	
23:38:00	1:09:44:00	20805.07441	20786.67245	20772.69127	153.55	153.77	153.23	
23:58:00	1:10:04:00	20810.40401	20786.48629	20765.51883	153.55	153.77	153.22	
09/15/2002 00:18:00	1:10:24:00	20806.61192	20776.33730	20765.56831	153.55	153.77	153.22	
00:38:00	1:10:44:00	20805.44672	20781.26011	20764.72496	153.55	153.77	153.23	
00:58:00	1:11:04:00	20802.17174	20776.55103	20750.57574	153.55	153.77	153.22	
01:18:00	1:11:24:00	20789.96122	20772.11085	20761.01503	153.55	153.77	153.23	

Data

WTSR-1707 Real Time (mm/dd/yyyy 24 hr.)	Elapsed Time (DDD:HH:MM:SS)	WTSR-1707 Pressure (KPa G)	WTSR-996 Pressure (KPa G)	9452Q-16E Pressure (KPa G)	WTSR-1707 Temperature (DegC)	WTSR-996 Temperature (DegC)	9452Q-16E Temperature (DegC)	Comments
01:38:00	1:11:44:00	20790.71964	20781.57727	20763.93327	153.55	153.77	153.23	
01:58:00	1:12:04:00	20791.45048	20779.55023	20766.11041	153.55	153.77	153.23	
02:18:00	1:12:24:00	20794.16010	20779.75017	20763.29112	153.55	153.77	153.23	
02:38:00	1:12:44:00	20799.57244	20777.13708	20761.60879	153.55	153.77	153.23	
02:58:00	1:13:04:00	20799.03465	20786.96203	20768.68338	153.55	153.77	153.23	
03:18:00	1:13:24:00	20790.77480	20778.14371	20758.64218	153.55	153.77	153.22	
03:38:00	1:13:44:00	20799.92407	20784.25931	20766.75474	153.55	153.77	153.23	
03:58:00	1:14:04:00	20801.71669	20787.67908	20765.17137	153.55	153.77	153.23	
04:18:00	1:14:24:00	20804.77104	20773.31742	20757.99893	153.55	153.77	153.22	
04:38:00	1:14:44:00	20790.07154	20767.90508	20753.29829	153.55	153.77	153.22	
04:58:00	1:15:04:00	20781.32216	20769.60117	20741.91773	153.55	153.77	153.22	
05:18:00	1:15:24:00	20787.01029	20765.78151	20742.56098	153.55	153.77	153.22	
05:38:00	1:15:44:00	20790.28527	20773.71042	20756.90704	153.55	153.77	153.23	
05:58:00	1:16:04:00	20789.85091	20772.40042	20751.61372	153.55	153.77	153.23	
06:18:00	1:16:24:00	20799.03465	20767.58792	20757.75153	153.55	153.77	153.22	
06:38:00	1:16:44:00	20788.14102	20760.67254	20752.90133	153.55	153.77	153.22	
06:58:00	1:17:04:00	20791.47806	20765.89872	20744.53909	153.55	153.77	153.22	
07:18:00	1:17:24:00	20784.78330	20764.28536	20749.04296	153.55	153.77	153.22	
07:38:00	1:17:44:00	20785.97609	20761.87222	20735.58530	153.55	153.77	153.22	
07:58:00	1:18:04:00	20784.02489	20758.85923	20732.02151	153.55	153.77	153.22	
08:18:00	1:18:24:00	20782.51495	20743.30479	20733.75565	153.55	153.77	153.22	
08:38:00	1:18:44:00	20772.68311	20748.22071	20728.60846	153.54	153.77	153.22	
08:58:00	1:19:04:00	20768.56697	20741.77417	20737.21704	153.54	153.77	153.22	
09:18:00	1:19:24:00	20760.19680	20749.19976	20732.96281	153.55	153.77	153.22	
09:38:00	1:19:44:00	20766.78124	20758.05255	20734.09972	153.55	153.77	153.22	
09:58:00	1:20:04:00	20769.83559	22949.34679	22983.21814	153.55	154.64	154.07	
10:18:00	1:20:24:00	23059.58615	23237.39357	23236.15185	154.38	154.15	153.56	
10:38:00	1:20:44:00	23275.83152	23338.65603	23332.83386	153.86	153.88	153.29	
10:58:00	1:21:04:00	23367.66203	23398.76402	23390.78357	153.61	153.69	153.11	
11:18:00	1:21:24:00	23423.59184	23438.94633	23429.18606	153.44	153.54	152.97	
11:38:00	1:21:44:00	23460.38195	23467.09050	23456.42566	153.29	153.41	152.84	
11:58:00	1:22:04:00	23486.80244	23488.74675	23477.61294	153.17	153.30	152.73	
12:18:00	1:22:24:00	23508.09328	23505.75598	23494.14268	153.06	153.19	152.63	
12:38:00	1:22:44:00	23523.03409	23537.11307	23528.22934	152.95	153.18	152.64	
12:58:00	1:23:04:00	23552.38483	23548.90301	23539.93585	152.94	153.16	152.62	
13:18:00	1:23:24:00	23563.51977	23558.74864	23549.51228	152.92	153.13	152.58	
13:38:00	1:23:44:00	23572.87588	23567.20154	23557.89288	152.88	153.09	152.55	
13:58:00	2:00:04:00	23581.14952	23574.54440	23565.14632	152.84	153.05	152.51	
14:18:00	2:00:24:00	23588.10627	23581.28741	23571.66277	152.80	153.02	152.48	

Data

WTSR-1707 Real Time (mm/dd/yyyy 24 hr.)	Elapsed Time (DDD:HH:MM:SS)	WTSR-1707 Pressure (KPa G)	WTSR-996 Pressure (KPa G)	9452Q-16E Pressure (KPa G)	WTSR-1707 Temperature (DegC)	WTSR-996 Temperature (DegC)	9452Q-16E Temperature (DegC)	Comments
14:38:00	2:00:44:00	23595.24229	23587.20307	23577.49183	152.76	152.98	152.45	
14:58:00	2:01:04:00	23600.54431	23592.31893	23582.83606	152.73	152.95	152.42	
15:18:00	2:01:24:00	23605.58434	23597.22796	23587.59211	152.70	152.92	152.39	
15:38:00	2:01:44:00	23610.50715	23601.33031	23591.95745	152.67	152.89	152.36	
15:58:00	2:02:04:00	23615.20244	23605.52228	23595.98156	152.64	152.87	152.33	
16:18:00	2:02:24:00	23619.34616	23609.41089	23599.76322	152.62	152.84	152.31	
16:38:00	2:02:44:00	23622.95209	23613.00303	23603.15467	152.59	152.82	152.28	
16:58:00	2:03:04:00	23626.20638	23616.08496	23606.35327	152.56	152.80	152.26	
17:18:00	2:03:24:00	23629.34347	23618.65669	23609.35914	152.54	152.77	152.24	
17:38:00	2:03:44:00	23632.25993	23621.82825	23612.12843	152.52	152.75	152.22	
17:58:00	2:04:04:00	23635.13502	23624.70334	23614.74388	152.50	152.73	152.20	
18:18:00	2:04:24:00	23637.27927	23627.37159	23617.21619	152.48	152.71	152.18	
18:38:00	2:04:44:00	23640.26468	23629.33658	23619.49616	152.46	152.69	152.16	
18:58:00	2:05:04:00	23642.60888	23631.90141	23621.72633	152.44	152.68	152.14	
19:18:00	2:05:24:00	23644.62213	23633.85950	23623.81358	152.42	152.66	152.12	
19:38:00	2:05:44:00	23646.72501	23635.81760	23625.79634	152.40	152.64	152.11	
19:58:00	2:06:04:00	23648.81411	23637.87911	23627.69104	152.39	152.62	152.09	
20:18:00	2:06:24:00	23651.13762	23639.43731	23629.44303	152.37	152.61	152.07	
20:38:00	2:06:44:00	23652.35798	23641.38162	23631.28771	152.36	152.59	152.06	
20:58:00	2:07:04:00	23654.01271	23642.83640	23632.89674	152.34	152.58	152.04	
21:18:00	2:07:24:00	23656.10180	23644.58076	23634.64216	152.33	152.56	152.03	
21:38:00	2:07:44:00	23657.73585	23646.13207	23636.25058	152.31	152.55	152.01	
21:58:00	2:08:04:00	23659.28715	23647.67648	23637.76017	152.30	152.53	152.00	
22:18:00	2:08:24:00	23661.24525	23649.12437	23639.22584	152.28	152.52	151.99	
22:38:00	2:08:44:00	23662.21740	23650.66878	23640.88274	152.27	152.51	151.97	
22:58:00	2:09:04:00	23663.85145	23652.50966	23642.25506	152.26	152.50	151.96	
23:18:00	2:09:24:00	23665.61649	23653.95066	23643.67076	152.25	152.48	151.95	
23:38:00	2:09:44:00	23666.67827	23654.79181	23645.03696	152.24	152.47	151.94	
23:58:00	2:10:04:00	23667.98827	23656.32933	23646.40866	152.22	152.46	151.92	
09/16/2002 00:18:00	2:10:24:00	23669.71884	23657.66690	23647.63235	152.21	152.45	151.91	
00:38:00	2:10:44:00	23670.68409	23659.10789	23649.00367	152.20	152.44	151.90	
00:58:00	2:11:04:00	23671.54593	23659.93526	23650.23276	152.19	152.43	151.89	
01:18:00	2:11:24:00	23673.25582	23661.37625	23651.55444	152.18	152.41	151.88	
01:38:00	2:11:44:00	23674.44171	23662.90687	23652.78320	152.17	152.40	151.87	
01:58:00	2:12:04:00	23675.61380	23663.94108	23653.91910	152.16	152.39	151.86	
02:18:00	2:12:24:00	23677.01343	23665.18212	23655.00560	152.15	152.38	151.85	
02:38:00	2:12:44:00	23678.29584	23666.40938	23656.28319	152.14	152.37	151.84	
02:58:00	2:13:04:00	23679.02668	23667.24364	23657.41870	152.13	152.36	151.83	
03:18:00	2:13:24:00	23680.52283	23668.77426	23658.50481	152.12	152.35	151.82	

Data

Real Time (mm/dd/yyyy 24 hr.)	Elapsed Time (DDD:HH:MM:SS)	WTSR-1707 Pressure (KPa G)	WTSR-996 Pressure (KPa G)	9452Q-16E Pressure (KPa G)	WTSR-1707 Temperature (DegC)	WTSR-996 Temperature (DegC)	9452Q-16E Temperature (DegC)	Comments
03:38:00	2:13:44:00	23681.88798	23669.50510	23659.59670	152.11	152.35	151.81	
03:58:00	2:14:04:00	23682.74982	23670.73925	23660.68258	152.10	152.33	151.80	
04:18:00	2:14:24:00	23683.57718	23671.96651	23661.71907	152.09	152.33	151.79	
04:38:00	2:14:44:00	23684.51486	23672.99382	23662.76137	152.08	152.32	151.79	
04:58:00	2:15:04:00	23685.88001	23674.02113	23663.80358	152.08	152.31	151.78	
05:18:00	2:15:24:00	23686.72117	23674.94502	23664.88899	152.07	152.30	151.77	
05:38:00	2:15:44:00	23687.65885	23676.06885	23665.78321	152.06	152.30	151.76	
05:58:00	2:16:04:00	23688.93436	23676.89622	23666.67733	152.05	152.29	151.75	
06:18:00	2:16:24:00	23690.06510	23677.82700	23667.72513	152.04	152.28	151.75	
06:38:00	2:16:44:00	23690.55462	23679.14389	23668.66834	152.04	152.27	151.74	
06:58:00	2:17:04:00	23691.60951	23679.26800	23669.70996	152.03	152.27	151.73	
07:18:00	2:17:24:00	23692.76092	23680.79862	23670.56049	152.02	152.26	151.72	
07:38:00	2:17:44:00	23693.69860	23681.52256	23671.50946	152.01	152.25	151.72	
07:58:00	2:18:04:00	23694.43634	23682.24651	23672.45231	152.00	152.24	151.71	
08:18:00	2:18:24:00	23695.44296	23683.46687	23673.35187	152.00	152.24	151.70	
08:38:00	2:18:44:00	23696.16001	23683.99080	23674.25135	151.99	152.23	151.69	
08:58:00	2:19:04:00	23697.29074	23685.21123	23675.10759	151.99	152.22	151.69	
09:18:00	2:19:24:00	23698.22842	23685.83864	23676.00694	151.98	152.21	151.68	
09:38:00	2:19:44:00	23699.46947	23686.35559	23676.86307	151.97	152.21	151.68	
09:58:00	2:20:04:00	23700.07620	23687.67263	23677.76229	151.97	152.20	151.67	
10:18:00	2:20:24:00	23701.10351	23688.49310	23678.56905	151.96	152.20	151.66	
10:38:00	2:20:44:00	23701.47582	23689.32047	23679.46814	151.96	152.19	151.66	
10:58:00	2:21:04:00	23702.39282	23690.13404	23680.32404	151.95	152.19	151.65	
11:18:00	2:21:24:00	23703.22018	23691.05793	23681.22299	151.94	152.18	151.64	
11:38:00	2:21:44:00	23704.33712	23692.07835	23682.02953	151.94	152.17	151.64	
11:58:00	2:22:04:00	23705.16449	23692.89882	23682.74367	151.93	152.16	151.63	
12:18:00	2:22:24:00	23706.20559	23693.51245	23683.74095	151.92	152.16	151.63	
12:38:00	2:22:44:00	23706.67443	23694.63628	23684.44883	151.92	152.16	151.62	
12:58:00	2:23:04:00	23707.48111	23695.65670	23685.30441	151.91	152.15	151.61	
13:18:00	2:23:24:00	23708.39810	23696.07038	23686.11689	151.91	152.14	151.61	
13:38:00	2:23:44:00	23709.20478	23696.78743	23686.87388	151.90	152.14	151.60	
13:58:00	3:00:04:00	23710.10799	23697.71132	23687.63703	151.90	152.13	151.60	
14:18:00	3:00:24:00	23710.80435	23698.53179	23688.53546	151.89	152.13	151.59	
14:38:00	3:00:44:00	23711.50761	23699.24194	23689.24928	151.89	152.12	151.59	
14:58:00	3:01:04:00	23712.21087	23700.26236	23690.06156	151.88	152.12	151.58	
15:18:00	3:01:24:00	23712.90724	23700.97941	23690.86756	151.88	152.11	151.58	
15:38:00	3:01:44:00	23713.70013	23701.48961	23691.58127	151.87	152.11	151.57	
15:58:00	3:02:04:00	23714.72054	23702.31008	23692.29495	151.87	152.10	151.57	
16:18:00	3:02:24:00	23715.51343	23703.23397	23693.14379	151.86	152.10	151.56	

Data

WTSR-1707 Real Time (mm/dd/yyyy 24 hr.)	Elapsed Time (DDD:HH:MM:SS)	WTSR-1707 Pressure (KPa G)	WTSR-996 Pressure (KPa G)	9452Q-16E Pressure (KPa G)	WTSR-1707 Temperature (DegC)	WTSR-996 Temperature (DegC)	9452Q-16E Temperature (DegC)	Comments
16:38:00	3:02:44:00	23716.10638	23703.84760	23693.81442	151.86	152.09	151.56	
16:58:00	3:03:04:00	23716.80964	23704.76460	23694.57723	151.85	152.09	151.55	
17:18:00	3:03:24:00	23717.38190	23705.37822	23695.34001	151.85	152.08	151.55	
17:38:00	3:03:44:00	23718.51263	23706.39175	23696.09646	151.84	152.08	151.54	
17:58:00	3:04:04:00	23719.41583	23706.70201	23696.80992	151.84	152.07	151.54	
18:18:00	3:04:24:00	23719.98809	23707.41906	23697.52334	151.83	152.07	151.53	
18:38:00	3:04:44:00	23720.79477	23708.23952	23698.19381	151.83	152.06	151.53	
18:58:00	3:05:04:00	23721.04988	23708.86005	23698.95009	151.82	152.06	151.52	
19:18:00	3:05:24:00	23722.15992	23709.57020	23699.71266	151.82	152.05	151.52	
19:38:00	3:05:44:00	23722.97350	23710.58372	23700.42595	151.81	152.05	151.51	
19:58:00	3:06:04:00	23723.56644	23710.79746	23701.09631	151.81	152.04	151.51	
20:18:00	3:06:24:00	23723.92497	23712.01782	23701.76030	151.81	152.04	151.51	
20:38:00	3:06:44:00	23725.02122	23712.32808	23702.43062	151.80	152.04	151.50	
20:58:00	3:07:04:00	23726.15196	23713.04513	23703.14379	151.80	152.03	151.50	
21:18:00	3:07:24:00	23726.31053	23713.95523	23703.90617	151.79	152.03	151.49	
21:38:00	3:07:44:00	23727.31716	23714.56886	23704.61927	151.79	152.02	151.49	
21:58:00	3:08:04:00	23727.67568	23715.18249	23705.33234	151.78	152.02	151.48	
22:18:00	3:08:24:00	23728.25484	23715.89264	23705.95329	151.78	152.02	151.48	
22:38:00	3:08:44:00	23729.04083	23716.70622	23706.62346	151.78	152.01	151.48	
22:58:00	3:09:04:00	23729.61999	23717.31295	23707.33644	151.77	152.01	151.47	
23:18:00	3:09:24:00	23730.30256	23717.73353	23708.00656	151.77	152.00	151.47	
23:38:00	3:09:44:00	23731.09546	23718.65052	23708.67025	151.77	152.00	151.46	
23:58:00	3:10:04:00	23732.00556	23719.05731	23709.34032	151.76	151.99	151.46	
09/17/2002 00:18:00	3:10:24:00	23732.56403	23719.97430	23709.96114	151.76	151.99	151.46	
00:38:00	3:10:44:00	23733.05355	23720.48451	23710.63117	151.75	151.99	151.45	
00:58:00	3:11:04:00	23733.60513	23721.09814	23711.24552	151.75	151.98	151.45	
01:18:00	3:11:24:00	23734.61175	23721.60145	23711.91550	151.75	151.98	151.45	
01:38:00	3:11:44:00	23735.40464	23722.41503	23712.53624	151.74	151.98	151.44	
01:58:00	3:12:04:00	23735.87348	23723.13897	23713.25542	151.74	151.97	151.44	
02:18:00	3:12:24:00	23736.55606	23723.94565	23713.87611	151.74	151.97	151.44	
02:38:00	3:12:44:00	23737.23863	23724.45586	23714.54601	151.73	151.97	151.43	
02:58:00	3:13:04:00	23737.68679	23724.96607	23715.20943	151.73	151.96	151.43	
03:18:00	3:13:24:00	23738.16942	23725.68312	23715.83006	151.72	151.96	151.42	
03:38:00	3:13:44:00	23739.05194	23726.48980	23716.45714	151.72	151.95	151.42	
03:58:00	3:14:04:00	23739.52078	23726.89658	23717.02850	151.72	151.95	151.42	
04:18:00	3:14:24:00	23740.40330	23727.51021	23717.64907	151.72	151.95	151.41	
04:38:00	3:14:44:00	23740.88593	23728.02731	23718.31236	151.71	151.94	151.41	
04:58:00	3:15:04:00	23741.76845	23728.83399	23718.93288	151.71	151.94	151.41	
05:18:00	3:15:24:00	23742.01666	23729.24768	23719.51067	151.71	151.94	151.40	

