APPROVAL TO DRILL A WELL

National Energy Board / Office national de l'énergie

Exploratory ☒ Delineation ☐
Development ☐ Service ☐

APPROVAL TO DRILL A WELL

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

Well Name: CNRES BEHDZIA YOUH O-52

Operator: Cannat Resources Inc. | Drilling Program No.:

Contractor: Akita | Interest identifier: 100%

Drilling Rig or Unit: 51 | Estimated Well Cost: $4,000,000.00

Location-Unit: 0 Section: 52 | Grid Area: 67°00' 126.30'

Coordinates: Lat.: 66°51' 56.912" | Long.: 126°39' 53.951'

Area: Colville Hills | Field / Pool:

Elevation-KB/RT: 263.8 m (ASL) | GL / Seafloor: 258.9 m

Approx. Spud Date: Winter 2003 | Est. Days on Location: 35

Anticipated Total Depth: 1353 m | Target Horizons: Mount Clark

EVALUATION PROGRAM

Ten-metre sample intervals: Nil

Five-metre sample intervals: below surface casing shoe, see detailed drilling program

Canned sample intervals: Nil

Conventional cores at: See detailed drilling program

Logs and Tests: Main hole, neutron, sonic, density, laterolog/ No DST's planned

CASING AND CEMENTING PROGRAM

	O.D. (mm)	Weight (kg/m)	Grade	Setting Depth (m KB)	Cementing
CP	406.4	6.4 mm wt	-	18	Arctic set
CC	339.7	101.2	K55	200	Arctic set
S	244.5	59.5	L80	800	Class "G" + Arctic Set
M	177.8	38.7	L80	500-sfc	
			T95	1353-500	Class "G" w/salt

B.O.P. Equipment: Conductor hole: Rottating head

Surface Hole: 346mm 21MPa drilling spool, 346 mm, 21MPa annular preventor, rotating head

Main hole: 279.4 mm 21 MPa drilling spool, 279.4 mm 21MPa double gate pipe & blind ram 279.4mm 21MPa drilling spool, 279.4 mm 21MPa single gate pipe ram, 279.4 mm 21MPa annula preventor

Other information:

Signed: K. W. Ullyott P.Eng
Responsible Officer

Title: Drilling Engineer

Name: Kevin Ullyott | Company: Canadian Natural Resources Limited

Date: Sept 24,02 | Phone: (403) 716-6392

APPROVAL

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

Date:

File:

WID:

UWI:

Signed:
Chief Conservation Officer

444 Seventh Avenue SW
Calgary, Alberta T2P 0X8

444 Septième Avenue S.-O.
Calgary (Alberta) T2P 0X8

Canada

Telephone/Téléphone : (403) 292-4800
Facsimile/Télécopieur : (403) 292-5876
http://www.neb.gc.ca

WELL TERMINATION RECORD

National Energy Board / Office national de l'énergie

WELL TERMINATION RECORD

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

Well Name: CNRES BEHDZIA O-52 Area: Colville Hills

Grid Area: 67°00' 126.30' Field / Pool:

Interest 100% Final Lat 66°51'56.912" Long: 126°39'53.951"

Drilling RT Elevations- 266.0 AKB (ASL GL/Seafloo 258.90 GL

Spud Date: 1/03/03 R.R.: 2/11/03 Total Depth: 1540

O.D. (mm)	Weight (kg/m)	Grade	Depth Set (m KB)	Cement (m³)
406.4	96.73	H-40	19	13.5m³
339.7	101.2	K-55	193	18.0m³
244.5	59.527	L-80	986.4	17.0m³
177.8	33.69	T-95	1540	47.9m³

PLUGGING PROGRAM Craig Stubleny

Approval of the following program was obtained by (person) ~~Kevin Kaulbar~~ S.O.

from (person) ..... of the .....

by means of ..... on .....

Type of Plug	Interval (m KB)	Felt	Cement (m³)
cement	1540 - 1370	Volumetric	5.0
cement	0 - 10	Actual cement	0.20

Lost Circulation/Overpressure Zones: None

Equipment left on Seafloor (Describe): N/A

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

Core: Type: ..... Interval .....

Other Downhole Completion/Suspension .....

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

Signed: [signature] Title: GENERAL MANAGER OF DRILLING AND COMPLETIONS

Name: TONY SABELLI Date: .....

Company: CANADIAN NATURAL

Well Status

Suspended ☐

Completed ☐

Abandoned ☒

Acknowledged by: [signature]

Chief Conservation Officer

Date: Sept 15/03

File: 9211-C144-2-3

UWI: 300052670012630O WID: 1960

Canada

FINAL WELL REPORT

FINAL WELL REPORT

CANADIAN NATURAL RESOURCES LTD.

CNRES BEHDZIA YOUH O-52

GRID: 66.51' 56.912" 126.39' 53.951"

DATE: MAY 28, 2003

COMPANY REPRESENTATIVE: SHAWN DOBLE

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A. INTRODUCTION

Canadian Natural Resources Limited (CNRL), as the operator and 100% working interest owner, of the well O-52-66.51' 56.912" 126.39' 53.951". The well was spud on January 3, 2003 and rig released on February 11, 2003. A total depth of 1540 m (measured depth) was drilled to evaluate gas potential in the Mount Clark formation.

The drilling contractor was Akita Drilling, based out of Calgary, Alberta. The drilling rig Akita 51, based out of Norman Wells, was a conventional land rig rated for 2700m. The rig had a 54-m3 mud system and was equipped with two 80 hp boilers.

The well was drilled on EL 400 in which CNRL has 100% working interest. The location of the well was approximately 138 km NNE of the community of Fort Good Hope. CNRL barged all equipment to the staging area in Fort Good Hope in September 2002.

Conductor

The Akita #51 drilling rig was moved to the location starting December 26, 2002 and completed on January 02, 2003. The well was spud on January 3, 2003 at 1:15 AM. A 445 mm conductor hole was drilled to a depth of 19 m. No problems were encountered during this section of drilling. One joint of 406 mm conductor pipe was set in place at 19m. The conductor was cemented with 10 t Arctic set cement. It was started with 1m3 of Preflush followed by 10 t of arctic cement blend followed by 1.5m3 of water for displacement. Returns to surface were approximately 1.5m3. The diverter and the bluie line were installed to proceed with air drilling operations.

Surface casing

The cement was then drilled out of the conductor barrel and air hammer drilled from 19 m to total depth of 193 m. The Drill string became stuck at 27 m as a seam of gravel and boulders were encountered. The drill string was freed and operations commenced as planned. Once at TD the crews started to run casing and hit a bridge at 38 m. The bit along with a roller reamer had to be rerun in order to clean out the hole to a depth 193 m. Then fourteen joints of Hydril 521, CTS K-55 101.19 kg/m casing along with one shoe joint of the same type of casing with a float shoe welded on bottom were run. The casing was run to a total depth of 193 m. The surface casing was then cemented with 2m3 of preflush followed by 24 t (200% excess) of arctic cement yielding 18 m3 followed by 15.2 m3 of water to displace casing. Held

pressure on string for 30 min (no plug used) due to cross over troubles, shoe float held. There was 1m3 of cement slurry for returns.