Data

WTSR-1707 Real Time (mm/dd/yyyy 24 hr.)	Elapsed Time (DDD:HH:MM:SS)	WTSR-1707 Pressure (KPa G)	WTSR-996 Pressure (KPa G)	9452Q-16E Pressure (KPa G)	WTSR-1707 Temperature (DegC)	WTSR-996 Temperature (DegC)	9452Q-16E Temperature (DegC)	Comments
05:38:00	3:15:44:00	23742.60960		23720.13767	151.70		151.40	
05:58:00	3:16:04:00	23743.38181	23730.57146	23720.75815	151.70	151.93	151.40	
06:18:00	3:16:24:00	23744.27812	23730.88172	23721.47054	151.69	151.93	151.39	
06:38:00	3:16:44:00	23744.63665	23731.99177	23721.99904	151.69	151.92	151.39	
06:58:00	3:17:04:00	23744.76075	23732.50197	23722.66869	151.69	151.92	151.39	
07:18:00	3:17:24:00	23745.75359	23733.20523	23723.28909	151.69	151.92	151.38	
07:38:00	3:17:44:00	23746.00180	23733.72234	23723.86023	151.68	151.92	151.38	
07:58:00	3:18:04:00	23746.67058	23734.12912	23724.48059	151.68	151.91	151.38	
08:18:00	3:18:24:00	23747.56689	23734.64623	23725.05825	151.68	151.91	151.37	
08:38:00	3:18:44:00	23748.13915	23735.25296	23725.62935	151.67	151.90	151.37	
08:58:00	3:19:04:00	23748.82173	23735.76317	23726.24965	151.67	151.90	151.37	
09:18:00	3:19:24:00	23749.60083	23736.57674	23726.82727	151.67	151.90	151.37	
09:38:00	3:19:44:00	23750.06277	23737.38342	23727.40489	151.66	151.90	151.36	
09:58:00	3:20:04:00	23750.94530	23737.59716	23727.97591	151.66	151.89	151.36	
10:18:00	3:20:24:00	23751.42793	23738.40384	23728.54692	151.66	151.89	151.36	
10:38:00	3:20:44:00	23751.87608	23738.91404	23729.22295	151.65	151.89	151.35	
10:58:00	3:21:04:00	23752.43455	23739.41736	23729.74470	151.65	151.89	151.35	
11:18:00	3:21:24:00	23753.11713	23740.13441	23730.32225	151.65	151.88	151.35	
11:38:00	3:21:44:00	23753.22744	23740.44467	23730.85056	151.65	151.88	151.35	
11:58:00	3:22:04:00	23754.23407	23741.14793	23731.51994	151.64	151.87	151.34	
12:18:00	3:22:24:00	23754.70291	23741.55471	23732.04823	151.64	151.87	151.34	
12:38:00	3:22:44:00	23755.27517	23742.16834	23732.61913	151.64	151.87	151.34	
12:58:00	3:23:04:00	23755.93706	23742.78197	23733.23923	151.64	151.87	151.33	
13:18:00	3:23:24:00	23756.51621	23743.28528	23733.81670	151.63	151.86	151.33	
13:38:00	3:23:44:00	23757.17811	23744.29881	23734.34494	151.63	151.86	151.33	
13:58:00	4:00:04:00	23757.86068	23744.70559	23734.91577	151.63	151.86	151.32	
14:18:00	4:00:24:00	23757.98479	23745.21580	23735.53581	151.62	151.86	151.32	
14:38:00	4:00:44:00	23759.31546	23745.51917	23736.06401	151.62	151.85	151.32	
14:58:00	4:01:04:00	23759.66020	23746.13280	23736.64807	151.62	151.85	151.32	
15:18:00	4:01:24:00	23760.10835	23746.84295	23737.16961	151.62	151.85	151.31	
15:38:00	4:01:44:00	23760.14283	23747.14632	23737.78958	151.61	151.85	151.31	
15:58:00	4:02:04:00	23761.43903	23747.85647	23738.26852	151.61	151.84	151.31	
16:18:00	4:02:24:00	23761.47350	23748.57352	23738.79001	151.61	151.84	151.31	
16:38:00	4:02:44:00	23762.25950	23748.98031	23739.37404	151.60	151.84	151.30	
16:58:00	4:03:04:00	23762.72834	23749.89041	23739.90217	151.60	151.83	151.30	
17:18:00	4:03:24:00	23763.17649	23750.10414	23740.57129	151.60	151.83	151.30	
17:38:00	4:03:44:00	23763.50055	23750.40062	23741.05017	151.60	151.83	151.30	
17:58:00	4:04:04:00	23764.63128	23751.20730	23741.57827	151.59	151.83	151.29	
18:18:00	4:04:24:00	23765.17596	23752.21392	23742.05713	151.59	151.82	151.29	

Data

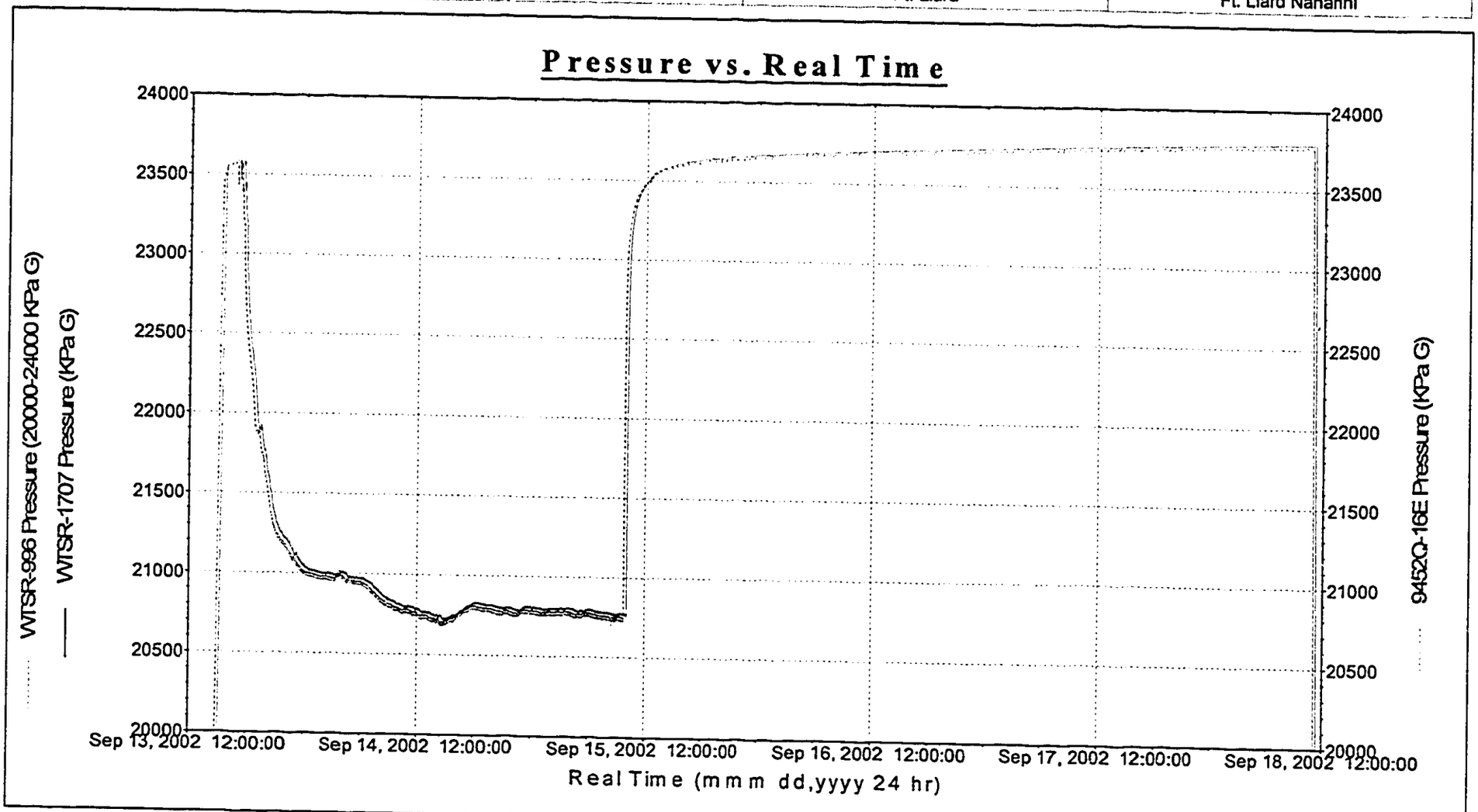
WTSR-1707 Real Time (mm/dd/yyyy 24 hr.)	Elapsed Time (DDD:HH:MM:SS)	WTSR-1707 Pressure (KPa G)	WTSR-996 Pressure (KPa G)	9452Q-16E Pressure (KPa G)	WTSR-1707 Temperature (DegC)	WTSR-996 Temperature (DegC)	9452Q-16E Temperature (DegC)	Comments
18:38:00	4:04:44:00	23765.74822	23752.02776	23742.68366	151.59	151.82	151.29	
18:58:00	4:05:04:00	23765.65859	23752.93097	23743.21172	151.59	151.82	151.29	
19:18:00	4:05:24:00	23766.66521	23753.34465	23743.64134	151.58	151.82	151.28	
19:38:00	4:05:44:00	23767.00305	23753.94449	23744.26113	151.58	151.82	151.28	
19:58:00	4:06:04:00	23767.47189	23754.15133	23744.78917	151.58	151.81	151.28	
20:18:00	4:06:24:00	23767.92005	23754.86838	23745.27468	151.58	151.81	151.28	
20:38:00	4:06:44:00	23768.80257	23755.26827	23745.74677	151.57	151.81	151.27	
20:58:00	4:07:04:00	23769.46446	23756.17837	23746.41572	151.57	151.81	151.27	
21:18:00	4:07:24:00	23769.69888	23756.68858	23746.85199	151.57	151.80	151.27	
21:38:00	4:07:44:00	23770.05740	23756.79890	23747.47842	151.57	151.80	151.27	
21:58:00	4:08:04:00	23770.72619	23757.60558	23747.95717	151.57	151.80	151.26	
22:18:00	4:08:24:00	23771.49840	23757.81242	23748.43592	151.56	151.80	151.26	
22:38:00	4:08:44:00	23772.04997	23758.72252	23748.96388	151.56	151.79	151.26	
22:58:00	4:09:04:00	23771.96034	23759.02588	23749.49183	151.56	151.79	151.26	
23:18:00	4:09:24:00	23772.64292	23759.73604	23750.01976	151.56	151.79	151.26	
23:38:00	4:09:44:00	23772.98765	23760.43930	23750.49847	151.55	151.79	151.25	
23:58:00	4:10:04:00	23774.08391	23760.54961	23751.07561	151.55	151.78	151.25	
09/18/2002 00:18:00	4:10:24:00	23774.31833	23760.95640	23751.59677	151.55	151.78	151.25	
00:38:00	4:10:44:00	23774.98022	23761.96303	23752.07544	151.55	151.78	151.24	
00:58:00	4:11:04:00	23775.77311	23762.16987	23752.56087	151.54	151.78	151.24	
01:18:00	4:11:24:00	23776.00753	23762.68008	23753.08875	151.54	151.77	151.24	
01:38:00	4:11:44:00	23776.43500	23763.18339	23753.66584	151.54	151.77	151.24	
01:58:00	4:12:04:00	23776.79353	23763.89354	23754.14448	151.54	151.77	151.24	
02:18:00	4:12:24:00	23777.26237	23764.10038	23754.67233	151.54	151.77	151.23	
02:38:00	4:12:44:00	23778.14489	23764.60370	23755.10852	151.53	151.77	151.23	
02:58:00	4:13:04:00	23778.57236	23765.21733	23755.68557	151.53	151.76	151.23	
03:18:00	4:13:24:00	23778.93088	23765.61722	23756.12175	151.53	151.76	151.23	
03:38:00	4:13:44:00	23779.37904	23766.12743	23756.69200	151.53	151.76	151.23	
03:58:00	4:14:04:00	23780.04783	23766.54111	23757.17058	151.53	151.76	151.22	
04:18:00	4:14:24:00	23780.60630	23767.24437	23757.60674	151.52	151.75	151.22	
04:38:00	4:14:44:00	23780.94414	23767.74768	23758.13454	151.52	151.75	151.22	
04:58:00	4:15:04:00	23781.30266	23768.15447	23758.61310	151.52	151.75	151.22	
05:18:00	4:15:24:00	23782.06108	23768.76810	23759.09166	151.52	151.75	151.22	
05:38:00	4:15:44:00	23782.41960	23769.06457	23759.62623	151.51	151.75	151.21	
05:58:00	4:16:04:00	23783.06081	23769.78162	23760.14717	151.51	151.74	151.21	
06:18:00	4:16:24:00	23783.74338	23769.88504	23760.67491	151.51	151.74	151.21	
06:38:00	4:16:44:00	23783.87438	23770.38835	23761.06182	151.51	151.74	151.21	
06:58:00	4:17:04:00	23784.66038	23771.10540	23761.63194	151.50	151.74	151.20	
07:18:00	4:17:24:00	23784.87412	23771.60871	23762.06122	151.50	151.73	151.20	

Data

WTSR-1707 Real Time (mm/dd/yyyy 24 hr.)	Elapsed Time (DDD:HH:MM:SS)	WTSR-1707 Pressure (KPa G)	WTSR-996 Pressure (KPa G)	9452Q-16E Pressure (KPa G)	WTSR-1707 Temperature (DegC)	WTSR-996 Temperature (DegC)	9452Q-16E Temperature (DegC)	Comments
07:38:00	4:17:44:00	23785.77732	23772.00860	23762.58893	151.50	151.73	151.20	
07:58:00	4:18:04:00	23785.79111	23772.31887	23763.07425	151.50	151.73	151.20	
08:18:00	4:18:24:00	23786.65295	23772.82907	23763.51034	151.50	151.73	151.20	
08:38:00	4:18:44:00	23787.10800	23773.63575	23763.94644	151.50	151.73	151.20	
08:58:00	4:19:04:00	23787.44584	23773.73917	23764.47412	151.50	151.72	151.19	
09:18:00	4:19:24:00	23787.91468	23774.53896	23765.00179	151.49	151.72	151.19	
09:38:00	4:19:44:00	23788.46625	23774.94575	23765.48023	151.49	151.72	151.19	
09:58:00	4:20:04:00	23788.92130	23775.25601	23765.86709	151.49	151.72	151.19	
10:18:00	4:20:24:00	23789.14883	23776.06958	23766.44395	151.49	151.71	151.19	
10:38:00	4:20:44:00	23785.92900	23775.90411	23766.79274	151.48	151.74	151.20	
10:45:00	4:20:51:00	23789.03851		23767.10983	151.51		151.20	Off Bottom
11:05:00	4:21:11:00	23617.35359	20406.17464	20255.09399	151.47	117.12	103.09	
11:25:00	4:21:31:00	19978.35161	34.03913	9.47169	102.36	33.52	32.37	
11:45:00	4:21:51:00	-4.10924	-3.11640	2.21924	21.92	23.47	27.80	
12:05:00	4:22:11:00			0.60646			27.53	
12:25:00	4:22:31:00			5.81158			25.13	
12:45:00	4:22:51:00			5.39534			24.71	
13:05:00	4:23:11:00			8.11013			22.79	
13:25:00	4:23:31:00			9.30701			23.04	
13:45:00	4:23:51:00			8.15436			22.95	

Well

Client	Well Name	Well No.	Province
Chevron Canada Resources	Chevron et al Liard K-29	00/K-29-6030-12330	Northwest Territories
Test Name	**Test Date**	**Field**	**Pool**
Flow & Build-Up	Sep 13, 02 to Sep 18, 02	Ft. Liard	Ft. Liard Nahanni



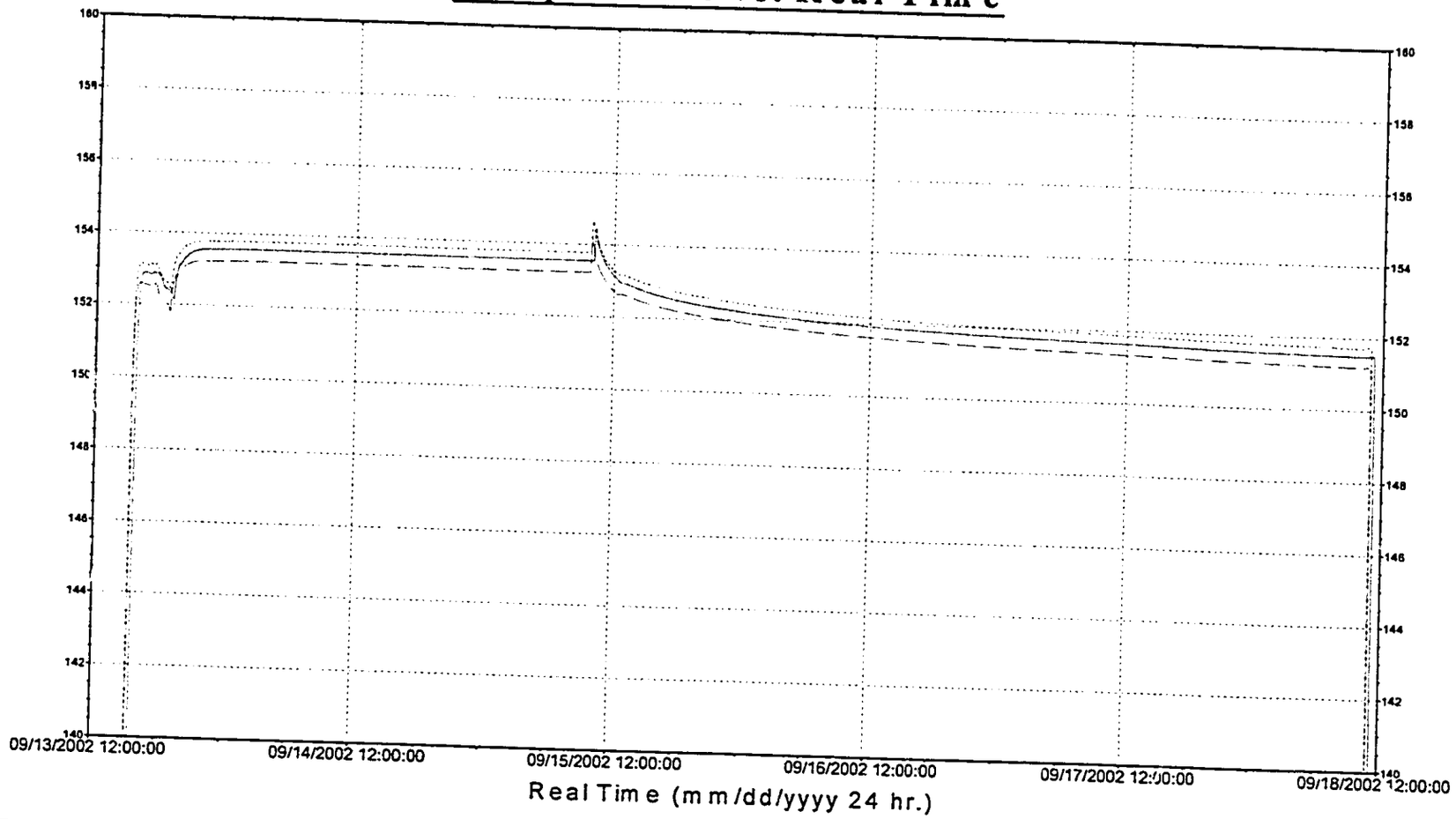
Remarks

WTSR-1707 bottom,WTSR-995 middle & 9452q-16e top.

Well

Client	Well Name	Well No.	Province
Chevron Canada Resources	Chevron et al Liard K-29	00/K-29-6030-12330	Northwest Territories
Test Name	**Test Date**	**Field**	**Pool**
Flow & Build-Up	Sep 13, 02 to Sep 18, 02	Ft. Liard	Ft. Liard Nahanni

Temperature vs. Real Time



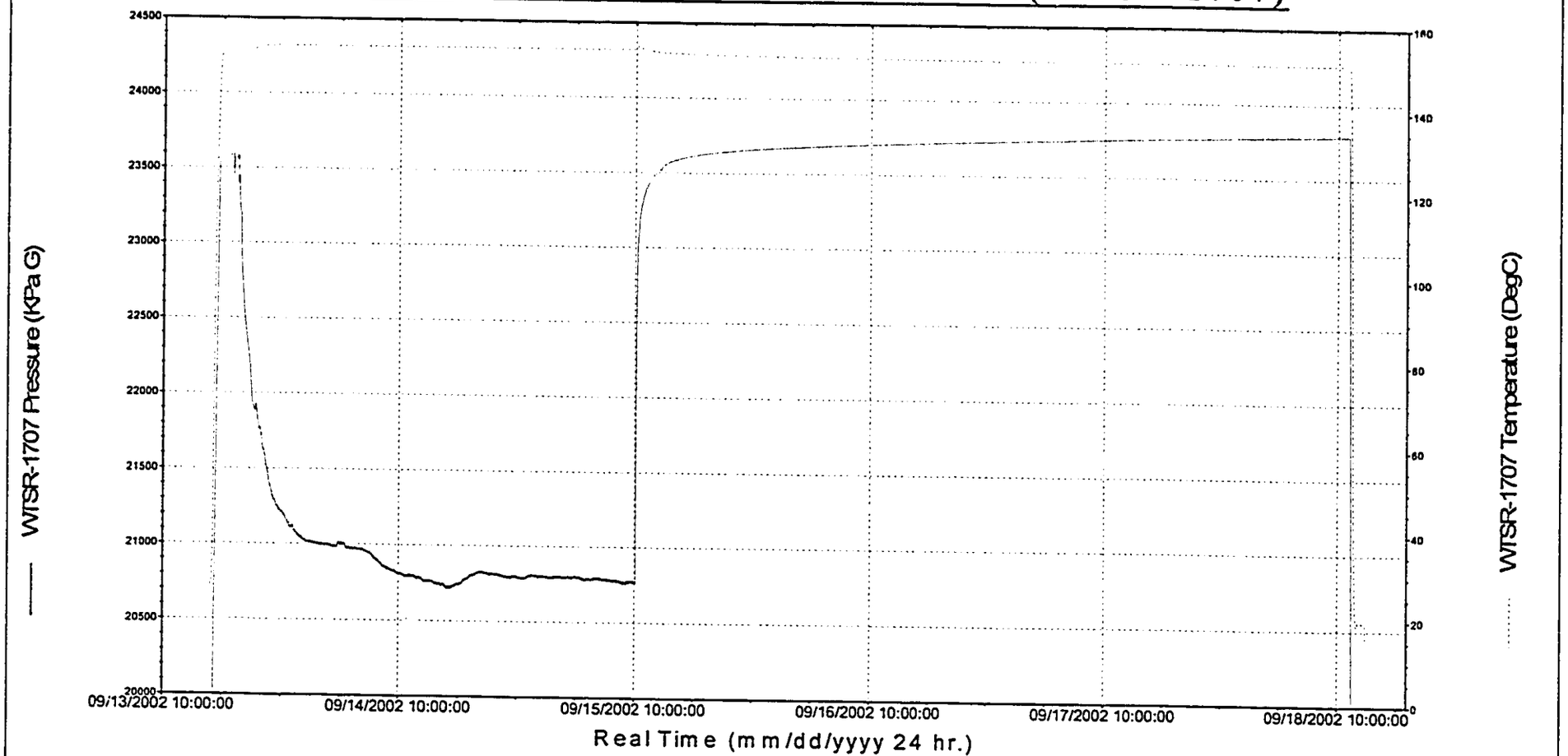
Remarks

WTSR-1707 bottom,WTSR-995 middle & 9452q-16e top.

Well

Client	Well Name	Well No.	Province
Chevron Canada Resources	Chevron et al Liard K-29	00/K-29-6030-12330	Northwest Territories
Test Name	**Test Date**	**Field**	**Pool**
Flow & Build-Up	Sep 13, 02 to Sep 18, 02	Ft. Liard	Ft. Liard Nahanni

Pressure & Temperature vs. Real Time(WTSR-1707)

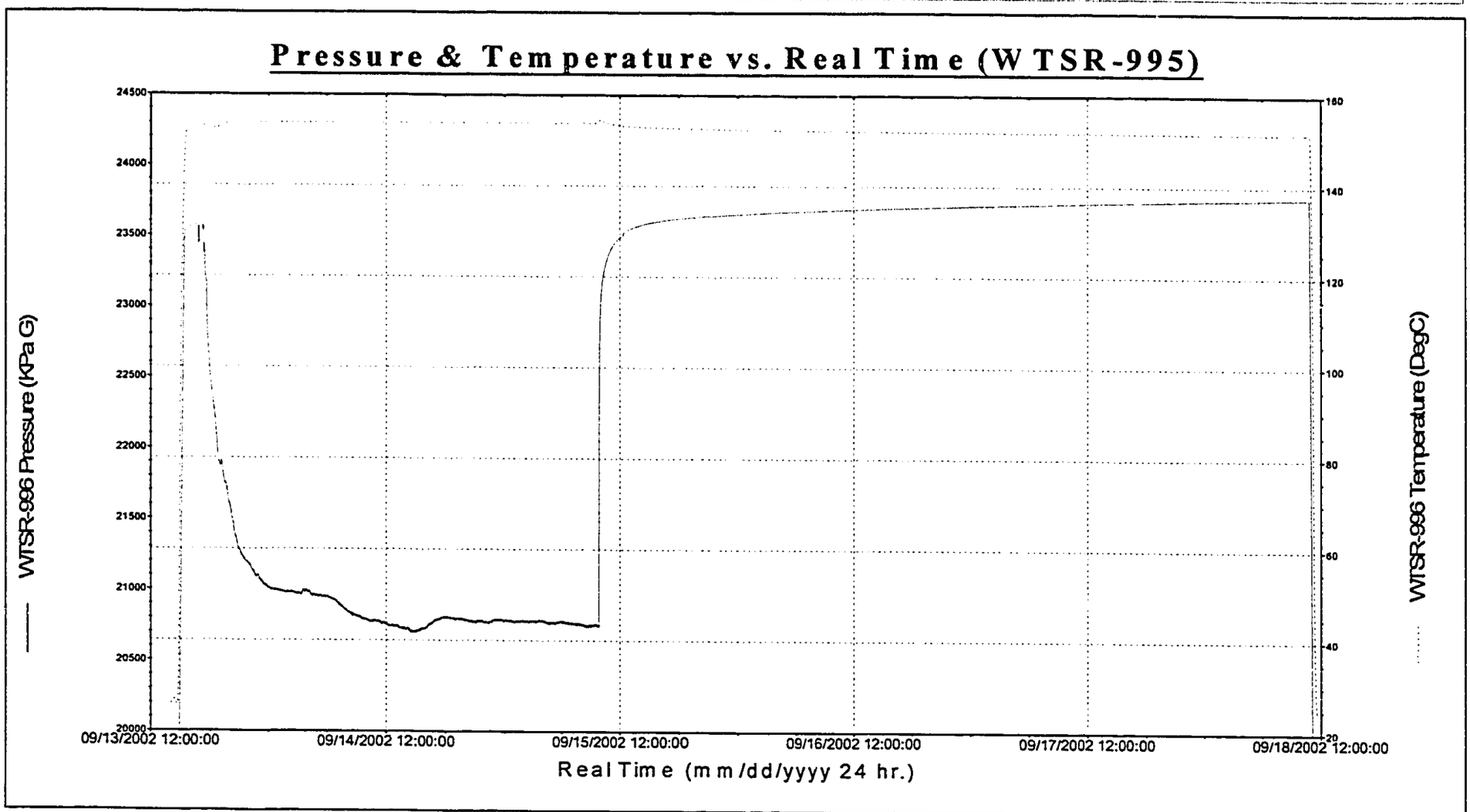


Remarks

WTSR-1707 bottom,WTSR-995 middle & 9452q-16e top.

Well

Client	Well Name	Well No.	Province
Chevron Canada Resources	Chevron et al Liard K-29	00/K-29-6030-12330	Northwest Territories
Test Name	**Test Date**	**Field**	**Pool**
Flow & Build-Up	Sep 13, 02 to Sep 18, 02	Ft. Liard	Ft. Liard Nahanni



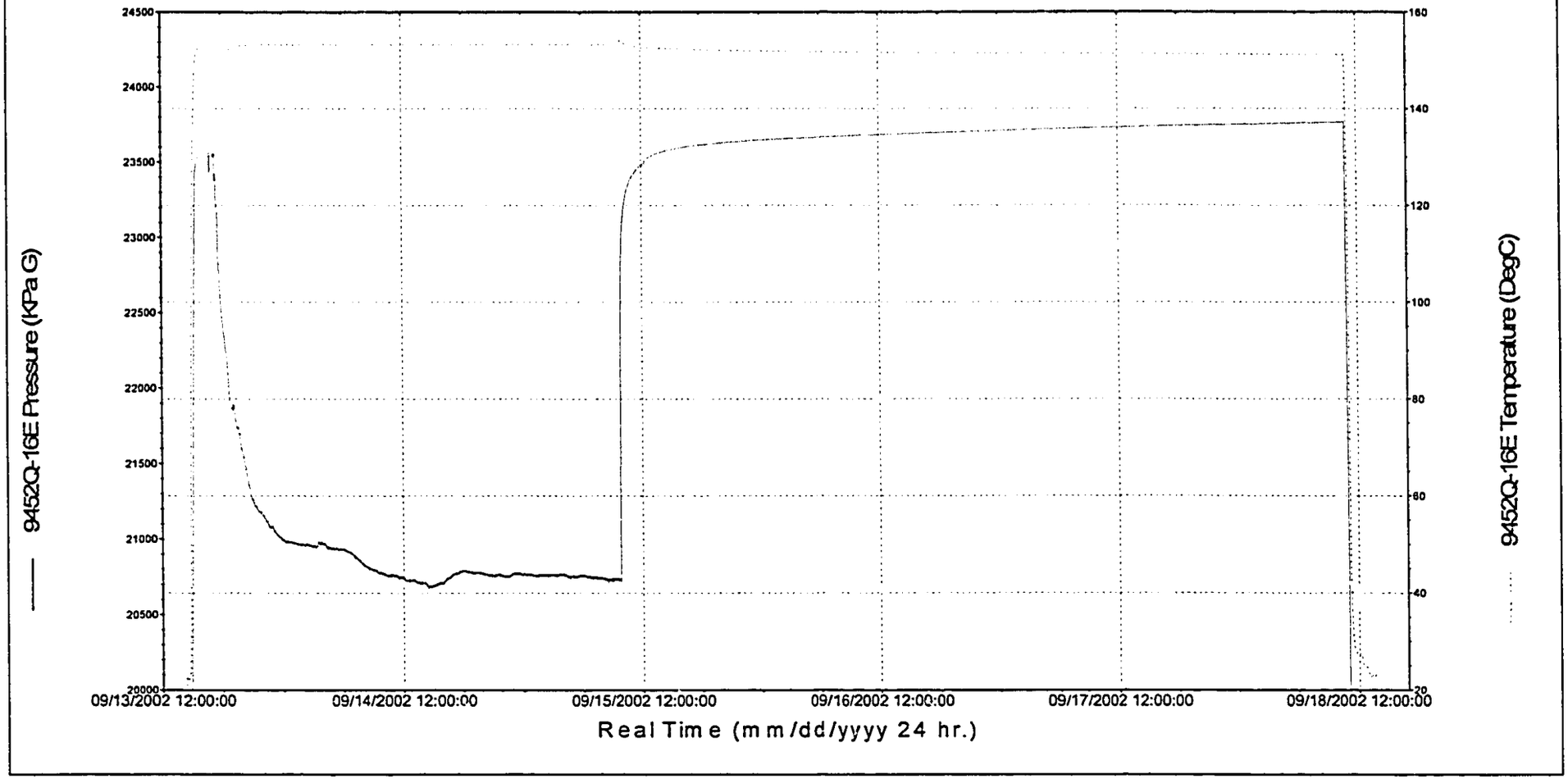
Remarks

WTSR-1707 bottom,WTSR-995 middle & 9452q-16e top.

Well

Client	Well Name	Well No.	Province
Chevron Canada Resources	Chevron et al Liard K-29	00/K-29-6030-12330	Northwest Territories
Test Name	**Test Date**	**Field**	**Pool**
Flow & Build-Up	Sep 13, 02 to Sep 18, 02	Ft. Liard	Ft. Liard Nahanni

Pressure & Temperature vs. Real Time (9452q-16e)



Remarks

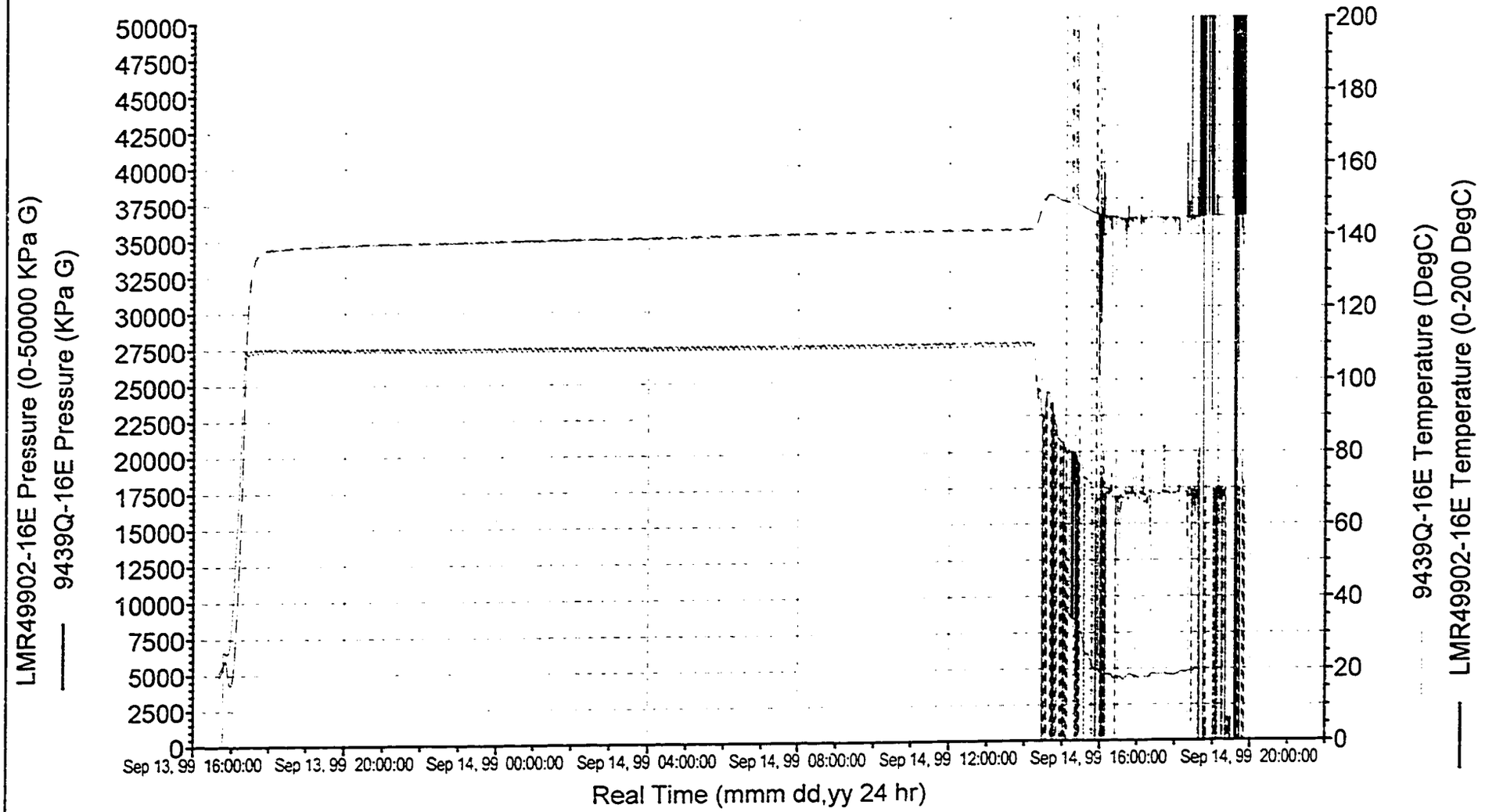
WTSR-1707 bottom,WTSR-995 middle & 9452q-16e top.

9401Q-16E		9401Q-16E	9432Q-16E	9439Q-16E	R49902-16E	9401Q-16E	9432Q-16E	9439Q-16E	R49902-16E
Real Time (mmm dd,yy 24 hr)	apsed Time (H.HH)	Pressure (KPa G)	Pressure (KPa G)	Pressure (KPa G)	Pressure (KPa G)	Temperature (DegC)	Temperature (DegC)	Temperature (DegC)	Temperature (DegC)
07:21:00	39.7000	27565.2180				148.51			
07:27:00	39.8000	27565.4157				148.51			
07:33:00	39.9000	27565.5146				148.51			
07:39:00	40.0000	27565.6135				148.51			
07:45:00	40.1000	27565.6634				148.51			
07:51:00	40.2000	27565.7623				148.51			
07:57:00	40.3000	27565.8611				148.51			
08:03:00	40.4000	27565.9111				148.51			
08:09:00	40.5000	27566.0099				148.50			
08:15:00	40.6000	27566.1088				148.50			
08:21:00	40.7000	27563.6525				148.51			
08:27:00	40.8000	27565.1456				148.60			
08:33:00	40.9000	27566.3023				148.61			
08:39:00	41.0000	27566.8505				148.60			
08:45:00	41.1000	26833.0163				145.19			
08:51:00	41.2000	25034.8616				119.85			
08:57:00	41.3000	22811.6744				79.57			
09:03:00	41.4000	156.1044				41.39			
09:09:02	41.5006		-59517.3576				148.25		
09:15:02	41.6006		-59515.5189				148.24		
09:21:02	41.7006		-59518.4083				148.25		
09:27:02	41.8006		-59537.0678				148.34		
09:33:02	41.9006		27563.0283				148.35		
09:39:02	42.0006		-90173.1863				223.34		
09:45:02	42.1006		-59528.3930				148.30		
09:51:02	42.2006		-59522.8745				148.27		
09:57:02	42.3006		-59517.8829				148.25		
10:03:02	42.4006		-59514.7309				148.24		
10:09:02	42.5006		-59530.4956				148.31		
10:15:02	42.6006		-59537.0678				148.34		
10:21:02	42.7006		-59533.3871				148.32		
10:27:02	42.8006		-90173.1863				223.34		
10:33:02	42.9006		-90173.1863				223.34		
10:39:02	43.0006		-59516.5695				148.25		
10:45:02	43.1006		-59513.1551				148.23		
10:51:02	43.2006		-59515.2562				148.24		
10:57:02	43.3006		-59532.5985				148.32		
11:03:02	43.4006		-59532.0728				148.31		
11:09:02	43.5006		-90173.1863				223.34		
11:15:02	43.6006		-90173.1863				223.34		
11:21:02	43.7006		-59515.7815				148.24		
11:27:02	43.8006		-59511.3169				148.22		
11:33:02	43.9006		-59507.6408				148.21		
11:39:02	44.0006		-59506.0655				148.20		
11:45:02	44.1006		-59505.0154				148.19		
11:51:02	44.2006		-59503.9653				148.19		
11:57:02	44.3006		-59503.1778				148.19		
12:03:02	44.4006		-59502.6529				148.18		
12:09:02	44.5006		-59502.1279				148.18		
12:15:02	44.6006		-59501.3405				148.18		
12:21:02	44.7006		-59500.8155				148.18		
12:27:02	44.8006		-59500.2906				148.17		
12:33:02	44.9006		-59499.7657				148.17		
12:39:02	45.0006		-59499.2408				148.17		
12:45:02	45.1006		-59498.4534				148.16		
12:51:02	45.2006		-59497.9286				148.16		
12:57:02	45.3006		-90173.1863				223.34		
13:03:02	45.4006		-90173.1863				223.34		

9401Q-16E		9401Q-16E	9432Q-16E	9439Q-16E	R49902-16E	9401Q-16E	9432Q-16E	9439Q-16E	R49902-16E
Real Time (mmm dd,yy 24 hr)	Elapsed Time (H.HH)	Pressure (KPa G)	Pressure (KPa G)	Pressure (KPa G)	Pressure (KPa G)	Temperature (DegC)	Temperature (DegC)	Temperature (DegC)	Temperature (DegC)
13:09:02	45.5006		-90173.1863				223.34		
13:15:02	45.6006		-90173.1863				223.34		
13:21:02	45.7006		-90173.1863				223.34		
13:27:02	45.8006		-59495.0421				148.15		
13:33:02	45.9006		-59494.2549				148.15		
13:39:02	46.0006		-59493.4678				148.14		
13:45:02	46.1006		-59492.9430				148.14		
13:51:02	46.2006		-59492.4183				148.14		
13:57:02	46.3006		-59491.6312				148.13		
14:03:02	46.4006		-59491.1065				148.13		
14:09:02	46.5006		-90173.1863				223.34		
14:15:02	46.6006		-59490.0572				148.13		
14:21:02	46.7006		-59490.0572				148.13		
14:27:02	46.8006		-59489.7949				148.13		
14:33:02	46.9006		-59489.2702				148.12		
14:39:02	47.0006		27572.0171				148.13		
14:45:02	47.1006		27572.0873				148.13		
14:51:02	47.2006		27571.6779				148.12		
14:57:02	47.3006		27572.0616				148.12		
15:03:02	47.4006		27572.1319				148.12		
15:09:02	47.5006		27572.2021				148.12		
15:15:02	47.6006		27572.3203				148.12		
15:21:02	47.7006		27572.2467				148.12		
15:27:02	47.8006		27572.3872				148.12		
15:33:02	47.9006		27572.5756				148.11		
15:39:02	48.0006		27572.6458				148.11		
15:45:02	48.1006		27573.4885				148.10		
15:51:02	48.2006		27572.8342				148.11		
15:57:02	48.3006		17574.9633				223.34		
16:03:02	48.4006		27572.9747				148.11		
16:09:02	48.5006		27570.5058				148.14		
16:15:02	48.6006		27572.2280				148.23		
16:21:02	48.7006		27573.1712				148.23		
16:27:02	48.8006		-90173.1863				223.34		
16:33:02	48.9006		-90173.1863				223.34		
16:39:02	49.0006		24663.6478				116.53		
16:45:02	49.1006		22742.8892				76.52		
16:51:02	49.2006		97.1221				40.00		

Pressure & Temperature vs. Real Time(extended)

Company:	Lee Tool, Div. of Schlumberger	*Field:*	Fort Liard
Client:	Chevon Canada Resources	*Well Name:*	Chevron et al Liard K-29
Remarks:	9401 bot. set, bot. rec. & 9432 bot. set, top rec.9439 top set, bot. rec. & 49902 top set, top rec.	*Well Number:*	K-29



Flow & Build-Up

Chevon Canada Resources
Alberta, Canada

Sep 13, 99 to Sep 15, 99

Chevron et al Liard K-29 | **K-29** | **Fort Liard, Nahanni**

Well

Client	Chevon Canada Resources		Province	Alberta	Country	Canada
Well Name	Chevron et al Liard K-29		Deviated Well	Yes	Well Status	Gas
Well No	K-29		KB Elevation	417.40 m	CF Elevation	409.60 m
Field	Fort Liard	Pool Nahanni	Pool Datum	2500.00 mSS		

Test

Test Type	Flow & Build-Up		Atmospheric	101.30 KPa A		
Test Start (mm/dd/yy)	09/13/99	03:39 PM	Test Finish 09/15/99	11:41 AM	Casing ID	Tubing ID 177.80 mm
On Bottom	09/13/99	04:17 PM	Off Bottom 09/15/99	11:12 AM	C Pres Before 0.00 KPa G	T Pres Before
Shut In	09/15/99		ETO 09/13/99	03:39 PM	C Pres After	T Pres After

	Meas. Depth [mCF]	TVD [mCF]	Est Pressure [KPa G]	Est Gradient [KPa/m]	Est Temperature [DegC]	Grad. Threshold
Well Datum		2909.60				Grad. Recorder
Landed Depth	2466.00	2457.45				
Avg MPP Depth						

Operator: Dale Sallstrom, 1-780-778-2361
Service Company: Lee Tool, Div. of Schlumberger

Remarks: 9401 bot. set, bot. rec. & 9432 bot. set, top rec.9439 top set, bot. rec. & 49902 top set, top rec.