Intermediate casing

The diverter was then reinstalled on a 13 3/8 bowl and pressure tested to 1500 kPa low and 7000 kPa high. The cement was drilled out from 180 m and the float shoe at 193 m with conventional methods. Then blown dry and tripped out to run a hammer bit assembly and an air hammer drilled from 199 m to 216 m. At 216 m , a water influx of .49m3/min was encountered. The well was then shut in and drilled ahead with rotary conventional drilling methods to a depth of 809 m Kb. All associated surveys were kept to less than one degree while drilling this section. Total depth was reached at 809 m Kb for this section. The bottom hole assembly was then pulled and the logging crew logged the well.

On January 20, 2003 sixty-eight joints of 244.5mm L-80 59.527 kg/m casing was run to a depth of 806.4 mKB. The cementing job went wrong and CNRL tried to cement casing in place but failed as the cement 'Flash Set'. The decision was made to nipple down the diverter and rig up to drill out the cement in casing. The cement that was in the casing was then drilled out. On January 22, 2003 the top fill job was performed on the 340 mm x 245 mm annulus. Circulating via a 1" spaghetti string placed inside the annulus performed the top fill job. A total of 7000 liters of Schlumberger's Arctic Set cement was placed. Based on a 30 lpm annulus volume - the top fill cement interval was estimated from 220 mKB to surface. Before 'flash setting' an estimated cement volume of 10 m3 made it into the annulus. Based on the caliper log - the cement top was estimated at 500 mKB. Based on conductor #2 being set and fully cemented at 199 mKB - the interval not cemented was 280 m. The uncemented interval consisted of 1 formation - the Franklin Mountain Dolomite. The uncemented interval was consistent with CNRL's original plan for a 2 stage cement job.

Production casing

After drilling out the cement to a depth of 788 m, CNRL pulled out of hole and cleaning up the casing and welded on 9 5/8 bowl, nippled up 11" stack and pressure tested all BOP equipment. Ran in hole and finished up with pressure test, testing pipe rams upper & lower Kelly valves. Due to foreign objects being dropped in the hole, CNRL commenced fishing operations. Captured fish and POOH. Drilled out cement from 788 m to top of float at 797 m. Drilled cement from 798 m to shoe depth of 809 m. Drilled from 809 m to 818 m. WOB ranged from 15 to 18 kdaN. RPM was 70, pumps were @ 1.7m3/min.

Conducted a leak off test - zero leak off with 10.3 Mpa surface & 8.1 Mpa hydrostatic. FSG = 22.7 kpa/m. Drilled from 818 to 1451 mKb with surveys as required. Section 818 to 905 m was drilled with water and 905 to 1451 m was drilled with Salt saturated mud. The average properties of the Salt saturated mud were as follows: Weight 1250kg, Viscosity 35 sec/L, Chlorides 185000mg/L, and Calcium 1400 mg/L, Yield Point of 1.5.

After survey at 1451 mKB tried to get bit to drill with 24 kdaN excess torque to 5400 units bit would not respond with either increases or decreases in weight or RPM. A decision was made to pull out of the hole. While tripping out DC's and at the 6th stand out, CNRL had noticed drill collars were aparted; leaving 5 drill collars shock tool and bit in hole (49.44m of fish). Made up fishing tools and tripped in to latch on to fish and POOH, recovered fish. The drill string was then run back into the hole and drilling commenced from 1451m to 1505 m WOB 10 kdaN to 11.5, RPM was 60 then raised to 125, pumps were @ 1.4m3/min. ROP ranged from 4.3 m/hr to 7.7 m/hr, averaged 5.5 m/hr. Drilled from 1451 m to 1505 m WOB 10 kdaN to 11.5, RPM was 60 then raised to 125, pumps were @ 1.4m3/min. ROP ranged from 4.3 m/hr to 7.7 m/hr, averaged 5.5 m/hr. TD was reached at 1530 mKB on February 4, 2003. Wiper trip and circulated out of hole and prepared to run in with logging tools. Log with Schlumberger.

A bridge was encountered with the logging tools. The drill string was then run back in the hole to remove the bridge. Rigged up again and RIH with Schlumberger logging tools and logged well per NEB specifications. Ran in hole for clean out trip and prepared to run casing.

Ran 109 joints of 177.8mm x 38.69 kg/m x T-95 LT&C casing to 1530m TD. Rigged up cement swedge to circulate casing prior to cement job : .800m3 for 45min, 1.000m3 for 45 min, 1.200m3 for 45 min. Rigged up cementer's and cemented 177.8mm casing string. Started out with 2m3 of water ahead of cement followed by 47.9m3 or 53.6 tonnes of class "G" cement consisting + 10% D044, BWOW + 4% D065 + 0.4% D167 + 0.15% D013. Mixing @ an average rate of .89m3/min followed by 30.29m3 of water for displacement of casing. Bumped plug with 3.5 MPa over pressure check floats ok reciprocated casing through out job. Flushed stack and tore out stack to install adapter spool. Nippled up stack to 179mm x 279mm adapter spool, plus x/o spool and installed 73 mm pipe rams.

The well was handed over to completions on February 8, 2003.

B. GENERAL DATA

1. Wellname: CNRES BEHDZIA YOUH O-52

   Authority to Drill Well No: 1960

   Exploration License: 400

   Classification: Abandoned well

2. Well Coordinates: 00/O-52-66° 51' 56.912" N
   126° 39' 53.951" E

3. Unique Well Identifier: 3000526700126300

4. Operator: Canadian Natural Resources Limited

5. Contractor: Akita Drilling

6. Drilling Unit: Akita Rig # 51
   Conventional Land Rig

7. Position Keeping: Not Applicable

8. Support Craft (Helicopter): Canadian Helicopter and North Caribou Air

9. Drilling Unit Performance: Satisfactory

10. Difficulties and Delays:
    - Extreme Remote Location
    - River Crossings
    - Rough Terrain
    - Lack of Work Force

11. Total Well Cost: $6.1 MM for the Drilling of this location. This includes lease and road construction.

12. Bottomhole Coordinates from Surface Location:

    66*51' 56.912" N
    126*39' 53.951" E

C. SUMMARY OF DRILLING OPERATIONS

1. Elevations:
   - Ground: 258.9 m above sea level
   - KB: 265 m above sea level
   - KB to Casing Flange: 5.72 m (KB to CF)

2. Total Depth
   - MD: 1540 mKB
   - VD: 1540 mKB

3. Date and Hour Spud: January 3, 2003 – 1:15am

4. Date Drilling Completed: February 6, 2003

5. Date of Rig Release: February 11, 2003 – 11:45pm

6. Well Status: Abandoned cased well

7. Hole Sizes and Depths:
   - Conductor: 609.6 mm to 19 mKB
   - Surface 444.5 mm to 199 mKB
   - Intermediate 311.1 mm to 809 mKB
   - Production 215.4 mm to 1540 mKB

8. Casing and Cementing Record:

   Conductor Hole:
   - Casing Size: 406.4 mm
   - Casing Weight: 96.731 kg/m
   - Number of Joints: 1
   - Thread: N / A
   - Depth Set: 19 mKB
   - Cut Height: Surface
   - Cut off Depth: Surface
   - Date Set: January 3, 2003
   - Cement Volume: 10 tonnes
   - Cement Type: Polarset
   - Additives: 10 L Liquid Antifoam Agent

   Surface Hole:
   - Casing Size: 339.7 mm
   - Casing Weight: 101.195 kg/m
   - Casing Grade: K-55
   - Casing Make: New Prudential
   - Number of Joints: 15
   - Thread: Hydril CTS
   - Depth Set: 193 mKB
   - Cut Height: Surface
   - Cut off Depth: Surface
   - Date Set: January 7, 2003

Float Shoe Depth:	193 mKB
Float Collar Depth:	N / A
Cement Volume:	24 Tonnes
Cement Type:	Arcticset
Additives:	0.5% D065 Turbulence Inducer + 0.2% D046 Antifoam Agent + 0.5% D013 Retarder
Cement Top:	Surface
Casing Bowl Size:	13 3/8 x 13 5/8 x 3000 kPa
Casing Bowl Make:	ABB Vetco

Intermediate Hole:

Casing Size:	244.5 mm	
Casing Weight:	59.527 kg/m	
Casing Grade:	L-80	
Casing Make:	New Prudential	
Number of Joints:	68	
Thread:	LT&C	
Depth Set:	806.64 mKB	
Cut Height:	Surface	
Cut off Depth:	Surface	
Date Set:	January 20, 2003	
Float Collar Depth:	794.29 mKB	
Float Shoe Depth:	806.64 mKB	
	Lead	Tail
Cement Volume:	16 m3	46.0 m3
Cement Type:	Artic Set	Class G
Additives:	0.5% D065 Turbulence Inducer 0.2% D046 Antifoam Agent + 0.5% D013 Retarder	0.2% S001 CaCl2
Cement Top:	500 mKb Flash setted during displacement.	
Cement Volume:	Top filled with 7 m3 through a 1" spaghetti string. 220 m kb to surface.	
Cement Type	Artic Set	
Additives:	0.5% D065 Turbulence Inducer 0.2% D046 Antifoam Agent + 0.5% D013 Retarder	
Casing Bowl Size:	279.4 mm x 244.5 mm x 3000 kPa	
Casing Bowl Make:	ABB Vetco	

Production Hole:

Casing Size:	177.8 mm
Casing Weight:	38.690 kg/m
Casing Grade:	T-95, L-80
Casing Make:	New Prudential
Number of Joints:	101 of T-95, 8 of L-80
Thread:	LT&C

Depth Set:	1530 mKB
Cut Height:	Surface
Cut off Depth:	Surface
Date Set:	February 6, 2003
Float Collar Depth:	1515.66 mKB
Float Shoe Depth:	1530 mKB
Cement Volume:	56 Tonnes
Cement Type:	THERMAL 40M Thix-Mix
Additives:	10% D044
	BWOW 4% D065
	0.4% D167
	0.15% D013
Cement Top:	Surface
Casing Bowl Size:	279.4 mm x 244.5 mm x 3000 kPa
Casing Bowl Make:	ABB Vetco

9. Drilling Fluid

Conductor Hole: Gel-Chem
Properties: Viscosity: 50 sec/L
Weight: 1120 kg/m3
pH: 9.5
Water Loss: 10.2
Solids: 1%
Gels: 3 / 7
Filter Cake: 1 mm
PV / YP: 11/3

Surface Hole: Water Based
Properties: Viscosity: 30
Weight: 1050 kg/m3
pH: 7.5
Water Loss: 0
Solids: 0
Gels: 0
Filter Cake: 1 mm
PV / YP: 1.5 / 0.1

Intermediate: Salt Saturated
Properties: Viscosity: 35 sec/L
Weight: 1250 kg/m3
pH: 10
Water Loss: 0
Solids: 0
Gels: 0
Filter Cake: 1mm
PV / YP: 11 / 5

Water-based
Properties: Viscosity: 30 sec/L

Weight: 1050 kg/m3
pH: 7.5
Water Loss:
Solids: 0
Gels: 0
Filter Cake: 2 mm
PV / YP: 1.5 / 0.1

Production: Salt Based
Properties: Viscosity: 41 sec/L
Weight: 1250 kg/m3
pH: 9
Water Loss:
Solids: 0.2%
Gels:
Filter Cake: 1 mm
PV / YP: 12 / 6

10. Fishing Operations:

Fishing was required to remove a BOP Nut and a BOP bolt. These operations took two days. Fishing was also required to remove 5 Drill Collars, a Shock Tool and the bit. These operations took two days.

11. Well Kicks and Well Controls Operations: Not Applicable.

12. Formation Integrity Tests:

Depth:	818 mKb
Fluid Density	1020 kg/m3
Applied Pressure	10.3 mPa
Hydrostatic Press.	8.1 mPa
Mud Weight Equiv	22.5 Kpa/m
Casing Set Depth	806.4

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

Time Breakdown:

Activity	Days
Moving In and Out	3
Rigging Up and Down	3.41
Drilling	10.75
Surveying	0.5
Circulating and Cond.	2.25

Cementing	1
WOC	0.5
Rig Service	0.7
Rig Repair	2.4
Tripping, Reaming	4.38
Running Casing	1.6
Logging	1
Rigging Up / Down	3.4
3rd Party failure	2.4
NU / ND, Testing BOP	3
Fishing	4
Other	3
Total	47.29

14. Deviation Survey: Attached in Appendices section

15. Abandonment Plugs: Cased hole with tubing in the hole

Plug #1:	1540 m to 1370 m
Cement Volume:	5.0m3
Cement Type:	Class G
Additives:	10% D44 BWOW +0.4% D167 + 0.4% D65 + 0.15% D13
Cement Top:	0 mkb Tubing was left full of cement.
Method Felt:	Volumetric in cased hole.

Plug #2:	10 to 0 mkb
Cement Volume:	0.20m3
Cement Type:	Class G
Additives:	10% D44 BWOW +0.4% D167 + 0.4% D65 + 0.15% D13
Cement Top:	0 mkb
Method Felt:	Actual cement.