Depth References

Depth Reference	Offset [m]	Elevation [mMSL]
Casing Flange (CF)		409.60
Kelly Bushing (KB)	CF + 7.80	417.40

Top Recorder

Model	Serial	Latest Calibration
LMR-4000S	LMR49902-16E	04/21/99

Max. Rated Press.: 110213.79 KPa G
Max. Rated Temp.: 174.96 DegC

Bottom Hole Pressure

	Tool String MD, [mCF]	Sample R/T [mmm dd, yy 24 hr.]	Pressure [KPa G]
Sample 1	2471.00		
Sample 2			

Difference: Build Up Rate

Model	Serial	Latest Calibration
LMR-3000S	9439Q-16E	08/10/99

Max. Rated Press: 110213.15 KPa G
Max. Rated Temp: 174.99 DegC

Bottom Hole Pressure

	Tool String MD, [mCF]	Sample R/T [mmm dd, yy 24 hr]	Pressure [KPa G]
Sample 1	2471.00		
Sample 2			
Difference:			Build Up Rate

Recorder 3

Model	Serial	Latest Calibration
LMR-3000S	9432Q-16E	08/20/99

Max. Rated Press: 110213.11 KPa G
Max. Rated Temp: 174.98 DegC

Bottom Hole Pressure

	Tool String MD, [mCF]	Sample R/T [mmm dd, yy 24 hr]	Pressure [KPa G]
Sample 1	2471.00		
Sample 2			
Difference:			Build Up Rate

Bottom Recorder

Model	Serial	Latest Calibration
LMR-3000S	9401Q-16E	11/19/98

Max. Rated Press: 110209.53 KPa G
Max. Rated Temp: 174.82 DegC

Bottom Hole Pressures

	Tool String MD, [mCF]	Sample R/T [mmm dd, yy 24 hr]		Pressure [KPa G]	
Sample 1	2471.00	Sep 15, 99	02:30:10	27558.30	
Sample 2			08:30:00	27565.82	
Difference:			05:59:50	7.52	Build Up Rate 1.25 KPa/Hr.

Deviated Well Survey

Meas. Depth [mKB]	Inclination [Degrees]	TVD [mKB]	Meas. Depth [mCF]	TVD [mCF]
2471.00	4.50	2462.46	2463.20	2454.66
2484.00	4.40	2475.42	2476.20	2467.62

Tool Summary

Chevon Canada Resources
Alberta, Canada

Sep 13, 99 to Sep 15, 99

Chevron et al Liard K-29 | **K-29** | **Fort Liard, Nahanni**

Top Recorder

Tool	Serial	Latest Calibration	Battery Serial
LMR-4000S	LMR49902-16E	04/21/99	150

Landed Depth	Depth Offset	Min Battery
2465.00 mCF	-1.00 m	0.10 V

Program: liard-60 day test

	Intervals				Expected Samples			Actual Samples				
Mode	Interval [d hh:mm:ss]	Rate [hh:mm:ss]	Delta [KPa]	Periodic [hh:mm:ss]	Regular Samples	Percent Storage	Energy [Ahr]	Regular Samples	Delta Samples	Percent Storage	Energy [Ahr]	Duration [d hh:mm:ss]
HB	10:00	1			600	0.2%	0.0022	600		0.2%	0.0022	10:00
HB	30	10			259200	74.2%	5.4747	9725		2.8%	0.2054	1 3:00:50
HB	60	1:00			86400	24.7%	10.2249					
Totals:	90 10:00				346200	99.0%	15.7018	10325		3.0%	0.2076	1 3:10:50

Recorder2

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9439Q-16E	08/10/99	150 C

Landed Depth	Depth Offset	Min Battery
2466.00 mCF	0.00 m	0.10 V

Program: liard-50 day test

	Intervals				Expected Samples			Actual Samples				
Mode	Interval [d hh:mm:ss]	Rate [hh:mm:ss]	Delta [KPa]	Periodic [hh:mm:ss]	Regular Samples	Percent Storage	Energy [Ahr]	Regular Samples	Delta Samples	Percent Storage	Energy [Ahr]	Duration [d hh:mm:ss]
HB	10:00	1			600	0.2%	0.0022	600		0.2%	0.0022	10.00
HB	30	10			259200	74.2%	5.4747	9967		2.9%	0.2105	1 3:41:10
HB	60	1:00			86400	24.7%	10.2249					
Totals:	90 10:00				346200	99.0%	15.7018	10567		3.0%	0.2127	1 3:51:10

Recorder

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9432Q-16E	08/20/99	150

Landed Depth	Depth Offset	Min Battery
2464.50 mCF	-1.50 m	0.10 V

Program: liard-30 days

	Intervals				Expected Samples			Actual Samples				
Mode	Interval [d hh:mm:ss]	Rate [hh:mm:ss]	Delta [KPa]	Periodic [hh:mm:ss]	Regular Samples	Percent Storage	Energy [Ahr]	Regular Samples	Delta Samples	Percent Storage	Energy [Ahr]	Duration [d hh:mm:ss]
HB	10:00	1			600	0.2%	0.0022	600		0.2%	0.0022	10:00
HB	30	10			259200	74.2%	5.4747	17685		5.1%	0.3735	2 1:07:30
HB	15	30			43200	12.4%	2.5925					
Totals:	45 10:00				303000	86.7%	8.0693	18285		5.2%	0.3757	2 1:17:30

Recorder

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9401Q-16E	11/19/98	150

Landed Depth	Depth Offset	Min Battery
2466.00 mCF	0.00 m	18.83 V

Program Summary

	Intervals				Expected Samples			Actual Samples				
Mode	Interval [d hh:mm:ss]	Rate [hh:mm:ss]	Delta [KPa]	Periodic [hh:mm:ss]	Regular Samples	Percent Storage	Energy [Ahr]	Regular Samples	Delta Samples	Percent Storage	Energy [Ahr]	Duration [d hh:mm:ss]
HB	10:00	1			600	0.2%	0.0022	600		0.2%	0.0022	10:00
HB	30	10			259200	74.2%	5.4747	14880		4.3%	0.3143	1 17:20:00
HB	15	30			43200	12.4%	2.5925					
Totals	45 10:00				303000	86.7%	8.0693	15480		4.4%	0.3165	1 17:30:00

Calibration Summary

Chevon Canada Resources
Alberta, Canada

Sep 13, 99 to Sep 15, 99

Chevron et al Liard K-29 | **K-29** | **Fort Liard, Nahanni**

Top Recorder

Tool	Serial	Latest Calibration	Battery Serial
LMR-4000S	LMR49902-16E	04/21/99	150

Landed Depth	Depth Offset	Min Battery
2465.00 mCF	-1.00 m	0.10 V

Equations

FP = Pres Freq (Hz)
FT = Temp Freq (Hz)

XP = 2.587700e+004 + (1.000000e-002) FP
XT = 4.960700e+004 + (1.000000e-002) FT

P_0 = 1.938549e+001+ (-1.102970e+000) XT + (-2.105686e-002) XT^2 + (2.726975e-006) XT^3 + (-1.240216e-008) XT^4
P_1 = 4.300392e+001+ (-2.173011e-002) XT + (3.279552e-005) XT^2 + (1.782524e-008) XT^3 + (1.722304e-010) XT^4
P_2 = -1.696746e-003+ (1.256029e-005) XT + (-1.687992e-008) XT^2 + (-1.065681e-010) XT^3 + (-5.951906e-013) XT^4
P_3 = 3.717924e-007+ (-9.475833e-009) XT + (-5.518843e-011) XT^2 + (-5.411052e-014) XT^3 + (4.411910e-016) XT^4
Pressure (psiA) = $P_0 + P_1 XP + P_2 XP^2 + P_3 XP^3$

T_0 = 2.580166e+001
T_1 = -7.245111e-001
T_2 = -8.167484e-004
T_3 = -6.004826e-007
Temperature (degC) = $T_0 + T_1 XT + T_2 XT^2 + T_3 XT^3$

Recorder2

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9439Q-16E	08/10/99	150 C

Landed Depth	Depth Offset	Min Battery
2466.00 mCF	0.00 m	0.10 V

Equations

FP = Pres Freq (Hz)
FT = Temp Freq (Hz)

XP = 2.602300e+004 + (1.000000e-002) FP
XT = 4.617700e+004 + (1.000000e-002) FT

P_0 = 2.002256e+001+ (-1.604990e+000) XT + (-2.252490e-002) XT^2 + (3.973241e-007) XT^3 + (-1.276300e-008) XT^4
P_1 = 4.310545e+001+ (-2.115897e-002) XT + (3.758977e-005) XT^2 + (2.915778e-008) XT^3 + (1.639741e-010) XT^4
P_2 = -1.762542e-003+ (8.161465e-006) XT + (-1.005207e-007) XT^2 + (-4.225944e-010) XT^3 + (-9.245675e-013) XT^4
P_3 = 6.310796e-007+ (2.138745e-009) XT + (1.618523e-010) XT^2 + (8.813787e-013) XT^3 + (1.696126e-015) XT^4
Pressure (psiA) = $P_0 + P_1 XP + P_2 XP^2 + P_3 XP^3$

T_0 = 2.520539e+001
T_1 = -7.379367e-001
T_2 = -8.338691e-004
T_3 = -5.640936e-007
Temperature (degC) = $T_0 + T_1 XT + T_2 XT^2 + T_3 XT^3$

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9432Q-16E	08/20/99	150
Landed Depth	**Depth Offset**	**Min Battery**	
2464.50 mCF	-1.50 m	0.10 V	

Equations

FP = Pres Freq (Hz)
FT = Temp Freq (Hz)

XP = 2.504100e+004 + (1.000000e-002) FP
XT = 4.710200e+004 + (1.000000e-002) FT

P_0 = 2.000495e+001+ (-1.584861e+000) XT + (-2.061648e-002) XT^2 + (2.881244e-006) XT^3 + (-9.969509e-009) XT^4
P_1 = 3.971455e+001+ (-2.086061e-002) XT + (2.941225e-005) XT^2 + (-1.198650e-008) XT^3 + (1.030260e-010) XT^4
P_2 = -1.854139e-003+ (1.076376e-005) XT + (-3.257277e-008) XT^2 + (-6.836747e-011) XT^3 + (-3.871155e-013) XT^4
P_3 = 5.465527e-007+ (-3.711634e-009) XT + (2.911474e-011) XT^2 + (1.582671e-013) XT^3 + (5.245827e-016) XT^4
Pressure (psiA) = $P_0 + P_1 XP + P_2 XP^2 + P_3 XP^3$

T_0 = 2.521427e+001
T_1 = -7.462305e-001
T_2 = -8.775839e-004
T_3 = -6.661817e-007
Temperature (degC) = $T_0 + T_1 XT + T_2 XT^2 + T_3 XT^3$

Bottom Recorder

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9401Q-16E	11/19/98	150
Landed Depth	**Depth Offset**	**Min Battery**	
2466.00 mCF	0.00 m	18.83 V	

Equations

FP = Pres Freq (Hz)
FT = Temp Freq (Hz)

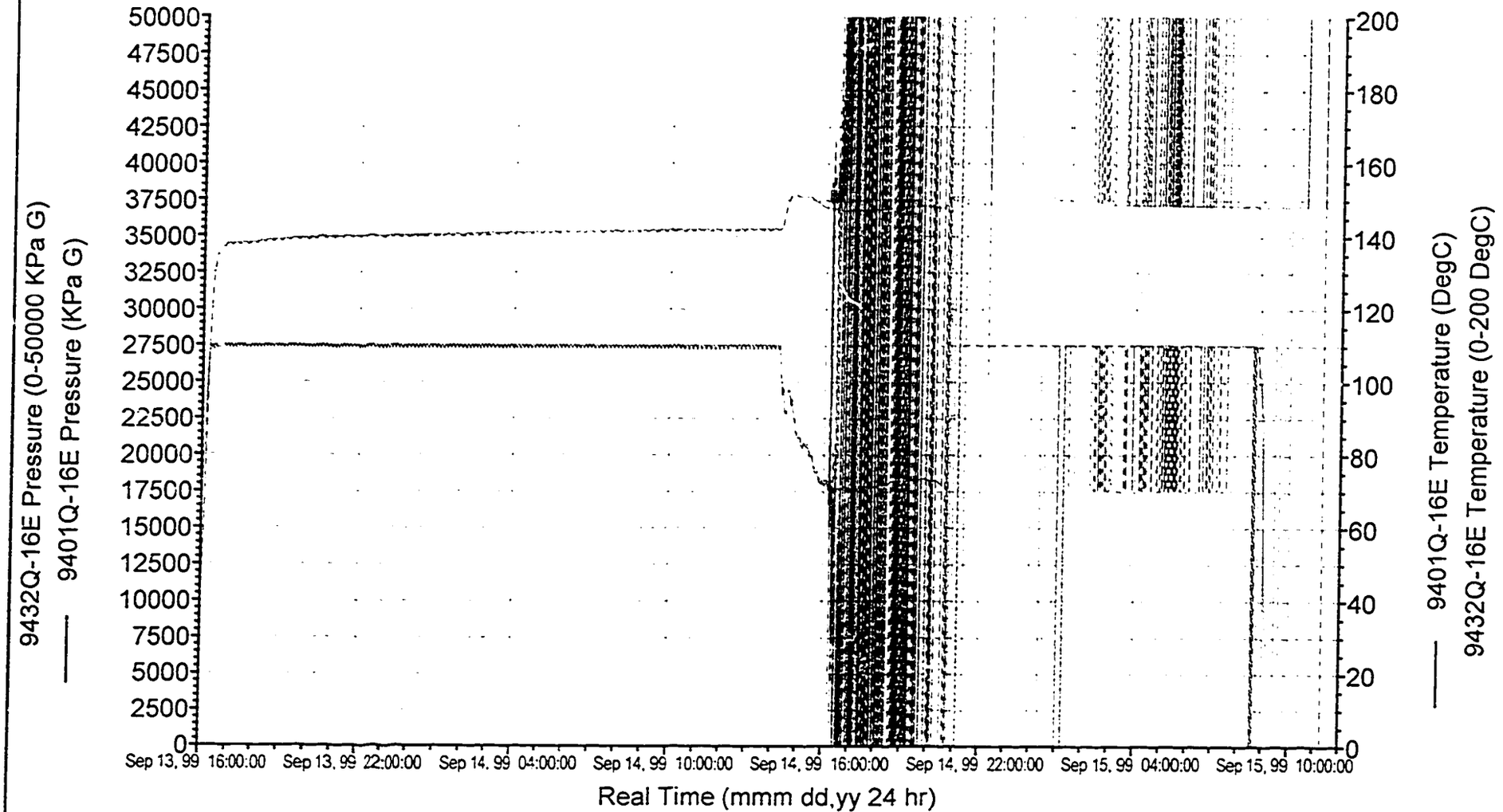
XP = 2.529900e+004 + (1.000000e-002) FP
XT = 5.382900e+004 + (1.000000e-002) FT

P_0 = 1.994289e+001+ (3.277153e-001) XT + (-1.931485e-002) XT^2 + (2.872306e-006) XT^3 + (-1.316248e-008) XT^4
P_1 = 4.068000e+001+ (-1.978860e-002) XT + (3.295403e-005) XT^2 + (1.376352e-008) XT^3 + (1.414274e-010) XT^4
P_2 = -1.792567e-003+ (9.062682e-006) XT + (-5.182607e-008) XT^2 + (-1.451315e-010) XT^3 + (-4.433513e-013) XT^4
P_3 = 6.674909e-007+ (-1.185712e-009) XT + (5.544023e-011) XT^2 + (2.313389e-013) XT^3 + (5.180155e-016) XT^4
Pressure (psiA) = $P_0 + P_1 XP + P_2 XP^2 + P_3 XP^3$

T_0 = 2.537663e+001
T_1 = -7.182610e-001
T_2 = -7.484118e-004
T_3 = -3.879256e-007
Temperature (degC) = $T_0 + T_1 XT + T_2 XT^2 + T_3 XT^3$

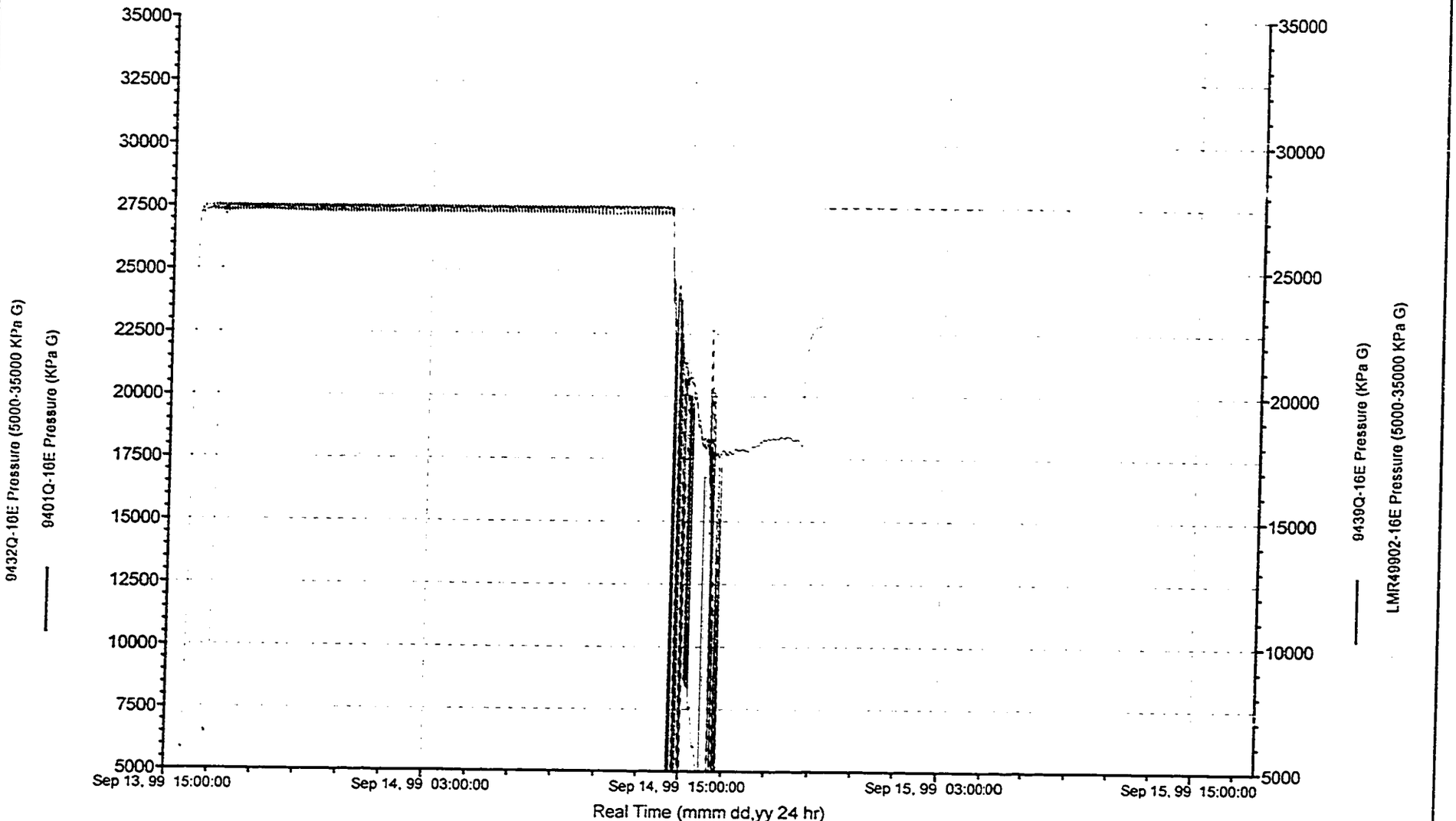
Pressure & Temperature vs. Real Time(extended)

Company:	**Lee Tool, Div. of Schlumberger**	*Field:*	**Fort Liard**
Client:	**Chevon Canada Resources**	*Well Name:*	**Chevron et al Liard K-29**
Remarks:	9401 bot. set, bot. rec. & 9432 bot. set, top rec.9439 top set, bot. rec. & 49902 top set, top rec.	*Well Number:*	**K-29**



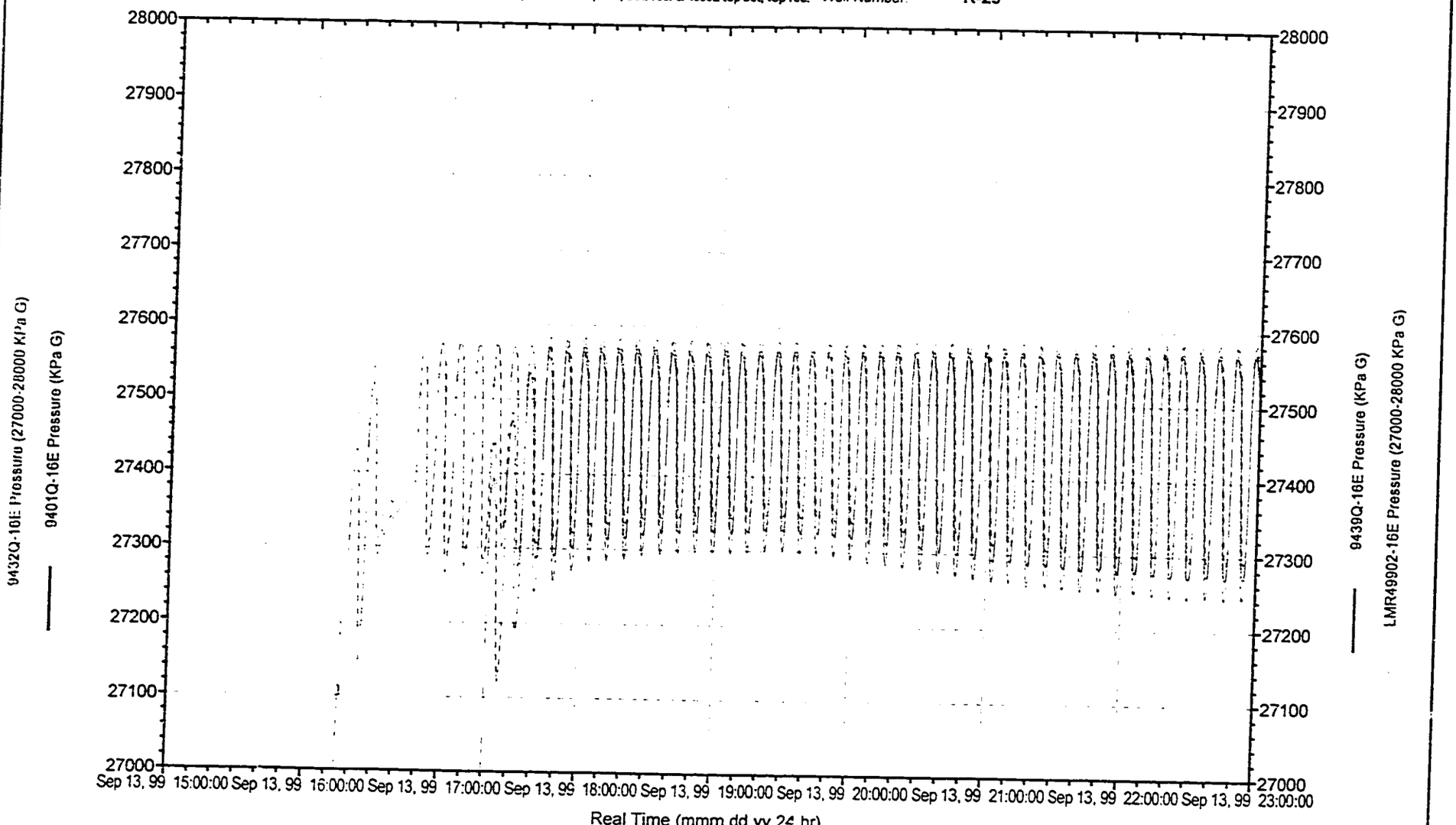
Pressure vs. Real Time

Company:	Lee Tool, Div. of Schlumberger	*Field:*	Fort Liard
Client:	Chevon Canada Resources	*Well Name:*	Chevron et al Liard K-29
Remarks:	9401 bot. set, bot. rec. & 9432 bot. set, top rec.9439 top set, bot. rec. & 49902 top set, top rec.	*Well Number:*	K-29