16. Completion Record

Start	2003-02-08
Finish	2003-02-10
Contractor	Akita 51

Completion Summary

Perf Interval	Mount Clark 1436 - 1445 mKB
Date	2003-02-10
Flow Results	Perforated dry. No gas to surface. No noticable inflow at surface.
Stimulation	None

D. GEOLOGY

1. Geology Summary O-52

CD with full Geological Report Included

2. FORMATION MARKERS

KB: 265.0 m

	Prognosis		Samples			Logs		
Formation	**TVD (m)**	**Subsea (m)**	**MD (m)**	**TVD (m)**	**Subsea (m)**	**MD (m)**	**TVD (m)**	**Subsea (m)**
Franklin Mtn.	-	-	350	350	-85	350	350	-85
Saline River	856	-591	945	945	-680	940.5	940.5	-675.5
Saline River Salt	888	-623	999	999	-734	997.5	997.5	-732.5
Seismic Marker	968	-703	1068	1068	-803	1067	1067	-802
Mt. Cap	1090	-825	1280	1280	-1015	1278	1278	-1013
Shale Marker	1240	-975	1375	1375	-1061	1380.5	1380.5	-1115.5
Dolomite Marker	1306	-1041	No pick	No pick	-	No pick	No pick	-
Mt. Clark	1310	-1045	1438	1438	-1173	1436.5	1436.5	-1171.5
Proterozoic	1330	-1065	1446	1446	-1181	1445	1445	-1180
TD	1355	-1090	1540.5	1540.5	-1275.5	1533	1533	-1268

Description Summary

Franklin Mtn (350m – 945m)

The Franklin Mtn. is predominantly a cream, massive, microcrystalline to very finely crystalline Dolostone. It is hard to brittle, occasionally anhydritic with trace green shale partings. At the base of the formation the Franklin Mtn. becomes limestone. The limestone is massive, microcrystalline, slightly silty, dolomitic and tight. The Franklin Mtn. has no economic interest at this location.

Upper Saline River (945m – 999m)

The upper Saline River is interbedded Dolostone and Shale. The Dolostone is cream to reddish brown, calcareous in part, firm, anhydritic and tight. The Shale is dark red brown, hard, dolomitic, fissile to sub-blocky.

Saline River Salt (999m – 1280m)

The Saline River Salt is clear to cloudy, white and occasionally orange. It has minor interbedded shale and Dolostone.

Mount Cap (1280m – 1438m)

The Mount Cap is an interbedded Limestone, Dolomite and Shale. Occasionally there are 1 to 2 meter porosity streaks within a tight limestone. The Limestone is cream to light grey, microcrystalline, dolomitic, occasionally bituminous, rare poor pinpoint porosity with spotty yellow fluorescence. The Dolostone is medium brown to cream, very fine to occasionally finely crystalline, calcareous in part, chert shards, tight to streaky pinpoint porosity (4-6%), occasional spotty yellow fluorescence with oil odor.

Mount Clark (1436m -- 1446m)

The Mount Clark is a white to frosted , very to occasionally fine grain quartzose sandstone. It is moderately sorted, moderate to well cemented with silica cement, common quartz overgrowths with poor intercrystalline porosity (7%), spotty strong yellow fluorescence with slow streaming cut.

Proterozoic (1446m – Total Depth)

The Proterozoic is a shale with minor interbedded siltstone on initial penetration. The shale is dark brown to black, hard , micromicaceous, occasionally silty with trace strong oily odor. The Siltstone is hard, blocky, argillaceous and very micromicaceous.

3. WELL EVALUATION

OPEN HOLE LOG SUMMARY Intermediate

INTERMEDIATE RUN to 809 m

Logging Company: Schlumberger Wireline Services

Field Engineer: Kelly Roncin

District: Norman Wells

Truck No.: 3025

On Location: January 19 @ 1610

Off Location: January 20 @ 0830

Circulation Ended: January 19 @ 1800

Mud Properties:

Mud Type: water
Density: 1060 g/cc
Viscosity: 29 s/l
Fluid Loss: NA.
pH: NA

Rmf: NA
Rm: 4.750 ohm.m @ 15°C

Tool: Platform Express (Resistivity, Neutron-Density, Sonic)

Interval logged: 805.6 m to surface

Rig Up: January 19 @ 23:00

Tool on Bottom: January 20 @00:15

Rig Down: January 20 @07:00

Time Losses: None

Logging Time: 0.75 hrs

Remarks: No hole problems. Required second run to obtain better quality data for resistivity and sonic, but precluded by equipment problems.

OPEN HOLE LOG SUMMARY Main

Logging Company: Schlumberger Wireline Services

Field Engineer: Devin Bean

District: Norman Wells

Truck No.: 8416

On Location: February 4 @ 17:15

Off Location: February 6 @ 12:00

Circulation Ended: February 4 @ 16:30

Mud Properties:

Mud Type: salt base
Density: 1260 g/cc
Viscosity: 60 s/l
Fluid Loss: 10.5 cm3
pH: 10.0

Rmf: 0.038 ohm.m @ 20°C
Rm: 0.045 ohm.m @ 20°C
Rmc: 0.118 ohm.m @ 17°C

Tool: Run 1 – Platform Express: DTC/GPIT/BHC/HGNS (no source)/HALS; Run 2 – HGNS/Microlog

Interval logged: 800 m to 1533 m

Rig Up: February 4 @ 20:00

Tool on Bottom: February 4 @ 23:15

Rig Down: February 6 @ 04:30

Time Losses: 21.75 hrs (non-bill time).

Logging Time: 13.25 hrs.

Remarks: Bridged on first run in at 1350m, second attempt failed – wiper trip. Driller TD not reached, log TD at 1533m. Main pass spliced at 1325m. Caliper closed at approximately 1350m on third descent.

GAS DETECTION ANOMALIES

Franklin Mtn – Saline River Interval:
No notable gas anomalies from the gas detector in the upper portion of the hole. Background Gas 10 units.

Mount Cap Formation :
1330m – 1345m: Gas increase from background to 20-180 units, returns back to background of 20 units.
1375m – 1382m: Gas increase from background of 20 units to 200 units.
1422m – 1424m: Gas increase from background of 25 units to 140 units.

Mount Clark Formation:
1441m – 1444m: Gas increase from background of 20 units to 60 units

Proterozoic:

1462 – 1525m: Gas increase from background 60 units to 180 units.

DRILLSTEM TESTS

No Drill Stem tests were conducted during drilling operation.

BIOSTRATIGRAPHIC ANALYSES

A Palynological analysis was done on several sample intervals from the Mount Clark and interpreted Proterozoic chip samples. The detailed report is included in the appendix. A precise age to the sample could not be obtained, but a range was given from lower most Paleozoic to Proterozoic age.

4. FLUID ANALYSIS

A water sample was collected from the Mount Clark zone. A copy of the water analysis is included in the Appendices Section. The test indicates that Mount Clark water has a salinity of 19.3%.

Since the zone was tight, a gas sample could not be collected from a short production test.

5. PRESSURE BUILD-UP DATA

The drilling rig Akita# 51 was used to complete O-52 as a potential Mount Clark gaswell. The zone was perforated in the interval 1436 – 1445 m. Recorders were run in the hole to conduct a short flow and build-up. The well was opened to flow for 5 hours with no gas to surface. The well was then shut-in for 643 hrs (26.8 days) of build-up. The extrapolated reservoir pressure is 17254 Kpa @ 1425.3 m TVD (-1160.3 m/ss). The zone was found to be very tight.