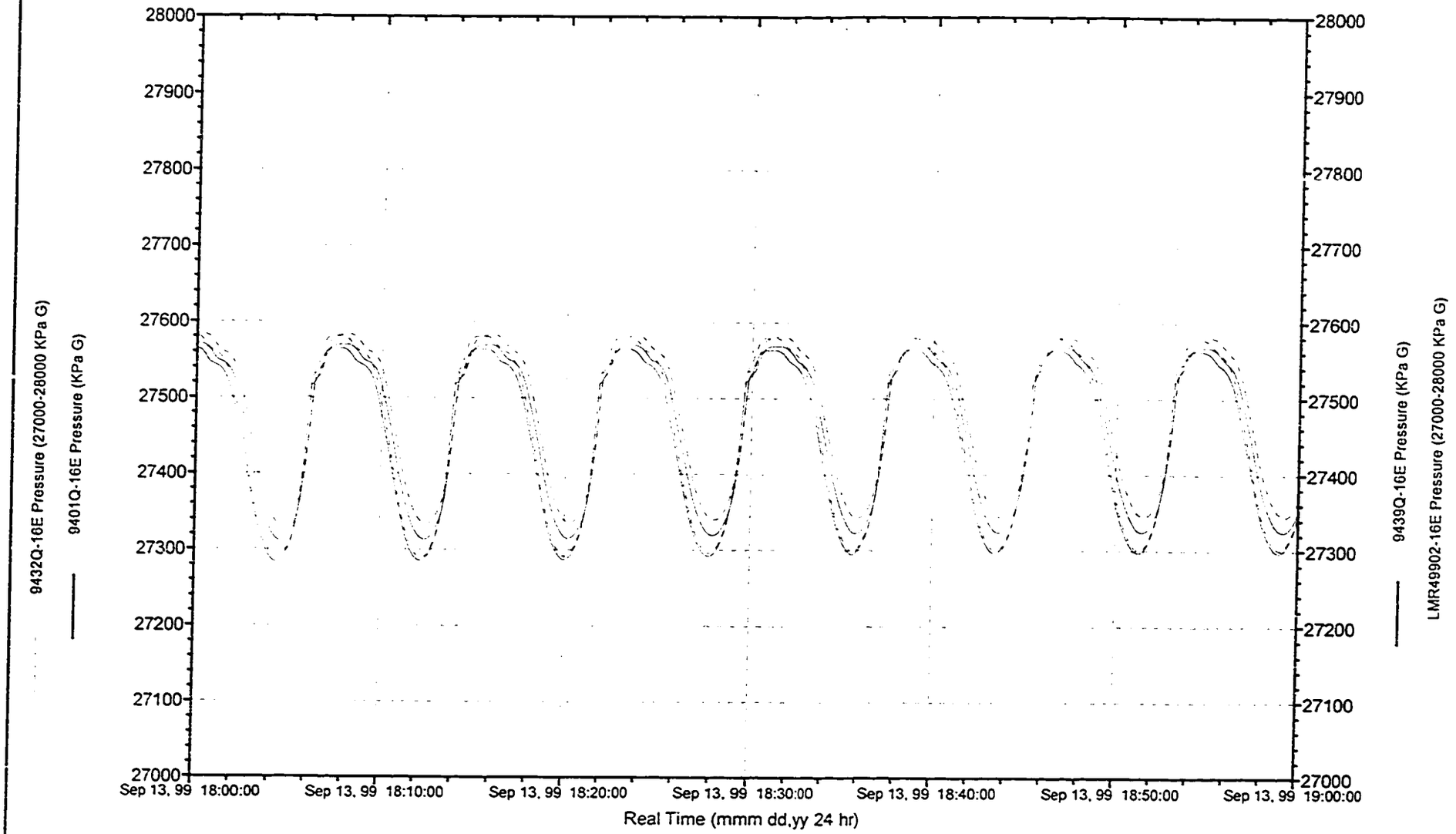
Pressure vs. Real Time

Company:	Lee Tool, Div. of Schlumberger	*Field:*	Fort Liard
Client:	Chevon Canada Resources	*Well Name:*	Chevron et al Liard K-29
Remarks:	9401 bot. set, bot. rec. & 9432 bot. set, top rec.9439 top set, bot. rec. & 49902 top set, top rec.	*Well Number:*	K-29



Pressure vs. Real Time

Company:	Lee Tool, Div. of Schlumberger	*Field:*	Fort Liard
Client:	Chevon Canada Resources	*Well Name:*	Chevron et al Liard K-29
Remarks:	9401 bot. set, bot. rec. & 9432 bot. set, top rec.9439 top set, bot. rec. & 49902 top set, top rec.	*Well Number:*	K-29



Failure report for : Chevron Canada Resources(Eric Furlan)

Tool S.N. : 9439q-16e(lmr 4000s recorder)

Client: Chevron

Well I.D or U.W.I. k-29 Fort Liard

Type of the Test: Flow & Build-Up

Duration of the Test: Approximately 2 days

Downhole Temperature:	150 °C
Downhole Pressure:	28 Mpa
Pressure Range Tool:	110 mpa
Temperature Range Tool:	175 °C

Reason For Failure :	During the first rate of the flow period due to high flowing rate the top set of recorders was unlatched and moved up the hole and then it dropped on the bottom set, which was set 5 meters bellow the top set. The incident has totally or partially damaged all four pressure tools. The top set had a NO-GO attached to the bottom recorder. When pulled the NO-GO had impressions from the impact with the J-head from the bottom set.
The extent of the damage:	As a result of the impact the Quartzdyne sensor had the reference crystal damaged. This was confirmed when replaced with a new one.
	The data from that point on was not valid.

Downhole Conditions:	High flowing rates and fairly high flowing pressures. The temperature was rated as high.

Comments:	This tool wili require new reference and temperature crystals and possible a new electronic board.
Investigation Performed By :	Vio Tandara, electronic technician.
Date:	Sept./22/1999

Failure report for : Chevron Canada Resources(Eric Furlan)

Tool S.N. : LMR49902(lmr 4000s recorder)

Client: Chevron

Well I.D or U.W.I. k-29 Fort Liard

Type of the Test: Flow & Build-Up

Duration of the Test: Approximately 2 days

Downhole Temperature:	150 °C
Downhole Pressure:	28 Mpa
Pressure Range Tool:	110 mpa
Temperature Range Tool:	175 °C
Reason For Failure :	During the first rate of the flow period due to high flowing rate the top set of recorders was unlatched and moved up the hole and then it dropped on the bottom set, which was set 5 meters bellow the top set. The incident has totally or partially damaged all four pressure tools. The top set had a NO-GO attached to the bottom recorder. When pulled the NO-GO had impressions from the impact with the J-head from the bottom set.
The extent of the damage:	As a result of the impact the main electronic board had several solder joints damaged. This was confirmed when replaced some components or touched up some of them.
	The data from that point on is not valid.

Downhole Conditions:	High flowing rates and fairly high flowing

	pressures. The temperature was rated as high.
Comments:	This tool will require new main electronic board and for sure a new temperature and reference crystal(for now).
Investigation Performed By :	Vio Tandara, electronic technician.
Date:	Sept./22/1999

Failure report for : Chevron Canada Resources(Eric Furlan)

Tool S.N. : LMR9432Q-16E
Client: Chevron
Well I.D or U.W.I. k-29 Fort Liard
Type of the Test: Flow & Build-Up
Duration of the Test: Approximately 2 days

Downhole Temperature:	150 °C
Downhole Pressure:	28 Mpa
Pressure Range Tool:	110 mpa
Temperature Range Tool:	175 °C

Reason For Failure :	During the first rate of the flow period due to high flowing rate the top set of recorders was unlatched and moved up the hole and then it dropped on the bottom set, which was set 5 meters bellow the top set. The incident has totally or partially damaged all four pressure tools. The top set had a NO-GO attached to the bottom recorder. When pulled the NO-GO had impressions from the impact with the J-head from the bottom set.
The extent of the damage:	As a result of the impact the temperature and the reference crystals on the pressure transducer were damaged.
	The data from that point on is not valid.

Downhole Conditions:	High flow rates and fairly high flow pressures. The temperature was rated as high.

Comments:	This tool will require new crystals.
Investigation Performed By :	Vio Tandara, electronic technician.
Date:	Oct./04/1999

Failure report for : Chevron Canada Resources(Eric Furlan)

Tool S.N. : LMR9401Q-16E
Client: Chevron
Well I.D or U.W.I. k-29 Fort Liard
Type of the Test: Flow & Build-Up
Duration of the Test: Approximately 2 days

Downhole Temperature:	150 °C
Downhole Pressure:	28 Mpa
Pressure Range Tool:	110 mpa
Temperature Range Tool:	175 °C

Reason For Failure :	During the first rate of the flow period due to high flowing rate the top set of recorders was unlatched and moved up the hole and then it dropped on the bottom set, which was set 5 meters bellow the top set. The incident has totally or partially damaged all four pressure tools. The top set had a NO-GO attached to the bottom recorder. When pulled the NO-GO had impressions from the impact with the J-head from the bottom set.
The extent of the damage:	As a result after the impact this tool did not record pressure and temperature data for approximately 8 hours, however it recovered and recorded data up to the end of the test.

Downhole Conditions:	High flowing rates and fairly high flow pressures.

	The temperature was rated as high.
Comments:	The failure could not be replicated in the lab.
Investigation Performed By :	Vio Tandara, electronic technician.
Date:	Oct./04/1999

ADDITIONAL INFORMATION

SUBSURFACE PRESSURE REPORT

(LIARD K-29)

Sub-Surface Pressure Report

MaxPro

Schlumberger

T449 - 49 Avenue Crescent
Red Deer Alberta T4P 1X5

Chevron Canada Resources

Flow & Build-Up

Chevron et al Liard K-29

00/K-29-6030-12330

Sep 13, 02 to Sep 18, 02

Service Company Contact Info

Report Writer	Vio Tandara, 1-403-347-2524(309-7929)	Service Company	Lee Tool, Div. of Schlumberger
Operator	Glenn Doan, 1-403-347-2524	Job ID	ChevronExtK-29
		Test Date	Sep 13, 02 to Sep 18, 02

Gauge: Lee Memory Recorder Model 3000s (Quartz)

Manufacturer: Lee Tool, Division of Schlumberger Canada Limited

Flow & Build-Up

Chevron Canada Resources
Northwest Territories, Canada

Sep 13, 02 to Sep 18, 02

Chevron et al Liard K-29 | **00/K-29-6030-12330** | **Ft. Liard, Ft. Liard Nahanni**

Well

Client: Chevron Canada Resources		Province: Northwest Territories	Country: Canada
Well Name: Chevron et al Liard K-29		Deviated Well: Yes	Well Status: Gas
Well No: 00/K-29-6030-12330		KB Elevation: 418.80 m	CF Elevation: 409.60 m
Field: Ft. Liard	Pool: Ft. Liard Nahanni	Pool Datum: 2215.00 mSS	

Test

Test Name: Flow & Build-Up				Atmospheric: 101.26 KPa A		
Test Start (mm/dd/yy): 09/13/02	01:54 PM	Test Finish: 09/18/02	12:00 PM	Casing ID		Tubing ID: 157.10 mm
On Bottom: 09/13/02	03:18 PM	Off Bottom: 09/18/02	10:45 AM	C Pres Before		T Pres Before
Shut In: 09/15/02	09:00 AM	ETO: 09/13/02	01:54 PM	C Pres After		T Pres After

	Meas Depth [mCF]	TVD [mCF]	Est Pressure [KPa G]	Est Gradient [KPa/m]	Est Temperature [DegC]	Grad Threshold
Well Datum		2641.20				Grad Recorder
Landed Depth	2455.00	2420.62				
Avg MPP Depth	2740.80	2704.98				

Operator: Glenn Doan, 1-403-347-2524

Service Company: Lee Tool, Div. of Schlumberger

Remarks: WTSR-1707 bottom,WTSR-995 middle & 9452q-16e top.

Depth References

Depth Reference	Offset [m]	Elevation [mMSL]
Casing Flange (CF)		409.60
Kelly Bushing (KB)	CF + 9.20	418.80

Perforations

	Intvl Top MD, [mKB]	Intvl Bottom MD, [mKB]	Intvl Top MD, [mCF]	Intvl Bottom MD, [mCF]	MPP TVD, [mCF]	Pressure	Gradient
Interval 1	2500.00	3000.00	2490.80	2990.80	2704.98		

Top Recorder

Model: LMR-3000S	Serial: 9452Q-16E	Latest Calibration: 07/12/02
Max. Rated Press: 110213.65 KPa G	Max. Rated Temp: 174.96 DegC	

Bottom Hole Pressure

	Tool String MD, [mCF]	Sample R/T [mmm dd, yy 24 hr]	Pressure [KPa G]
Sample 1	2455.00	Sep 18,02 03:02:00	23755.73
Sample 2		09:02:00	23764.66
Difference:		06:00:00	8.93

Build Up Rate: 1.49 KPa/Hr.

Recorder 2

Model	Serial	Latest Calibration
WTSR	WTSR-996	12/07/02

Max. Rated Press | Max. Rated Temp

Bottom Hole Pressure

	Tool String MD. [mCF]	Sample R/T [mmm dd, yy 24 hr]	Pressure [KPa G]	
Sample 1	2455.00	Sep 18,02 03:00:00	23765.02	
Sample 2		09:00:00	23774.24	
Difference:		06:00:00	9.23	Build Up Rate 1.54 KPa/Hr.

Bottom Recorder

Model	Serial	Latest Calibration
WTSR	WTSR-1707	04/10/01

Max. Rated Press | Max. Rated Temp

Bottom Hole Pressure

	Tool String MD. [mCF]	Sample R/T [mmm dd, yy 24 hr]	Pressure [KPa G]	
Sample 1	2455.00	Sep 18,02 03:02:00	23778.90	
Sample 2		09:02:00	23787.68	
Difference:		06:00:00	8.78	Build Up Rate 1.46 KPa/Hr.

Deviated Well Survey

Meas. Depth [ftKB]	Inclination [Degrees]	TVD [ftKB]	Meas. Depth [mCF]	TVD [mCF]
8998.03	36.20	8885.25	2733.40	2699.02
9029.53	36.60	8910.60	2743.00	2706.75

Tool Summary

Chevron Canada Resources
Northwest Territories, Canada

Sep 13, 02 to Sep 18, 02

Chevron et al Liard K-29 — 00/K-29-6030-12330 — Ft. Liard, Ft. Liard Nahanni

Top Recorder

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9452Q-16E	07/12/02	165 C
Landed Depth		**Depth Offset**	**Min Battery**
2452.00 mCF MD (2417.62 mCF TVD)		-3.00 m	18.64 V

Program: 120 Day Extended --2 Meg

Mode	Intervals: Interval [d hh:mm:ss]	Intervals: Rate [hh:mm:ss]	Intervals: Delta [KPa]	Intervals: Periodic [hh:mm:ss]	Expected Samples: Regular Samples	Expected Samples: Percent Storage	Expected Samples: Energy [Ahr]	Actual Samples: Regular Samples	Actual Samples: Delta Samples	Actual Samples: Percent Storage	Actual Samples: Energy [Ahr]	Actual Samples: Duration [d hh:mm:ss]
HB	10:00	1			600	0.2%	0.0022	600		0.2%	0.0022	10:00
HB	120	30			345600	98.9%	20.7396	14326		4.1%	0.8597	4 23:23:00
Totals:	120 10:00				346200	99.0%	20.7418	14926		4.3%	0.8619	4 23:33:00

Recorder 2

Tool	Serial	Latest Calibration	Battery Serial
WTSR	WTSR-996	12/07/02	
Landed Depth		**Depth Offset**	**Min. Battery**
2453.50 mCF MD (2419.12 mCF TVD)		-1.50 m	-999.25 V

Program

Mode	Intervals: Interval [d hh:mm:ss]	Intervals: Rate [hh:mm:ss]	Intervals: Delta []	Intervals: Periodic [hh:mm:ss]	Expected Samples: Regular Samples	Expected Samples: Percent Storage	Expected Samples: Energy [Ahr]	Actual Samples: Regular Samples	Actual Samples: Delta Samples	Actual Samples: Percent Storage	Actual Samples: Energy [Ahr]	Actual Samples: Duration [d hh:mm:ss]
Totals:					0	0.0%	0.0000					

Bottom Recorder

Tool	Serial	Latest Calibration	Battery Serial
WTSR	WTSR-1707	04/10/01	
Landed Depth		**Depth Offset**	**Min Battery**
2455.00 mCF MD (2420.62 mCF TVD)		0.00 m	-999.25 V

Program

Mode	Intervals: Interval [d hh:mm:ss]	Intervals: Rate [hh:mm:ss]	Intervals: Delta []	Intervals: Periodic [hh:mm:ss]	Expected Samples: Regular Samples	Expected Samples: Percent Storage	Expected Samples: Energy [Ahr]	Actual Samples: Regular Samples	Actual Samples: Delta Samples	Actual Samples: Percent Storage	Actual Samples: Energy [Ahr]	Actual Samples: Duration [d hh:mm:ss]
Totals:					0	0.0%	0.0000					

Calibration Summary

Chevron Canada Resources
Northwest Territories, Canada

Sep 13, 02 to Sep 18, 02

Chevron et al Liard K-29 **00/K-29-6030-12330** **Ft. Liard, Ft. Liard Nahanni**

Top Recorder

Tool	Serial	Latest Calibration	Battery Serial
LMR-3000S	9452Q-16E	07/12/02	165 C
Landed Depth		**Depth Offset**	**Min Battery**
2452.00 mCF MD (2417.62 mCF TVD)		-3.00 m	18.64 V

Equations

FP = Pres Freq (Hz)
FT = Temp Freq (Hz)

XP = 1.949700e+004 + (1.000000e-002) FP
XT = 5.686000e+004 + (1.000000e-002) FT

P_0 = 2.002217e+001+ (-1.155088e+000) XT + (-2.046615e-002) XT^2 + (8.164299e-006) XT^3
P_1 = 4.057197e+001+ (-2.125355e-002) XT + (2.244652e-005) XT^2 + (-6.296513e-008) XT^3
P_2 = -1.746631e-003+ (1.141569e-005) XT + (-2.229608e-008) XT^2 + (7.843763e-011) XT^3
P_3 = 5.736277e-007+ (-3.580832e-009) XT + (2.487483e-011) XT^2 + (-1.407354e-014) XT^3
Pressure (psiA) = $P_0 + P_1$ XP + P_2 XP^2 + P_3 XP^3

T_0 = 2.547014e+001
T_1 = -7.532573e-001
T_2 = -9.149916e-004
T_3 = -7.392466e-007
Temperature (degC) = $T_0 + T_1$ XT + T_2 XT^2 + T_3 XT^3

Recorder 2

Tool	Serial	Latest Calibration	Battery Serial
WTSR	WTSR-996	12/07/02	
Landed Depth		**Depth Offset**	**Min Battery**
2453.50 mCF MD (2419.12 mCF TVD)		-1.50 m	-999.25 V

Equations

FP = Pres Freq (Hz)
FT = Temp Freq (Hz)

XP = 0.000000e+000 + (0.000000e+000) FP
XT = 0.000000e+000 + (0.000000e+000) FT

Bottom Recorder

Tool	Serial	Latest Calibration	Battery Serial
WTSR	WTSR-1707	04/10/01	
Landed Depth		**Depth Offset**	**Min Battery**
2455.00 mCF MD (2420.62 mCF TVD)		0.00 m	-999.25 V

Equations

FP = Pres Freq (Hz)
FT = Temp Freq (Hz)

XP = 0.000000e+000 + (0.000000e+000) FP
XT = 0.000000e+000 + (0.000000e+000) FT

Recorded Data

Chevron Canada Resources
Northwest Territories, Canada

Sep 13, 02 to Sep 18, 02

Chevron et al Liard K-29 **00/K-29-6030-12330** **Ft. Liard, Ft. Liard Nahanni**

Data

WTSR-1707		WTSR-1707	WTSR-996	9452Q-16E	WTSR-1707	WTSR-996	9452Q-16E	
Real Time (mm/dd/yyyy 24 hr.)	Elapsed Time (DDD:HH:MM:SS)	Pressure (KPa G)	Pressure (KPa G)	Pressure (KPa G)	Temperature (DegC)	Temperature (DegC)	Temperature (DegC)	Comments
09/13/2002 14:04:00	0:00:10:00		-33.47377			25.83		
14:11:00	0:00:17:00		-25.30355			26.77		WTSR-1707 bottom
14:12:00	0:00:18:00		-22.85593			26.89		WTSR-996 middle
14:13:00	0:00:19:00		-21.51836			26.98		9452q-16e top
14:33:00	0:00:39:00	-1.51683	-15.76128	5.24216	27.25	26.07	21.67	
14:53:00	0:00:59:00	-8.04611	20146.05830	20278.94209	25.81	66.61	88.47	
15:13:00	0:01:19:00	20577.37004	22642.53954	22706.41318	88.09	133.12	138.65	
15:18:00	0:01:24:00	21219.90093	23241.93717	23299.63401	107.09	140.55	144.97	On Bottom
15:38:00	0:01:44:00	23537.51986	23546.87597	23528.54113	144.39	152.36	152.16	
15:58:00	0:02:04:00	23562.71309	23555.43229	23547.87828	152.39	153.10	152.56	
16:18:00	0:02:24:00	23570.89710	23563.72661	23556.53099	152.86	153.11	152.55	
16:38:00	0:02:44:00	23578.73637	23570.56616	23563.28664	152.85	153.07	152.52	
16:58:00	0:03:04:00	23585.34839	23567.93927	23561.82810	152.81	153.11	152.56	
17:18:00	0:03:24:00	23585.78276	23563.03025	23370.81912	152.87	153.08	152.52	
17:38:00	0:03:44:00	23444.00704	22936.72949	22870.44113	152.84	153.00	152.35	
17:58:00	0:04:04:00	22845.93319	22519.96556	22490.92009	152.67	152.70	152.13	
18:18:00	0:04:24:00	22492.71081	22319.08847	22291.65797	152.45	152.63	152.06	
18:38:00	0:04:44:00	22305.20944	22099.22339	22071.23422	152.38	152.51	151.91	
18:58:00	0:05:04:00	22062.47463	21894.74037	21868.62801	152.21	152.96	152.55	
19:18:00	0:05:24:00	21901.18692	21851.36582	21821.74268	152.84	153.34	152.80	
19:38:00	0:05:44:00	21832.35713	21752.37861	21731.17186	153.11	153.47	152.95	
19:58:00	0:06:04:00	21748.49000	21608.44485	21591.20336	153.27	153.57	153.04	
20:18:00	0:06:24:00	21612.30588	21491.08327	21469.56084	153.37	153.66	153.12	
20:38:00	0:06:44:00	21492.20021	21361.95243	21342.33350	153.44	153.71	153.16	
20:58:00	0:07:04:00	21371.40506	21277.47857	21262.11405	153.49	153.73	153.19	
21:18:00	0:07:24:00	21294.74289	21234.50390	21216.60713	153.51	153.76	153.21	
21:38:00	0:07:44:00	21247.61073	21201.89197	21184.30614	153.53	153.77	153.21	
21:58:00	0:08:04:00	21216.50873	21176.34021	21163.77708	153.54	153.77	153.22	
22:18:00	0:08:24:00	21196.10042	21140.52914	21118.76279	153.55	153.78	153.22	
22:38:00	0:08:44:00	21157.95205	21097.20974	21081.90859	153.55	153.78	153.22	
22:58:00	0:09:04:00	21112.68145	21091.73535	21069.63665	153.55	153.78	153.23	
23:18:00	0:09:24:00	21103.78039	21056.05528	21039.70799	153.56	153.78	153.23	

Data

WTSR-1707		WTSR-1707	WTSR-996	9452Q-16E	WTSR-1707	WTSR-996	9452Q-16E	
Real Time (mm/dd/yyyy 24 hr.)	Elapsed Time (DDD:HH.MM:SS)	Pressure (KPa G)	Pressure (KPa G)	Pressure (KPa G)	Temperature (DegC)	Temperature (DegC)	Temperature (DegC)	Comments
23:38:00	0:09:44:00	21070.25836	21027.43538	21013.68635	153.56	153.78	153.23	
23:58:00	0:10:04:00	21049.32605	21010.72262	20992.90689	153.56	153.78	153.23	
09/14/2002 00:18:00	0:10:24:00	21026.77348	20991.22441	20981.77489	153.56	153.78	153.23	
00:38:00	0:10:44:00	21017.78280	20995.29228	20981.02781	153.56	153.79	153.24	
00:58:00	0:11:04:00	21018.25164	20992.26551	20971.67731	153.57	153.79	153.24	
01:18:00	0:11:24:00	21013.48740	20988.34243	20970.48994	153.57	153.79	153.24	
01:38:00	0:11:44:00	21002.95230	20983.83329	20959.65515	153.57	153.79	153.24	
01:58:00	0:12:04:00	20998.64311	20985.32944	20967.47130	153.57	153.79	153.24	
02:18:00	0:12:24:00	20995.26471	20982.71635	20963.66105	153.57	153.79	153.24	
02:38:00	0:12:44:00	20997.18833	20976.69728	20956.83435	153.57	153.79	153.24	
02:58:00	0:13:04:00	20995.26471	20970.46447	20950.20632	153.57	153.79	153.24	
03:18:00	0:13:24:00	20986.94970	20966.44486	20953.76771	153.57	153.79	153.24	
03:38:00	0:13:44:00	20985.62592	20981.90967	20959.40778	153.57	153.79	153.24	
03:58:00	0:14:04:00	21001.75951	20978.10380	20965.64225	153.57	153.79	153.24	
04:18:00	0:14:24:00	21006.11696	20964.47298	20950.50777	153.57	153.79	153.23	
04:38:00	0:14:44:00	20980.63415	20959.70874	20939.27164	153.56	153.79	153.24	
04:58:00	0:15:04:00	20977.11786	20962.03225	20943.97017	153.56	153.79	153.24	
05:18:00	0:15:24:00	20967.12743	20954.57219	20946.09602	153.57	153.79	153.24	
05:38:00	0:15:44:00	20975.65618	20948.85648	20935.60889	153.57	153.79	153.24	
05:58:00	0:16:04:00	20971.00226	20948.35317	20931.79929	153.57	153.79	153.24	
06:18:00	0:16:24:00	20974.24966	20939.41764	20925.86305	153.57	153.79	153.24	
06:38:00	0:16:44:00	20953.80687	20931.06126	20909.93269	153.57	153.79	153.24	
06:58:00	0:17:04:00	20948.49796	20915.21034	20898.50456	153.57	153.79	153.24	
07:18:00	0:17:24:00	20935.54971	20889.17596	20876.68532	153.56	153.79	153.24	
07:38:00	0:17:44:00	20909.88074	20875.71061	20853.33286	153.56	153.79	153.24	
07:58:00	0:18:04:00	20886.89381	20857.83265	20836.75767	153.56	153.79	153.24	
08:18:00	0:18:24:00	20868.36775	20838.81707	20814.19324	153.56	153.79	153.24	
08:38:00	0:18:44:00	20855.37124	20809.26638	20811.27600	153.56	153.79	153.24	
08:58:00	0:19:04:00	20849.19359	20812.27937	20799.79462	153.56	153.79	153.24	
09:18:00	0:19:24:00	20831.32253	20806.97045	20792.42314	153.57	153.79	153.24	
09:38:00	0:19:44:00	20824.17273	20791.29880	20772.08880	153.57	153.79	153.24	
09:58:00	0:20:04:00	20810.47296	20782.03921	20772.83101	153.56	153.79	153.24	
10:18:00	0:20:24:00	20808.92854	20778.93660	20763.23282	153.56	153.79	153.23	
10:38:00	0:20:44:00	20794.98057	20786.66556	20752.29972	153.56	153.79	153.23	
10:58:00	0:21:04:00	20795.41493	20781.85306	20765.65628	153.56	153.79	153.24	
11:18:00	0:21:24:00	20798.44860	20774.83425	20749.97184	153.56	153.78	153.23	
11:38:00	0:21:44:00	20791.40911	20767.80855	20747.39993	153.56	153.78	153.23	
11:58:00	0:22:04:00	20787.96176	20759.36255	20738.74064	153.56	153.78	153.23	
12:18:00	0:22:24:00	20779.83980	20742.49121	20719.64525	153.56	153.78	153.23	

Data

WTSR-1707		WTSR-1707	WTSR-996	9452Q-16E	WTSR-1707	WTSR-996	9452Q-16E	
Real Time (mm/dd/yyyy 24 hr.)	Elapsed Time (DDD:HH:MM:SS)	Pressure (KPa G)	Pressure (KPa G)	Pressure (KPa G)	Temperature (DegC)	Temperature (DegC)	Temperature (DegC)	Comments
12:38:00	0:22:44:00	20764.29226	20749.73065	20718.45531	153.56	153.78	153.23	
12:58:00	0:23:04:00	20764.27157	20740.19528	20719.84200	153.56	153.78	153.23	
13:18:00	0:23:24:00	20756.25304	20736.18946	20710.73843	153.56	153.78	153.23	
13:38:00	0:23:44:00	20750.45459	20722.91716	20706.23792	153.55	153.78	153.23	
13:58:00	1:00:04:00	20744.82162	20714.17468	20699.16312	153.55	153.78	153.23	
14:18:00	1:00:24:00	20739.73333	20721.42791	20698.51863	153.55	153.78	153.23	
14:38:00	1:00:44:00	20729.90149	20708.98987	20688.32390	153.55	153.77	153.23	
14:58:00	1:01:04:00	20731.22527	20706.45262	20693.57034	153.55	153.78	153.23	
15:18:00	1:01:24:00	20725.37857	20709.75518	20705.93982	153.55	153.78	153.23	
15:38:00	1:01:44:00	20737.67182	20724.41331	20713.95479	153.55	153.78	153.23	
15:58:00	1:02:04:00	20746.85556	20722.13117	20708.71204	153.56	153.78	153.23	
16:18:00	1:02:24:00	20752.29548	20751.44053	20728.45305	153.55	153.78	153.23	
16:38:00	1:02:44:00	20773.60700	20760.11407	20747.40447	153.56	153.78	153.23	
16:58:00	1:03:04:00	20786.74140	20784.92120	20765.76185	153.55	153.78	153.23	
17:18:00	1:03:24:00	20804.04710	20791.88485	20775.26315	153.56	153.77	153.23	
17:38:00	1:03:44:00	20815.34061	20799.62759	20788.42478	153.55	153.77	153.23	
17:58:00	1:04:04:00	20822.48352	20803.03358	20790.05760	153.55	153.78	153.23	
18:18:00	1:04:24:00	20828.01307	20801.93732	20782.14511	153.55	153.77	153.22	
18:38:00	1:04:44:00	20822.10432	20797.62813	20778.72996	153.55	153.77	153.22	
18:58:00	1:05:04:00	20822.29737	20787.61013	20775.66114	153.55	153.77	153.23	
19:18:00	1:05:24:00	20815.93356	20795.00125	20780.36065	153.55	153.77	153.23	
19:38:00	1:05:44:00	20812.00358	20795.31841	20773.63247	153.55	153.77	153.23	
19:58:00	1:06:04:00	20817.52623	20784.36273	20775.11794	153.55	153.77	153.22	
20:18:00	1:06:24:00	20803.25421	20784.57646	20766.90318	153.55	153.77	153.23	
20:38:00	1:06:44:00	20805.10199	20779.03312	20757.40406	153.55	153.77	153.22	
20:58:00	1:07:04:00	20797.08345	20779.13654	20758.88737	153.55	153.77	153.23	
21:18:00	1:07:24:00	20792.96731	20781.43248	20763.98165	153.55	153.77	153.23	
21:38:00	1:07:44:00	20805.37088	20784.87983	20762.59950	153.55	153.77	153.22	
21:58:00	1:08:04:00	20798.27623	20771.71095	20761.11509	153.55	153.77	153.22	
22:18:00	1:08:24:00	20788.22376	20768.51181	20752.35705	153.55	153.77	153.22	
22:38:00	1:08:44:00	20793.96704	20775.50304	20755.07737	153.55	153.77	153.23	
22:58:00	1:09:04:00	20791.74695	20787.06545	20769.22657	153.55	153.77	153.23	
23:18:00	1:09:24:00	20802.15105	20786.05882	20760.76763	153.55	153.77	153.23	
23:38:00	1:09:44:00	20805.07441	20786.67245	20772.69127	153.55	153.77	153.23	
23:58:00	1:10:04:00	20810.40401	20786.48629	20765.51883	153.55	153.77	153.22	
09/15/2002 00:18:00	1:10:24:00	20806.61192	20776.33730	20765.56831	153.55	153.77	153.22	
00:38:00	1:10:44:00	20805.44672	20781.26011	20764.72496	153.55	153.77	153.23	
00:58:00	1:11:04:00	20802.17174	20776.55103	20750.57574	153.55	153.77	153.22	
01:18:00	1:11:24:00	20789.96122	20772.11085	20761.01503	153.55	153.77	153.23	

Data

WTSR-1707		WTSR-1707	WTSR-996	9452Q-16E	WTSR-1707	WTSR-996	9452Q-16E	
Real Time (mm/dd/yyyy 24 hr.)	Elapsed Time (DDD:HH:MM:SS)	Pressure (KPa G)	Pressure (KPa G)	Pressure (KPa G)	Temperature (DegC)	Temperature (DegC)	Temperature (DegC)	Comments
01:38:00	1:11:44:00	20790.71964	20781.57727	20763.93327	153.55	153.77	153.23	
01:58:00	1:12:04:00	20791.45048	20779.55023	20766.11041	153.55	153.77	153.23	
02:18:00	1:12:24:00	20794.16010	20779.75017	20763.29112	153.55	153.77	153.23	
02:38:00	1:12:44:00	20799.57244	20777.13708	20761.60879	153.55	153.77	153.23	
02:58:00	1:13:04:00	20799.03465	20786.96203	20768.68338	153.55	153.77	153.23	
03:18:00	1:13:24:00	20790.77480	20778.14371	20758.64218	153.55	153.77	153.22	
03:38:00	1:13:44:00	20799.92407	20784.25931	20766.75474	153.55	153.77	153.23	
03:58:00	1:14:04:00	20801.71669	20787.67908	20765.17137	153.55	153.77	153.23	
04:18:00	1:14:24:00	20804.77104	20773.31742	20757.99893	153.55	153.77	153.22	
04:38:00	1:14:44:00	20790.07154	20767.90508	20753.29829	153.55	153.77	153.22	
04:58:00	1:15:04:00	20781.32216	20769.60117	20741.91773	153.55	153.77	153.22	
05:18:00	1:15:24:00	20787.01029	20765.78151	20742.56098	153.55	153.77	153.22	
05:38:00	1:15:44:00	20790.28527	20773.71042	20756.90704	153.55	153.77	153.23	
05:58:00	1:16:04:00	20789.85091	20772.40042	20751.61372	153.55	153.77	153.23	
06:18:00	1:16:24:00	20799.03465	20767.58792	20757.75153	153.55	153.77	153.22	
06:38:00	1:16:44:00	20788.14102	20760.67254	20752.90133	153.55	153.77	153.22	
06:58:00	1:17:04:00	20791.47806	20765.89872	20744.53909	153.55	153.77	153.22	
07:18:00	1:17:24:00	20784.78330	20764.28536	20749.04296	153.55	153.77	153.22	
07:38:00	1:17:44:00	20785.97609	20761.87222	20735.58530	153.55	153.77	153.22	
07:58:00	1:18:04:00	20784.02489	20758.85923	20732.02151	153.55	153.77	153.22	
08:18:00	1:18:24:00	20782.51495	20743.30479	20733.75565	153.55	153.77	153.22	
08:38:00	1:18:44:00	20772.68311	20748.22071	20728.60846	153.54	153.77	153.22	
08:58:00	1:19:04:00	20768.56697	20741.77417	20737.21704	153.54	153.77	153.22	
09:18:00	1:19:24:00	20760.19680	20749.19976	20732.96281	153.55	153.77	153.22	
09:38:00	1:19:44:00	20766.78124	20758.05255	20734.09972	153.55	153.77	153.22	
09:58:00	1:20:04:00	20769.83559	22949.34679	22983.21814	153.55	154.64	154.07	
10:18:00	1:20:24:00	23059.58615	23237.39357	23236.15185	154.38	154.15	153.56	
10:38:00	1:20:44:00	23275.83152	23338.65603	23332.83386	153.86	153.88	153.29	
10:58:00	1:21:04:00	23367.66203	23398.76402	23390.78357	153.61	153.69	153.11	
11:18:00	1:21:24:00	23423.59184	23438.94633	23429.18606	153.44	153.54	152.97	
11:38:00	1:21:44:00	23460.38195	23467.09050	23456.42566	153.29	153.41	152.84	
11:58:00	1:22:04:00	23486.80244	23488.74675	23477.61294	153.17	153.30	152.73	
12:18:00	1:22:24:00	23508.09328	23505.75598	23494.14268	153.06	153.19	152.63	
12:38:00	1:22:44:00	23523.03409	23537.11307	23528.22934	152.95	153.18	152.64	
12:58:00	1:23:04:00	23552.38483	23548.90301	23539.93585	152.94	153.16	152.62	
13:18:00	1:23:24:00	23563.51977	23558.74864	23549.51228	152.92	153.13	152.58	
13:38:00	1:23:44:00	23572.87588	23567.20154	23557.89288	152.88	153.09	152.55	
13:58:00	2:00:04:00	23581.14952	23574.54440	23565.14632	152.84	153.05	152.51	
14:18:00	2:00:24:00	23588.10627	23581.28741	23571.66277	152.80	153.02	152.48	

Data

WTSR-1707		WTSR-1707	WTSR-996	9452Q-16E	WTSR-1707	WTSR-996	9452Q-16E	
Real Time (mm/dd/yyyy 24 hr.)	Elapsed Time (DDD:HH:MM:SS)	Pressure (KPa G)	Pressure (KPa G)	Pressure (KPa G)	Temperature (DegC)	Temperature (DegC)	Temperature (DegC)	Comments
14:38:00	2:00:44:00	23595.24229	23587.20307	23577.49183	152.76	152.98	152.45	
14:58:00	2:01:04:00	23600.54431	23592.31893	23582.83606	152.73	152.95	152.42	
15:18:00	2:01:24:00	23605.58434	23597.22796	23587.59211	152.70	152.92	152.39	
15:38:00	2:01:44:00	23610.50715	23601.33031	23591.95745	152.67	152.89	152.36	
15:58:00	2:02:04:00	23615.20244	23605.52228	23595.98156	152.64	152.87	152.33	
16:18:00	2:02:24:00	23619.34616	23609.41089	23599.76322	152.62	152.84	152.31	
16:38:00	2:02:44:00	23622.95209	23613.00303	23603.15467	152.59	152.82	152.28	
16:58:00	2:03:04:00	23626.20638	23616.08496	23606.35327	152.56	152.80	152.26	
17:18:00	2:03:24:00	23629.34347	23618.65669	23609.35914	152.54	152.77	152.24	
17:38:00	2:03:44:00	23632.25993	23621.82825	23612.12843	152.52	152.75	152.22	
17:58:00	2:04:04:00	23635.13502	23624.70334	23614.74388	152.50	152.73	152.20	
18:18:00	2:04:24:00	23637.27927	23627.37159	23617.21619	152.48	152.71	152.18	
18:38:00	2:04:44:00	23640.26468	23629.33658	23619.49616	152.46	152.69	152.16	
18:58:00	2:05:04:00	23642.60888	23631.90141	23621.72633	152.44	152.68	152.14	
19:18:00	2:05:24:00	23644.62213	23633.85950	23623.81358	152.42	152.66	152.12	
19:38:00	2:05:44:00	23646.72501	23635.81760	23625.79634	152.40	152.64	152.11	
19:58:00	2:06:04:00	23648.81411	23637.87911	23627.69104	152.39	152.62	152.09	
20:18:00	2:06:24:00	23651.13762	23639.43731	23629.44303	152.37	152.61	152.07	
20:38:00	2:06:44:00	23652.35798	23641.38162	23631.28771	152.36	152.59	152.06	
20:58:00	2:07:04:00	23654.01271	23642.83640	23632.89674	152.34	152.58	152.04	
21:18:00	2:07:24:00	23656.10180	23644.58076	23634.64216	152.33	152.56	152.03	
21:38:00	2:07:44:00	23657.73585	23646.13207	23636.25058	152.31	152.55	152.01	
21:58:00	2:08:04:00	23659.28715	23647.67648	23637.76017	152.30	152.53	152.00	
22:18:00	2:08:24:00	23661.24525	23649.12437	23639.22584	152.28	152.52	151.99	
22:38:00	2:08:44:00	23662.21740	23650.66878	23640.88274	152.27	152.51	151.97	
22:58:00	2:09:04:00	23663.85145	23652.50966	23642.25506	152.26	152.50	151.96	
23:18:00	2:09:24:00	23665.61649	23653.95066	23643.67076	152.25	152.48	151.95	
23:38:00	2:09:44:00	23666.67827	23654.79181	23645.03696	152.24	152.47	151.94	
23:58:00	2:10:04:00	23667.98827	23656.32933	23646.40866	152.22	152.46	151.92	
09/16/2002 00:18:00	2:10:24:00	23669.71884	23657.66690	23647.63235	152.21	152.45	151.91	
00:38:00	2:10:44:00	23670.68409	23659.10789	23649.00367	152.20	152.44	151.90	
00:58:00	2:11:04:00	23671.54593	23659.93526	23650.23276	152.19	152.43	151.89	
01:18:00	2:11:24:00	23673.25582	23661.37625	23651.55444	152.18	152.41	151.88	
01:38:00	2:11:44:00	23674.44171	23662.90687	23652.78320	152.17	152.40	151.87	
01:58:00	2:12:04:00	23675.61380	23663.94108	23653.91910	152.16	152.39	151.86	
02:18:00	2:12:24:00	23677.01343	23665.18212	23655.00560	152.15	152.38	151.85	
02:38:00	2:12:44:00	23678.29584	23666.40938	23656.28319	152.14	152.37	151.84	
02:58:00	2:13:04:00	23679.02668	23667.24364	23657.41870	152.13	152.36	151.83	
03:18:00	2:13:24:00	23680.52283	23668.77426	23658.50481	152.12	152.35	151.82	