Short production test and pressure build-up data are included in the Appendices Section.

APPENDICES

Bottom Hole Location	Regulatory Field Name	Orig. Geog Area	License No.
00/0-52-66°51' 56.912"/123°39' 53.951"			1960

KB Elevation (m)	Ground Elevation (m)	Casing Flange Elevation (m)	Spud Date	Rig Release Date
265.00	258.90	259.28	01/03/03 01:15:00	02/11/03 23:45:00

Main Hole: 03/12/03 (KB-Grd: 6.1m)

mKB (MD)	Incl	mKB (TVD)	Schematic - Actual
-18			
0			
8			
10			
15			
20			
45	0.7	0	
82	0.3	0	
128	0.6	0	
136	0.7	0	
161	0.6	0	
179	0.3	0	
180	0.3	0	
186	0.2	0	
195	0.2	0	
199	0.2	0	
227	0.2	0	
283	0.2	0	
431	0.4	0	
502	0.3	0	
565	0.4	0	
598	0.5	0	
605	0.5	0	
622	0.4	0	
637	0.3	0	
659	0.3	0	
696	0.2	0	
733	0.2	0	
753	0.2	0	
770	0.2	0	
790	0.2	0	
794	0.2	0	
808	0.2	0	
869	0.2	0	
1006	1.2	0	
1056	1.8	0	
1223	3.5	0	
1318			
1397			
1407			
1413			
1421			
1430			
1451			
1467			
1495			
1515			
1538			

Des:Conductor, Int (MD):5.7-19.0mKB
Des:Conductor, OD:406.4mm, Btm (MD):19.0mKB
Des:Surface conductor, Int (MD):5.7-193.0mKB
Des:Surface, OD:339.7mm, Btm (MD):193.0mKB
Des:Tubing - Production
Des:Intermediate, Int (MD):500.0-809.0mKB
Des:Intermediate, OD:244.5mm, Btm (MD):806.8mKB
Des:Perforated
Des:Separation Sub(lower end 0.11)
Des:73 mm Pup Joint
Des:Flow Sub
Des:73 mm Pup Jt
Des:73 mm x 114 mm Firing Head
Des:TCP Gun Spacer
Des:TCP Gun Barrel
Des:TCP Bullnose & spacer
Des:Production, Int (MD):5.7-1,530.0mKB
Des:Production, Int (MD):5.7-1,530.0mKB
Des:Production, OD:200.0mm, Btm (MD):1,530.0mKB
Des:Abandonment, Int (MD):0.0-1,540.0mKB

Wellbore: Main Hole

Name: Main Hole

Description	Size (mm)	Top (mKB)	Btm (mKB)
Conductor	609.6	5.72	19.00
Surface	444.5	19.00	199.00
Intermediate	311.1	199.00	809.00
Production	215.4	809.00	1,540.00

Casing

Casing Description	Run Date	Bottom of Set Depth (mKB)	Set Tension (daN)
Conductor	01/03/03 10:00	19.00	0.0

#	Item Des	OD (mm)	ID (mm)	Wt (kg/m)	Grade	Top (mKB)	Btm (mKB)	Len (m)
1	Casing Joints	406.4	387.3	96.731		5.72	19.00	13.28

Cementing

Cementing Start Date	Cementing End Date	Cementing Company
01/03/03 09:00	01/03/03 10:00	Dowell Schlumberger

Evaluation Method | Cement Evaluation Results

Comment: We should drill with air only on these so we don't have any wash outs from the formation

Cement Stages: 1, 5.72-19.00mKB

Top (mKB)	Bottom (mKB)	Max Pump Pres (kPa)	Plug Fit	Plug Bump, Hold	Float Held	Float Fail Hold (m³)	Cmnt Rtrn (m³)
5.72	19.00	500			No		1.50

Avg Mixing Rate (m³/min)	P.P. Prior Bump (kPa)	Avg Disp Rate (m³/min)	Pipe Reciprocated?	Rtns Mix (%)	Rtns Displ
0.300	750	1.300		50	50

Cement Type	Additives	Vol Slurry (m³)	Vol Mix Water (m³)	Density (g/cm³)	Yield (m³/t)	Excess (%)	Top (mKB)	Btm (mKB)
POLARSE		10.0	1881	0.39	0.74		150.0	0.00	19.00

Surface Hole Location	Regulatory Field Name	Current Geographic Area	License No.
00/0-52-66°51' 56.912"/126°39' 53.951"			1960

KB Elevation (m)	Ground Elevation (m)	Casing Flange Elevation (m)	Spud Date	Rig Release Date
265.00	258.90	259.28	01/03/03 01:15:00	02/11/03 23:45:00

Main Hole: 03/12/03 (KB-Grd: 6.1m)

mKB (MD)	Int	mKB (TVD)	Schematic - Actual
-18			
0			
8			
10			
15			
20			
45	0.7	0	
82	0.3	0	
128	0.6	0	
138	0.7	0	
161	0.6	0	
179	0.3	0	
180	0.3	0	
186	0.2	0	
195	0.2	0	
199	0.2	0	
227	0.2	0	
283	0.2	0	
431	0.4	0	Des:Conductor, Int (MD):5.7-19.0mKB
502	0.3	0	
565	0.4	0	Des:Conductor, OD:406.4mm, Btm (MD):19.0mKB
598	0.5	0	
605	0.5	0	
622	0.4	0	Des:Surface conductor, Int (MD):5.7-193.0mKB
637	0.3	0	
659	0.3	0	
696	0.2	0	Des:Surface, OD:339.7mm, Btm (MD):193.0mKB
733	0.2	0	
753	0.2	0	
770	0.2	0	Des:Tubing - Production
790	0.2	0	
794	0.2	0	Des:Intermediate, Int (MD):500.0-806.6mKB
808	0.2	0	Des:Intermediate, OD:244.5mm, Btm (MD):806.6mKB
869	0.2	0	
1006	1.2	0	
1056	1.8	0	Des:Perforated
1223	3.5	0	Des:Seperation Sub(lower end 0.11)
1318			Des:73 mm Pup Joint
1397			Des:Flow Sub
1407			Des:73 mm Pup Jt
1413			Des:73 mm x 114 mm Firing Head
1421			Des:TCP Gun Spacer
1430			Des:TCP Gun Barrel
1451			Des:TCP Bullnose & spacer
1487			Des:Production, Int (MD):5.7-1,530.0mKB
1495			Des:Production, Int (MD):5.7-1,530.0mKB
1515			Des:Production, OD:200.0mm, Btm (MD):1,530.0mKB
1538			Des:Abandonment, Int (MD):0.0-1,540.0mKB

Well bore - Main Hole

Name: Main Hole

Section	Size (mm)	Top (mKB)	Btm (mKB)
Conductor	609.6	5.72	19.00
Surface	444.5	19.00	199.00
Intermediate	311.1	199.00	809.00
Production	215.4	809.00	1,540.00

Casing Description	Run Date	Bottom of Set Depth (mKB)	Set Tension (daN)
Surface	01/07/03 13:00	193.00	45.0

Jts	Des	OD (mm)	ID (mm)	Wt (kg/m)	Grade	Top (mKB)	Btm (mKB)	Len (m)
14	Casing Joints	339.7	315.3	101.195	K-55	5.72	180.04	174.32
1	Casing Joints	339.7	315.3	101.195	K-55	180.04	193.00	12.96

Cementing Start Date	Cementing End Date	Cementing Company
01/09/03 00:00	01/10/03 00:00	Dowell Schlumberger

Evaluation Method | Cement Evaluation Results

Comment: We should air drill till we get water & then cement.