Data

WTSR-1707		WTSR-1707	WTSR-996	9452Q-16E	WTSR-1707	WTSR-996	9452Q-16E	
Real Time (mm/dd/yyyy 24 hr.)	Elapsed Time (DDD:HH:MM:SS)	Pressure (KPa G)	Pressure (KPa G)	Pressure (KPa G)	Temperature (DegC)	Temperature (DegC)	Temperature (DegC)	Comments
03:38:00	2:13:44:00	23681.88798	23669.50510	23659.59670	152.11	152.35	151.81	
03:58:00	2:14:04:00	23682.74982	23670.73925	23660.68258	152.10	152.33	151.80	
04:18:00	2:14:24:00	23683.57718	23671.96651	23661.71907	152.09	152.33	151.79	
04:38:00	2:14:44:00	23684.51486	23672.99382	23662.76137	152.08	152.32	151.79	
04:58:00	2:15:04:00	23685.88001	23674.02113	23663.80358	152.08	152.31	151.78	
05:18:00	2:15:24:00	23686.72117	23674.94502	23664.88899	152.07	152.30	151.77	
05:38:00	2:15:44:00	23687.65885	23676.06885	23665.78321	152.06	152.30	151.76	
05:58:00	2:16:04:00	23688.93436	23676.89622	23666.67733	152.05	152.29	151.75	
06:18:00	2:16:24:00	23690.06510	23677.82700	23667.72513	152.04	152.28	151.75	
06:38:00	2:16:44:00	23690.55462	23679.14389	23668.66834	152.04	152.27	151.74	
06:58:00	2:17:04:00	23691.60951	23679.26800	23669.70996	152.03	152.27	151.73	
07:18:00	2:17:24:00	23692.76092	23680.79862	23670.56049	152.02	152.26	151.72	
07:38:00	2:17:44:00	23693.69860	23681.52256	23671.50946	152.01	152.25	151.72	
07:58:00	2:18:04:00	23694.43634	23682.24651	23672.45231	152.00	152.24	151.71	
08:18:00	2:18:24:00	23695.44296	23683.46687	23673.35187	152.00	152.24	151.70	
08:38:00	2:18:44:00	23696.16001	23683.99086	23674.25135	151.99	152.23	151.69	
08:58:00	2:19:04:00	23697.29074	23685.21123	23675.10759	151.99	152.22	151.69	
09:18:00	2:19:24:00	23698.22842	23685.83864	23676.00694	151.98	152.21	151.68	
09:38:00	2:19:44:00	23699.46947	23686.95559	23676.86307	151.97	152.21	151.68	
09:58:00	2:20:04:00	23700.07620	23687.67253	23677.76229	151.97	152.20	151.67	
10:18:00	2:20:24:00	23701.10351	23688.49310	23678.56905	151.96	152.20	151.66	
10:38:00	2:20:44:00	23701.47582	23689.32047	23679.46814	151.96	152.19	151.66	
10:58:00	2:21:04:00	23702.39282	23690.13404	23680.32404	151.95	152.19	151.65	
11:18:00	2:21:24:00	23703.22018	23691.05793	23681.22299	151.94	152.18	151.64	
11:38:00	2:21:44:00	23704.33712	23692.07835	23682.02953	151.94	152.17	151.64	
11:58:00	2:22:04:00	23705.16449	23692.89882	23682.74367	151.93	152.16	151.63	
12:18:00	2:22:24:00	23706.20559	23693.51245	23683.74095	151.92	152.16	151.63	
12:38:00	2:22:44:00	23706.67443	23694.63628	23684.44883	151.92	152.16	151.62	
12:58:00	2:23:04:00	23707.48111	23695.65670	23685.30441	151.91	152.15	151.61	
13:18:00	2:23:24:00	23708.39810	23696.07038	23686.11689	151.91	152.14	151.61	
13:38:00	2:23:44:00	23709.20478	23696.78743	23686.87388	151.90	152.14	151.60	
13:58:00	3:00:04:00	23710.10799	23697.71132	23687.63703	151.90	152.13	151.60	
14:18:00	3:00:24:00	23710.80435	23698.53179	23688.53546	151.89	152.13	151.59	
14:38:00	3:00:44:00	23711.50761	23699.24194	23689.24928	151.89	152.12	151.59	
14:58:00	3:01:04:00	23712.21087	23700.26236	23690.06156	151.88	152.12	151.58	
15:18:00	3:01:24:00	23712.90724	23700.97941	23690.86756	151.88	152.11	151.58	
15:38:00	3:01:44:00	23713.70013	23701.48961	23691.58127	151.87	152.11	151.57	
15:58:00	3:02:04:00	23714.72054	23702.31008	23692.29495	151.87	152.10	151.57	
16:18:00	3:02:24:00	23715.51343	23703.23397	23693.14379	151.86	152.10	151.56	

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WTSR-1707		WTSR-1707	WTSR-996	9452Q-16E	WTSR-1707	WTSR-996	9452Q-16E	
Real Time (mm/dd/yyyy 24 hr.)	Elapsed Time (DDD:HH:MM:SS)	Pressure (KPa G)	Pressure (KPa G)	Pressure (KPa G)	Temperature (DegC)	Temperature (DegC)	Temperature (DegC)	Comments
16:38:00	3:02:44:00	23716.10638	23703.84760	23693.81442	151.86	152.09	151.56	
16:58:00	3:03:04:00	23716.80964	23704.76460	23694.57723	151.85	152.09	151.55	
17:18:00	3:03:24:00	23717.38190	23705.37822	23695.34001	151.85	152.08	151.55	
17:38:00	3:03:44:00	23718.51263	23706.39175	23696.09646	151.84	152.08	151.54	
17:58:00	3:04:04:00	23719.41583	23706.70201	23696.80992	151.84	152.07	151.54	
18:18:00	3:04:24:00	23719.98809	23707.41906	23697.52334	151.83	152.07	151.53	
18:38:00	3:04:44:00	23720.79477	23708.23952	23698.19381	151.83	152.06	151.53	
18:58:00	3:05:04:00	23721.04988	23708.86005	23698.95009	151.82	152.06	151.52	
19:18:00	3:05:24:00	23722.15992	23709.57020	23699.71266	151.82	152.05	151.52	
19:38:00	3:05:44:00	23722.97350	23710.58372	23700.42595	151.81	152.05	151.51	
19:58:00	3:06:04:00	23723.56644	23710.79746	23701.09631	151.81	152.04	151.51	
20:18:00	3:06:24:00	23723.92497	23712.01782	23701.76030	151.81	152.04	151.51	
20:38:00	3:06:44:00	23725.02122	23712.32808	23702.43062	151.80	152.04	151.50	
20:58:00	3:07:04:00	23726.15196	23713.04513	23703.14379	151.80	152.03	151.50	
21:18:00	3:07:24:00	23726.31053	23713.95523	23703.90617	151.79	152.03	151.49	
21:38:00	3:07:44:00	23727.31716	23714.56886	23704.61927	151.79	152.02	151.49	
21:58:00	3:08:04:00	23727.67568	23715.18249	23705.33234	151.78	152.02	151.48	
22:18:00	3:08:24:00	23728.25484	23715.89264	23705.95329	151.78	152.02	151.48	
22:38:00	3:08:44:00	23729.04083	23716.70622	23706.62346	151.78	152.01	151.48	
22:58:00	3:09:04:00	23729.61999	23717.31295	23707.33644	151.77	152.01	151.47	
23:18:00	3:09:24:00	23730.30256	23717.73353	23708.00656	151.77	152.00	151.47	
23:38:00	3:09:44:00	23731.09546	23718.65052	23708.67025	151.77	152.00	151.46	
23:58:00	3:10:04:00	23732.00556	23719.05731	23709.34032	151.76	151.99	151.46	
09/17/2002 00:18:00	3:10:24:00	23732.56403	23719.97430	23709.96114	151.76	151.99	151.46	
00:38:00	3:10:44:00	23733.05355	23720.48451	23710.63117	151.75	151.99	151.45	
00:58:00	3:11:04:00	23733.60513	23721.09814	23711.24552	151.75	151.98	151.45	
01:18:00	3:11:24:00	23734.61175	23721.60145	23711.91550	151.75	151.98	151.45	
01:38:00	3:11:44:00	23735.40464	23722.41503	23712.53624	151.74	151.98	151.44	
01:58:00	3:12:04:00	23735.87348	23723.13897	23713.25542	151.74	151.97	151.44	
02:18:00	3:12:24:00	23736.55606	23723.94565	23713.87611	151.74	151.97	151.44	
02:38:00	3:12:44:00	23737.23863	23724.45586	23714.54601	151.73	151.97	151.43	
02:58:00	3:13:04:00	23737.68679	23724.96607	23715.20943	151.73	151.96	151.43	
03:18:00	3:13:24:00	23738.16942	23725.68312	23715.83006	151.72	151.96	151.42	
03:38:00	3:13:44:00	23739.05194	23726.48960	23716.45714	151.72	151.95	151.42	
03:58:00	3:14:04:00	23739.52078	23726.89658	23717.02850	151.72	151.95	151.42	
04:18:00	3:14:24:00	23740.40330	23727.51021	23717.64907	151.72	151.95	151.41	
04:38:00	3:14:44:00	23740.88593	23728.02731	23718.31236	151.71	151.94	151.41	
04:58:00	3:15:04:00	23741.76845	23728.83399	23718.93288	151.71	151.94	151.41	
05:18:00	3:15:24:00	23742.01666	23729.24768	23719.51067	151.71	151.94	151.40	

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WTSR-1707		WTSR-1707	WTSR-996	9452Q-16E	WTSR-1707	WTSR-996	9452Q-16E	
Real Time (mm/dd/yyyy 24 hr.)	Elapsed Time (DDD:HH:MM:SS)	Pressure (KPa G)	Pressure (KPa G)	Pressure (KPa G)	Temperature (DegC)	Temperature (DegC)	Temperature (DegC)	Comments
05:38:00	3:15:44:00	23742.60960		23720.13767	151.70		151.40	
05:58:00	3:16:04:00	23743.38181	23730.57146	23720.75815	151.70	151.93	151.40	
06:18:00	3:16:24:00	23744.27812	23730.88172	23721.47054	151.69	151.93	151.39	
06:38:00	3:16:44:00	23744.63665	23731.99177	23721.99904	151.69	151.92	151.39	
06:58:00	3:17:04:00	23744.76075	23732.50197	23722.66869	151.69	151.92	151.39	
07:18:00	3:17:24:00	23745.75359	23733.20523	23723.28909	151.69	151.92	151.38	
07:38:00	3:17:44:00	23746.00180	23733.72234	23723.86023	151.68	151.92	151.38	
07:58:00	3:18:04:00	23746.67058	23734.12912	23724.48059	151.68	151.91	151.38	
08:18:00	3:18:24:00	23747.56689	23734.64622	23725.05825	151.68	151.91	151.37	
08:38:00	3:18:44:00	23748.13915	23735.25[illegible]	23725.62935	151.67	151.90	151.37	
08:58:00	3:19:04:00	23748.82173	23735.76[illegible]	23726.24965	151.67	151.90	151.37	
09:18:00	3:19:24:00	23749.60083	23736.57674	23726.82727	151.67	151.90	151.37	
09:38:00	3:19:44:00	23750.06277	23737.38342	23727.40489	151.66	151.90	151.36	
09:58:00	3:20:04:00	23750.94530	23737.59716	23727.97591	151.66	151.89	151.36	
10:18:00	3:20:24:00	23751.42793	23738.40384	23728.54692	151.66	151.89	151.36	
10:38:00	3:20:44:00	23751.87608	23738.91404	23729.22295	151.65	151.89	151.35	
10:58:00	3:21:04:00	23752.43455	23739.41736	23729.74470	151.65	151.89	151.35	
11:18:00	3:21:24:00	23753.11713	23740.13441	23730.32225	151.65	151.88	151.35	
11:38:00	3:21:44:00	23753.22744	23740.44467	23730.85056	151.65	151.88	151.35	
11:58:00	3:22:04:00	23754.23407	23741.14793	23731.51994	151.64	151.87	151.34	
12:18:00	3:22:24:00	23754.70291	23741.55471	23732.04823	151.64	151.87	151.34	
12:38:00	3:22:44:00	23755.27517	23742.16834	23732.61913	151.64	151.87	151.34	
12:58:00	3:23:04:00	23755.93706	23742.78197	23733.23923	151.64	151.87	151.33	
13:18:00	3:23:24:00	23756.51621	23743.28528	23733.81670	151.63	151.86	151.33	
13:38:00	3:23:44:00	23757.17811	23744.29881	23734.34494	151.63	151.86	151.33	
13:58:00	4:00:04:00	23757.86068	23744.70559	23734.91577	151.63	151.86	151.32	
14:18:00	4:00:24:00	23757.98479	23745.21580	23735.53581	151.62	151.86	151.32	
14:38:00	4:00:44:00	23759.31546	23745.51917	23736.06401	151.62	151.85	151.32	
14:58:00	4:01:04:00	23759.66020	23746.13280	23736.64807	151.62	151.85	151.32	
15:18:00	4:01:24:00	23760.10835	23746.84295	23737.16961	151.62	151.85	151.31	
15:38:00	4:01:44:00	23760.14283	23747.14632	23737.78958	151.61	151.85	151.31	
15:58:00	4:02:04:00	23761.43903	23747.85647	23738.26852	151.61	151.84	151.31	
16:18:00	4:02:24:00	23761.47350	23748.57352	23738.79001	151.61	151.84	151.31	
16:38:00	4:02:44:00	23762.25[illegible]0	23748.98031	23739.37404	151.60	151.84	151.30	
16:58:00	4:03:04:00	23762.72834	23749.89041	23739.90217	151.60	151.83	151.30	
17:18:00	4:03:24:00	23763.17649	23750.10414	23740.57129	151.60	151.83	151.30	
17:38:00	4:03:44:00	23763.50055	23750.40062	23741.05017	151.60	151.83	151.30	
17:58:00	4:04:04:00	23764.63128	23751.20730	23741.57827	151.59	151.83	151.29	
18:18:00	4:04:24:00	23765.17596	23752.21392	23742.05713	151.59	151.82	151.29	

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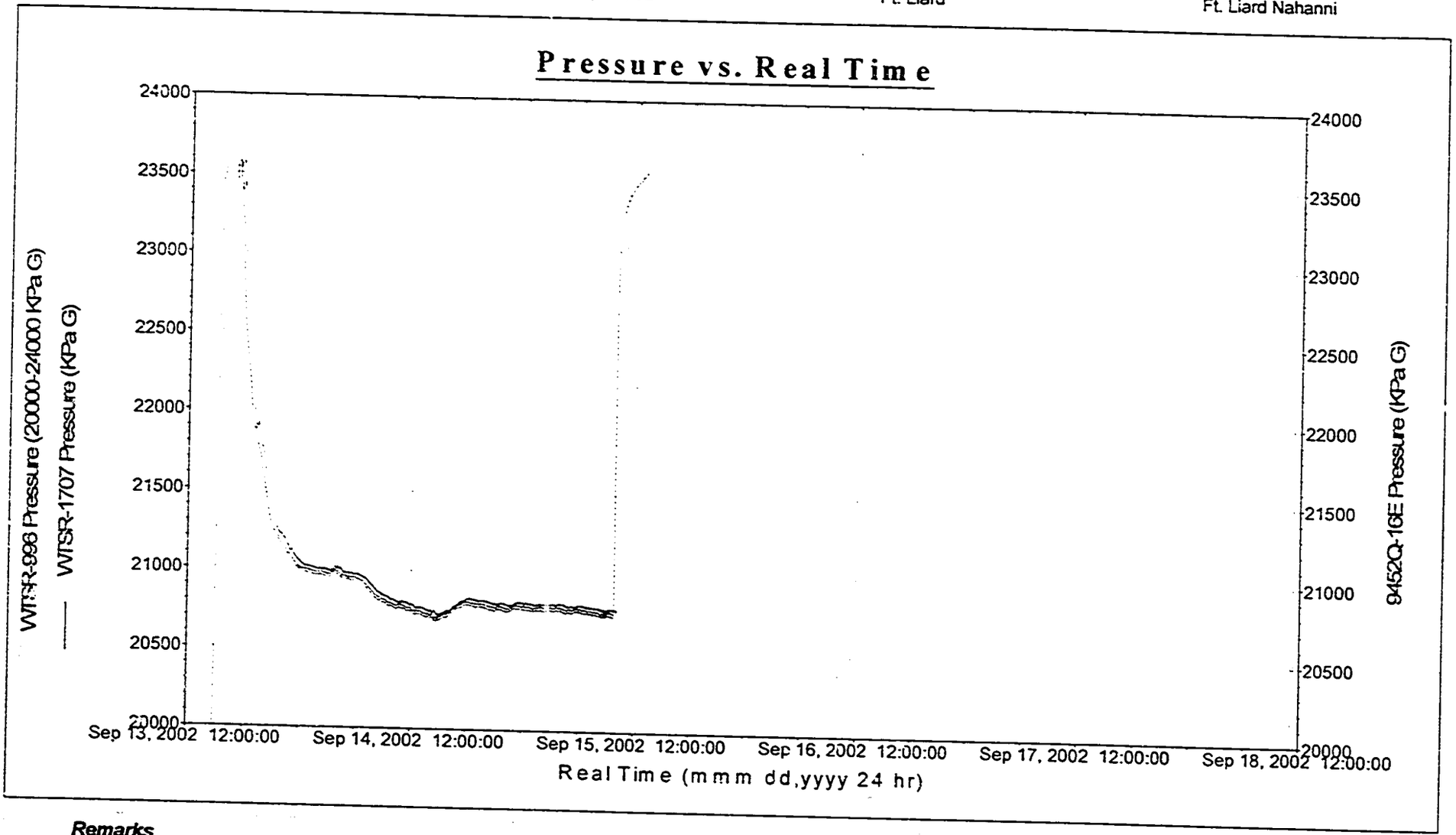
WTSR-1707		WTSR-1707	WTSR-996	9452Q-16E	WTSR-1707	WTSR-996	9452Q-16E	
Real Time (mm/dd/yyyy 24 hr.)	Elapsed Time (DDD:HH:MM:SS)	Pressure (KPa G)	Pressure (KPa G)	Pressure (KPa G)	Temperature (DegC)	Temperature (DegC)	Temperature (DegC)	Comments
18:38:00	4:04:44:00	23765.74822	23752.02776	23742.68366	151.59	151.82	151.29	
18:58:00	4:05:04:00	23765.65859	23752.93097	23743.21172	151.59	151.82	151.29	
19:18:00	4:05:24:00	23766.66521	23753.34465	23743.64134	151.58	151.82	151.28	
19:38:00	4:05:44:00	23767.00305	23753.94449	23744.26113	151.58	151.82	151.28	
19:58:00	4:06:04:00	23767.47189	23754.15133	23744.78917	151.58	151.81	151.28	
20:18:00	4:06:24:00	23767.92005	23754.86838	23745.27468	151.58	151.81	151.28	
20:38:00	4:06:44:00	23768.80257	23755.26827	23745.74677	151.57	151.81	151.27	
20:58:00	4:07:04:00	23769.46446	23756.17837	23746.41572	151.57	151.81	151.27	
21:18:00	4:07:24:00	23769.69888	23756.68858	23746.85199	151.57	151.80	151.27	
21:38:00	4:07:44:00	23770.05740	23756.79890	23747.47842	151.57	151.80	151.27	
21:58:00	4:08:04:00	23770.72619	23757.60558	23747.95717	151.57	151.80	151.26	
22:18:00	4:08:24:00	23771.49840	23757.81242	23748.43592	151.56	151.80	151.26	
22:38:00	4:08:44:00	23772.04997	23758.72252	23748.96388	151.56	151.79	151.26	
22:58:00	4:09:04:00	23771.96034	23759.02588	23749.49183	151.56	151.79	151.26	
23:18:00	4:09:24:00	23772.64292	23759.73604	23750.01976	151.56	151.79	151.26	
23:38:00	4:09:44:00	23772.98765	23760.43930	23750.49847	151.55	151.79	151.25	
23:58:00	4:10:04:00	23774.08391	23760.54961	23751.07561	151.55	151.78	151.25	
09/18/2002 00:18:00	4:10:24:00	23774.31833	23760.95640	23751.59677	151.55	151.78	151.25	
00:38:00	4:10:44:00	23774.98022	23761.96303	23752.07544	151.55	151.78	151.24	
00:58:00	4:11:04:00	23775.77311	23762.16987	23752.56087	151.54	151.78	151.24	
01:18:00	4:11:24:00	23776.00753	23762.68008	23753.08875	151.54	151.77	151.24	
01:38:00	4:11:44:00	23776.43500	23763.18339	23753.66584	151.54	151.77	151.24	
01:58:00	4:12:04:00	23776.79353	23763.89354	23754.14448	151.54	151.77	151.24	
02:18:00	4:12:24:00	23777.26237	23764.10038	23754.67233	151.54	151.77	151.23	
02:38:00	4:12:44:00	23778.14489	23764.60370	23755.10852	151.53	151.77	151.23	
02:58:00	4:13:04:00	23778.57236	23765.21733	23755.68557	151.53	151.76	151.23	
03:18:00	4:13:24:00	23778.93088	23765.61722	23756.12175	151.53	151.76	151.23	
03:38:00	4:13:44:00	23779.37904	23766.12743	23756.69200	151.53	151.76	151.23	
03:58:00	4:14:04:00	23780.04780	23766.54111	23757.17058	151.53	151.76	151.22	
04:18:00	4:14:24:00	23780.60630	23767.24437	23757.60674	151.52	151.75	151.22	
04:38:00	4:14:44:00	23780.94414	23767.74768	23758.13454	151.52	151.75	151.22	
04:58:00	4:15:04:00	23781.30266	23768.15447	23758.61310	151.52	151.75	151.22	
05:18:00	4:15:24:00	23782.06108	23768.76810	23759.09166	151.52	151.75	151.22	
05:38:00	4:15:44:00	23782.41960	23769.06457	23759.62623	151.51	151.75	151.21	
05:58:00	4:16:04:00	23783.06081	23769.78162	23760.14717	151.51	151.74	151.21	
06:18:00	4:16:24:00	23783.74338	23769.88504	23760.67491	151.51	151.74	151.21	
06:38:00	4:16:44:00	23783.87438	23770.38835	23761.06182	151.51	151.74	151.21	
06:58:00	4:17:04:00	23784.66038	23771.10540	23761.63194	151.50	151.74	151.20	
07:18:00	4:17:24:00	23784.87412	23771.60871	23762.06122	151.50	151.73	151.20	