Cement Stage: 1, 5.72-193.00mKB

Top (mKB)	Bottom (mKB)	Max Pump Pres (kPa)	Plug Fl Pump, Hold	Float Fail Held (m³)	Cmnt Rtrn (m³)
5.72	193.00	1,600	1,680	No	1.00

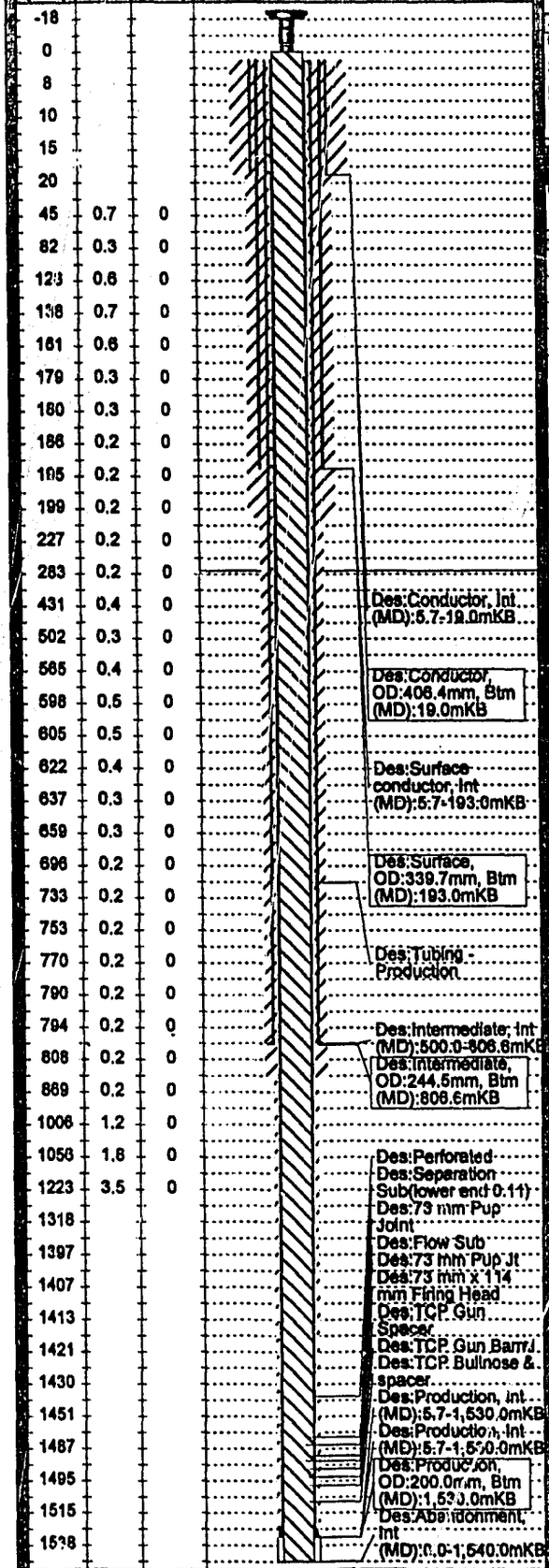
Avg Mixing Rate (m³/min)	P.P. Prior Bump (kPa)	Avg Disp Rate (m³/min)	Pipe Reciprocated?	Rtns Mix (%)	Rtns Displ
0.800	1	0.800		0	0

Cement Type	Additives	Vol (m³)	Density (g/cm³)	Yield (m³/t)	Mix Water (m³/t)	Comp Str (MPa)	Pct Xs (%)	Est Top (mKB)	Est Btm (mKB)
POLARSE	N/A	24.0	1881	0.39	0.74	16.90	200.0	0.00	193.00

Bottom Hole Location	Regulatory Field Name	CNRL Geographic Area	License No.
00/0-52-66°51' 56.912"/126°39' 53.951"			1960

KB Elevation (m)	Ground Elevation (m)	Casing Flange Elevation (m)	Spud Date	Rig Release Date
265.00	258.90	259.28	01/03/03 01:15:00	02/11/03 23:45:00

Main Hole: 03/12/03 (KB-Grd: 6.1m)



Wellbore: Main Hole

Name: Main Hole

Section	Size (mm)	Top (mKB)	Btm (mKB)
Conductor	609.6	5.72	19.00
Surface	444.5	19.00	199.00
Intermediate	311.1	199.00	809.00
Production	215.4	809.00	1,540.00

Casing: 5.72mKB

Casing Description	Run Date	Bottom of Set Depth (mKB)	Set Tension (daN)
Intermediate	01/20/03 00:00	806.64	

Qty	Item Des	OD (mm)	ID (mm)	Wt (kg/m)	Grade	Top (mKB)	Btm (mKB)	Len (m)
67	Casing Joints	244.5	224.4	59.527	L-80	5.72	793.94	788.22
1	Float Shoe	244.5	224.4	59.527		793.94	794.29	0.35
1	Casing Joints	244.5	224.4	59.527	L-80	794.29	806.17	11.88
1	Shoe	244.5	224.4	59.527	L-80	806.17	806.64	0.47

Cementing Start Date	Cementing End Date	Cementing Company
01/20/03 00:00	01/21/03 00:00	Dowell Schlumberger

Evaluation Method | Cement Evaluation Results

Comment

Cement Stages: 1, 500.0-806.60mKB

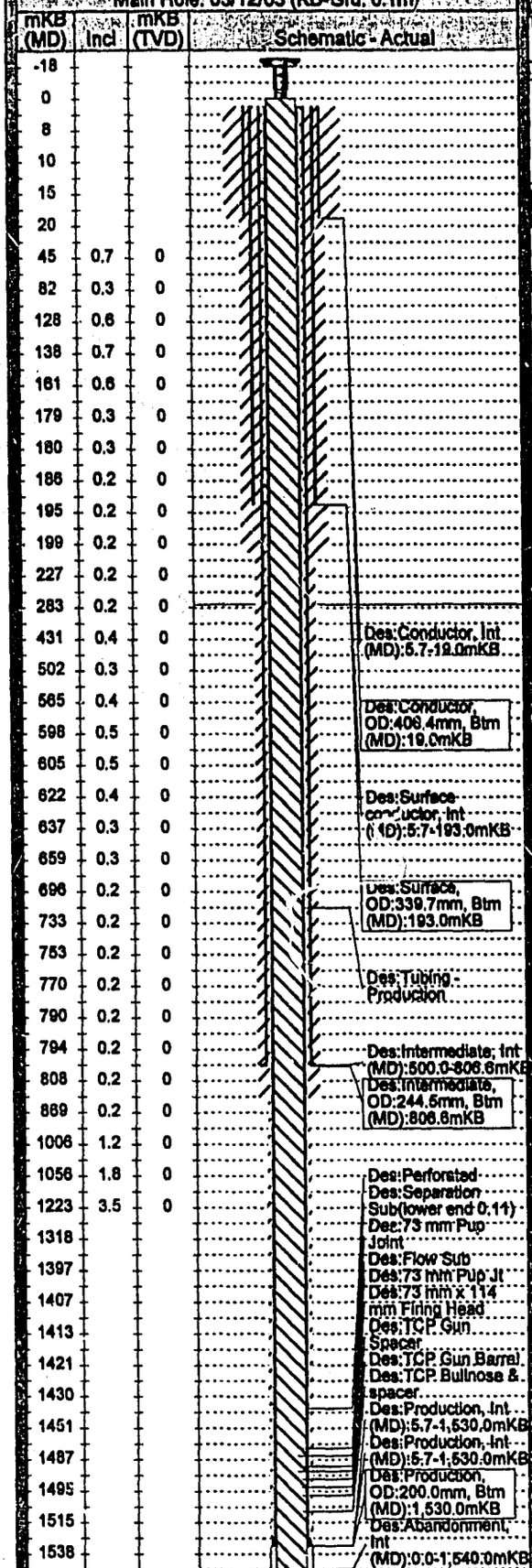
Top (mKB)	Bottom (mKB)	Max Pump Pres (kPa)	Plug Fl	Plug Bump, Hold	Float H	Float Fail Held (m³)	Cmnt Rtrn (m³)
500.00	806.60				No		0.00

Avg Mixing Rate (m³/min)	P.P. Prior Bump (kPa)	Avg Disp Rate (m³/min)	Pipe Reciprocated?	Rtns Mix (%)	Rtns Displ.

Bottom Hole Location	Regulatory Field Name	CNRL Geographic Area	Licence No.
00/0-52-66°51' 56.912"/126°39' 53.951"			1960

Kb Elevation (m)	Ground Elevation (m)	Casing Flange Elevation (m)	Spud Date	Rig Release Date
265.00	258.90	259.28	01/03/03 01:15:00	02/11/03 23:45:00

Main Hole: 03/12/03 (KB-Grd: 6.1m)



Wellbore: Main Hold

Name: Main Hole

Section	Size (mm)	Top (mKB)	Btm (mKB)
Conductor	609.6	5.72	19.00
Surface	444.5	19.00	199.00
Intermediate	311.1	199.00	809.00
Production	215.4	809.00	1,540.00

Casing Strings: Production

Casing Description	Run Date	Bottom of Set Depth (mKB)	Set Tension (daN)
Production	02/06/03 17:56	1,530.00	52.0

Qty	Item Des	OD (mm)	ID (mm)	Wt (kg/m)	Grade	Top (mKB)	Btm (mKB)	Len (m)
72	Casing Joints	177.8	159.4	38.690	T-95	5.72	1,008.43	1002.71
3	Casing Joints	177.8	159.4	38.690	L-80	1,008.43	1,050.04	41.61
3	Casing Joints	177.8	159.4	38.690	T-95	1,050.04	1,091.92	41.88
2	Casing Joints	177.8	159.4	38.690	L-80	1,091.92	1,119.55	27.63
13	Casing Joints	177.8	159.4	38.690	T-95	1,119.55	1,303.59	184.04
1	Casing Joints	177.8	159.4	38.690	L-80	1,303.59	1,317.60	14.01
6	Casing Joints	177.8	159.4	38.690	T-95	1,317.60	1,402.45	84.85
2	Casing Joints	177.8	159.4	38.690	L-80	1,402.45	1,430.19	27.74
6	Casing Joints	177.8	159.4	38.690	T-95	1,430.19	1,515.28	85.09
1	Float Collar	177.8	159.4	38.690		1,515.28	1,515.66	0.38
1	Casing Joints	177.8	159.4	38.690	L-80	1,515.66	1,529.60	13.94
1	Float Shoe	200.0	159.4	38.690		1,529.60	1,530.00	0.40

Cementing

Cementing Start Date	Cementing End Date	Cementing Company
		Dowell Schlumberger

Evaluation Method | Cement Evaluation Results

Comment

Cement Stages: 1, 5.72-1,530.00mKB

Top (mKB)	Bottom (mKB)	Max Pump Pres (kPa)	Plug Fl	Plug Bump, Hold	Float H	Float Fail Held (m³)	Cmnt Rtrn (m³)
5.72	1,530.00				No		5.50

Avg Mixing Rate (m³/m	P.P. Prior Bump (kPa)	Avg Disp Rate (m³/min	Pipe Reciprocated?	Rtns Mix (%)	Rtns Displ.

Cementing

Cementing Start Date	Cementing End Date	Cementing Company
02/07/03 00:00	02/08/03 00:00	Dowell Schlumberger

Evaluation Method | Cement Evaluation Results

Comment

Cement Stages: 1, 5.72-1,530.00mKB

Top (mKB)	Bottom (mKB)	Max Pump Pres (kPa)	Plug Fl	Plug Bump, Hold	Float H	Float Fail Held (m³)	Cmnt Rtrn (m³)
5.72	1,530.00	14,650		15,175	No	15.00	5.50

Avg Mixing Rate (m³/m	P.P. Prior Bump (kPa)	Avg Disp Rate (m³/min	Pipe Reciprocated?	Rtns Mix (%)	Rtns Displ.
0.800	12,850	0.670	Yes	100	100

Stage	Fluid Type	Fluid Des	Amount (tonnes)	Density (kg/m³)	Pump Rate (m³/min)	Yield (m³/t)	Mix Water (m³)	Excess (%)	Top (mKB)	Btm (mKB)
1	THERMAL	Lake water	56.0	1800	0.49	0.83	46.20	85.0	5.72	1,530.00

KB Elevation (m)	Ground Elevation (m)	Casing Flange Elevation (m)	KB-Ground Distance (m)	KB-CF (m)	Spud Date	Rig Release Date
265.00	258.90	259.26	6.10	5.72	01/03/03 01:15:00	02/11/03 23:45:00

Cement Details

Cementing Start Date	Cementing End Date	String	Name
		Production, 1,530.00mKB	Main Hole

Comment

Cement Stage: 1, 5.72-1,530.00mKB

Description	Objective	Top (mKB)	Bottom (mKB)
Production	Cement in Production Csg	5.72	1,530.00