Data

WTSR-1707		WTSR-1707	WTSR-996	9452Q-16E	WTSR-1707	WTSR-996	9452Q-16E	
Real Time (mm/dd/yyyy 24 hr.)	Elapsed Time (DDD:HH:MM:SS)	Pressure (KPa G)	Pressure (KPa G)	Pressure (KPa G)	Temperature (DegC)	Temperature (DegC)	Temperature (DegC)	Comments
07:38:00	4:17:44:00	23785.77732	23772.00860	23762.58893	151.50	151.73	151.20	
07:58:00	4:18:04:00	23785.79111	23772.31887	23763.07425	151.50	151.73	151.20	
08:18:00	4:18:24:00	23786.65295	23772.82907	23763.51034	151.50	151.73	151.20	
08:38:00	4:18:44:00	23787.10800	23773.63575	23763.94644	151.50	151.73	151.20	
08:58:00	4:19:04:00	23787.44584	23773.73917	23764.47412	151.50	151.72	151.19	
09:18:00	4:19:24:00	23787.91468	23774.53896	23765.00179	151.49	151.72	151.19	
09:38:00	4:19:44:00	23788.46625	23774.94575	23765.48023	151.49	151.72	151.19	
09:58:00	4:20:04:00	23788.92130	23775.25601	23765.86709	151.49	151.72	151.19	
10:18:00	4:20:24:00	23789.14883	23776.06958	23766.44395	151.49	151.71	151.19	
10:38:00	4:20:44:00	23785.92900	23775.90411	23766.79274	151.48	151.74	151.20	
10:45:00	4:20:51:00	23789.03851		23767.10988	151.51		151.20	Off Bottom
11:05:00	4:21:11:00	23617.35359	20406.17464	20255.09399	151.47	117.12	103.09	
11:25:00	4:21:31:00	19978.35161	34.03913	9.47169	102.36	33.52	32.37	
11:45:00	4:21:51:00	-4.10924	-3.11640	2.21924	21.32	23.47	27.80	
12:05:00	4:22:11:00			0.60646			27.53	
12:25:00	4:22:31:00			5.81158			25.13	
12:45:00	4:22:51:00			5.39534			24.71	
13:05:00	4:23:11:00			8.11013			22.79	
13:25:00	4:23:31:00			9.30701			23.04	
13:45:00	4:23:51:00			8.15436			22.95	

Well

Client	Chevron Canada Resources	Well Name	Chevron et al Liard K-29	Well No	00/K-29-6030-12330	Province	Northwest Territories
Test Name	Flow & Build-Up	Test Date	Sep 13, 02 to Sep 18, 02	Field	Ft. Liard	Pool	Ft. Liard Nahanni



Remarks

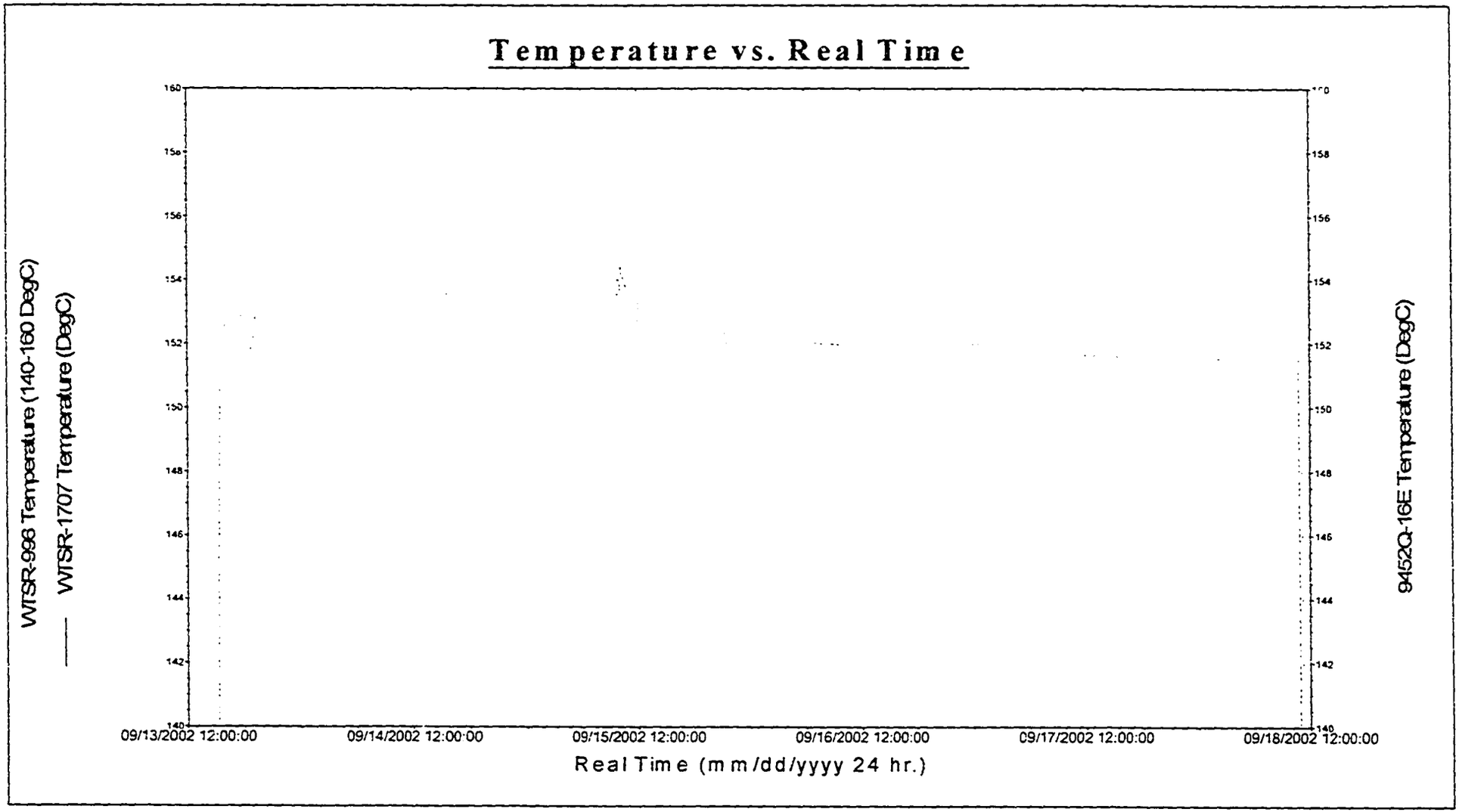
WTSR-1707 bottom,WTSR-995 middle & 9452q-16e top.

Job ID: ChevronExtK-29
Service Company: Lee Tool, Div. of Schlumberger

Printed: Oct 07, 2002 @ 13.45:01

Well

Client	Well Name	Well No	Province
Chevron Canada Resources	Chevron et al Liard K-29	00/K-29-6030-12330	Northwest Territories
Test Name	**Test Date**	**Field**	**Pool**
Flow & Build-Up	Sep 13, 02 to Sep 18, 02	Ft. Liard	Ft. Liard Nahanni

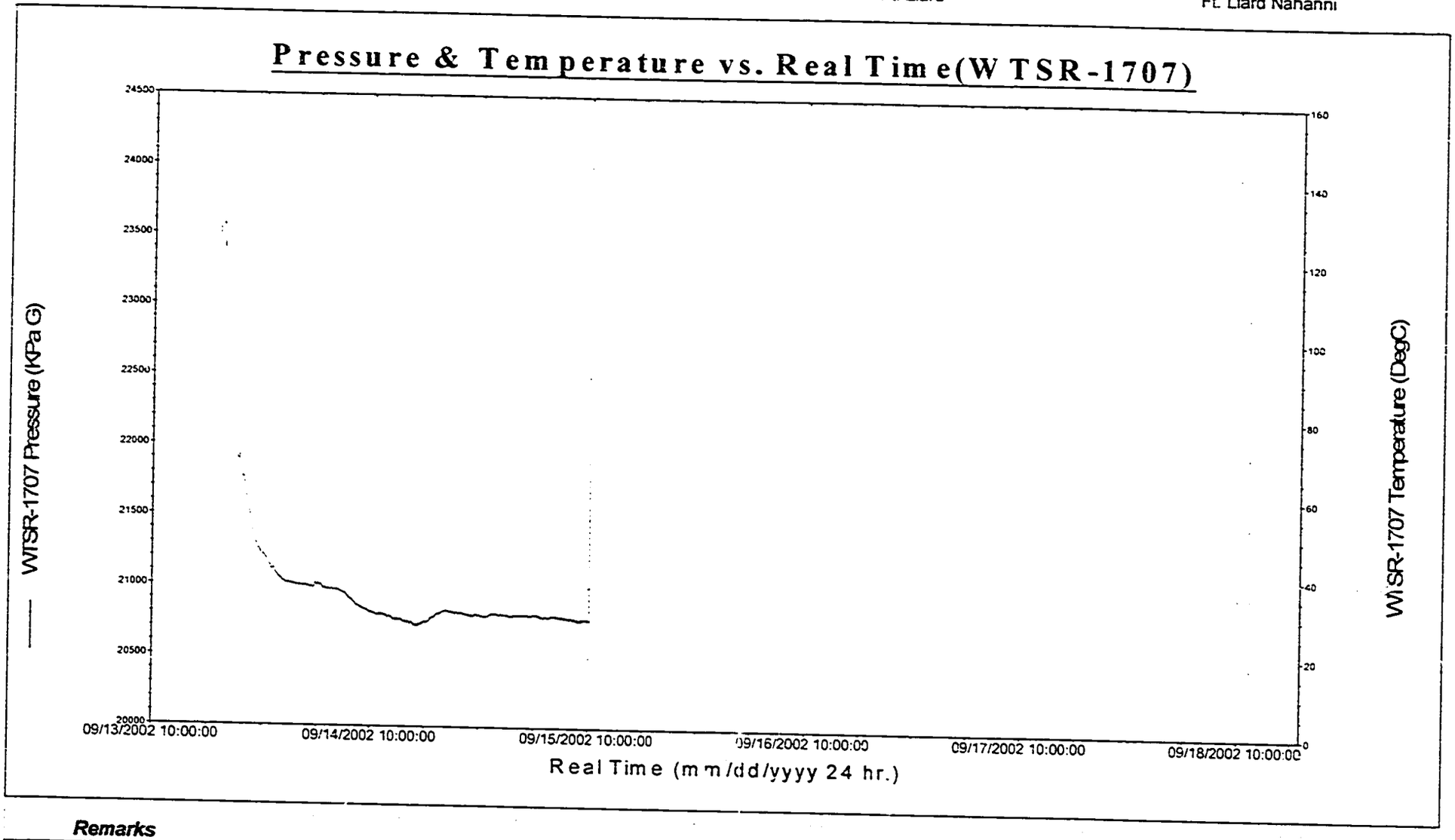


Remarks

WTSR-1707 bottom,WTSR-995 middle & 9452q-16e top.

Well

Client	Well Name	Well No	Province
Chevron Canada Resources	Chevron et al Liard K-29	00/K-29-6030-12330	Northwest Territories
Test Name	**Test Date**	**Field**	**Pool**
Flow & Build-Up	Sep 13, 02 to Sep 18, 02	Ft. Liard	Ft. Liard Nahanni



Remarks

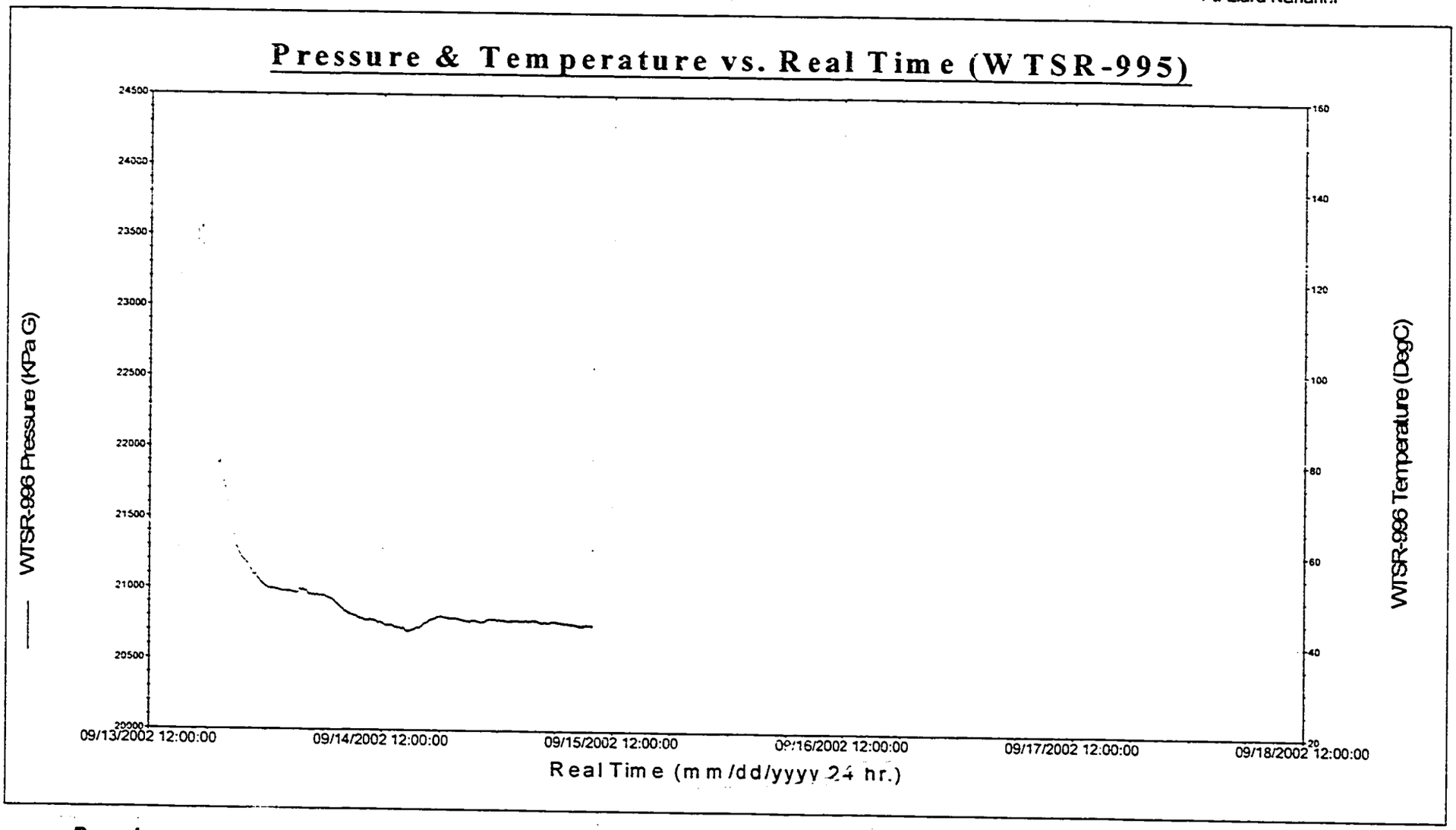
WTSR-1707 bottom,WTSR-995 middle & 9452q-16e top.

Job ID: ChevronExtK-29
Service Company: Lee Tool, Div. of Schlumberger

Printed: Oct 07, 2002 @ 13:45:02

Well

Client	Well Name	Well No	Province
Chevron Canada Resources	Chevron et al Liard K-29	00/K-29-6030-12330	Northwest Territories
Test Name	**Test Date**	**Field**	**Pool**
Flow & Build-Up	Sep 13, 02 to Sep 18, 02	Ft. Liard	Ft. Liard Nahanni

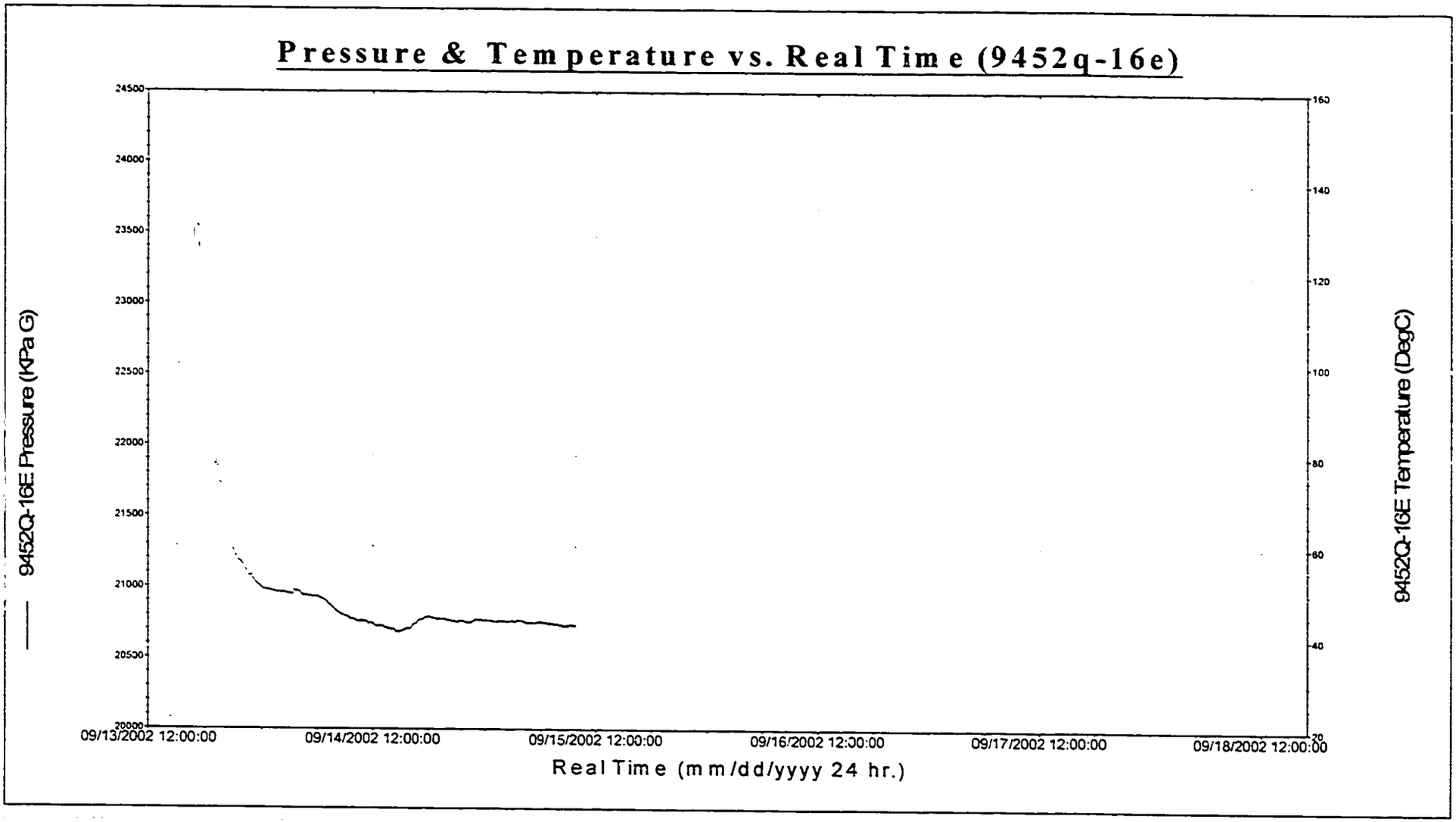


Remarks

WTSR-1707 bottom,WTSR-995 middle & 9452q-16e top.

Well

Client	Well Name	Well No	Province
Chevron Canada Resources	Chevron et al Liard K-29	00/K-29-6030-12330	Northwest Territories
Test Name	**Test Date**	**Field**	**Pool**
Flow & Build-Up	Sep 13, 02 to Sep 18, 02	Ft. Liard	Ft. Liard Nahanni



Remarks

WTSR-1707 bottom,WTSR-995 middle & 9452q-16e top.