Top Plug?	Bottom Plug?	Avg Mixing Rate (m³/min)	P.P. Prior Bump (kPa)	Avg Disp Rate (m³/min)	Max Pump Pres (kPa)	Plug Bump, Hold (kPa)	Cmnt Rtrn (m³)
No	No						5.50

Pipe Reciprocated?	Returns when Mixing (%)	Pipe Rotated?	Cement Returns When

Depth tagged (mKB)	Tag Method	Depth Plug Drilled Out To (mKB)	Drill out diameter (mm)

Cementing Start Date	Cementing End Date	String	Name
01/03/03 09:00	01/03/03 10:00	Conductor, 19.00mKB	Main Hole

Comment
We should drill with air only on these so we don't have any wash outs from the formation

Cement Stage: 1, 5.72-19.00mKB

Description	Objective	Top (mKB)	Bottom (mKB)
Conductor	To cement conductor in place	5.72	19.00

Top Plug?	Bottom Plug?	Avg Mixing Rate (m³/min)	P.P. Prior Bump (kPa)	Avg Disp Rate (m³/min)	Max Pump Pres (kPa)	Plug Bump, Hold (kPa)	Cmnt Rtrn (m³)
No	No	0.300	750	1.300	500		1.50

Pipe Reciprocated?	Returns when Mixing (%)	Pipe Rotated?	Cement Returns When
	50		

Depth tagged (mKB)	Tag Method	Depth Plug Drilled Out To (mKB)	Drill out diameter (mm)
11.00	Drill Bit		

Cement Blend: POLARSET

Cement Type	Fluid Description	Amount (tonnes)	Fluid Type	Volume Pumped (m³)	Yield (m³/tonnes)
POLARSET		10.0	Preflush		0.74

Mix H2O Ratio (m³/tonnes)	Free Water (%)	Density (kg/m³)	Plastic Viscosity (cp)	Thickening Time (hrs)	1st Compressive Strength (kPa)
0.39	0.00	1881			

Cement Blend Additives

Type	Fluid Type	Amount	Units	Concentration	Conc Units
Liquid Antifoam Agent		10.0	L	100.0	%

Cementing Start Date	Cementing End Date	String	Name
01/09/03 00:00	01/10/03 00:00	Surface, 193.00mKB	Main Hole

Comment
We should air drill till we get water & then cement.

Cement Stage: 1, 5.72-193.00mKB

Description	Objective	Top (mKB)	Bottom (mKB)
Surface conductor	Cement surface conductor in place	5.72	193.00

Top Plug?	Bottom Plug?	Avg Mixing Rate (m³/min)	P.P. Prior Bump (kPa)	Avg Disp Rate (m³/min)	Max Pump Pres (kPa)	Plug Bump, Hold (kPa)	Cmnt Rtrn (m³)
No	No	0.800	1	0.800	1,600	1,680	1.00

Pipe Reciprocated?	Returns when Mixing (%)	Pipe Rotated?	Cement Returns When
	0		

Depth tagged (mKB)	Tag Method	Depth Plug Drilled Out To (mKB)	Drill out diameter (mm)
180.00	Drill Bit		

Cement Blend: POLARSET

Cement Type	Fluid Description	Amount (tonnes)	Fluid Type	Volume Pumped (m³)	Yield (m³/tonnes)
POLARSET	N/A	24.0	Lead	18.90	0.74

Mix H2O Ratio (m³/tonnes)	Free Water (%)	Density (kg/m³)	Plastic Viscosity (cp)	Thickening Time (hrs)	1st Compressive Strength (kPa)
0.39	0.00	1881			

Cement Blend Additives

Type	Fluid Type	Amount	Units	Concentration	Conc Units
Mud Spacer - Water Based		3.0	m³	80.0	%

Cementing Start Date	Cementing End Date	String	Name
01/20/03 00:00	01/21/03 00:00	Intermediate, 806.64mKB	Main Hole

Comment

Cement Stage: 1, 500.00-806.60mKB

Description	Objective	Top (mKB)	Bottom (mKB)
Intermediate	Cement in Intermediate	500.00	806.60

Top Plug?	Bottom Plug?	Avg Mixing Rate (m³/min)	P.P. Prior Bump (kPa)	Avg Disp Rate (m³/min)	Max Pump Pres (kPa)	Plug Bump, Hold (kPa)	Cmnt Rtrn (m³)
No	No						0.00

Pipe Reciprocated?	Returns when Mixing (%)	Pipe Rotated?	Cement Returns When

Depth tagged (mKB)	Tag Method	Depth Plug Drilled Out To (mKB)	Drill out diameter (mm)

KB Elevation (m)	Ground Elevation (m)	Casing Flange Elevation (m)	KB-Ground Distance (m)	KB-CF (m)	Spud Date	Rig Release Date
265.00	258.90	259.28	6.10	5.72	01/03/03 01:15:00	02/11/03 23:45:00

Cement Details

Cementing Start Date	Cementing End Date	String	Name
02/07/03 00:00	02/08/03 00:00	Production, 1,530.00mKB	Main Hole

Comment

Cement Stages: 1, 5.72-1,530.00mKB

Description	Objective	Top (mKB)	Bottom (mKB)
Production		5.72	1,530.00

Top Plug?	Bottom Plug?	Avg Mixing Rate (m³/min)	P.P. Prior Bump (kPa)	Avg Disp Rate (m³/min)	Max Pump Pres (kPa)	Plug Bump, Hold (kPa)	Cmnt Rtrn (m³)
No	No	0.800	12,850	0.670	14,650	15,175	5.50

Pipe Reciprocated?	Returns when Mixing (%)	Pipe Rotated?	Cement Returns When
Yes	100		

Depth tagged (mKB)	Tag Method	Depth Plug Drilled Out To (mKB)	Drill out diameter (mm)
1,503.00	Wireline		

Cement: THERMAL 40M Thix-Mix

Cement Type	Fluid Description	Amount (tonnes)	Fluid Type	Volume Pumped (m³)	Yield (m³/tonnes)
THERMAL 40M Thix-Mix	Lake water	56.0	Lead	48.20	0.83

Mix H2O Ratio (m³/tonnes)	Free Water (%)	Density (kg/m³)	Plastic Viscosity (cp)	Thickening Time (hrs)	Tst Compressive Strength (kPa)
0.49	0.50	1800			

Cementing Start Date	Cementing End Date	String	Name
03/12/03 11:30	03/12/03 15:30	Production, 1,530.00mKB	Main Hole

Comment

Cement Stages: 1, 1,530-1,540mKB

Description	Objective	Top (mKB)	Bottom (mKB)
Abandonment	Abandon	0.00	1,540.00

Top Plug?	Bottom Plug?	Avg Mixing Rate (m³/min)	P.P. Prior Bump (kPa)	Avg Disp Rate (m³/min)	Max Pump Pres (kPa)	Plug Bump, Hold (kPa)	Cmnt Rtrn (m³)
No	No	0.300		0.300	2,680		

Pipe Reciprocated?	Returns when Mixing (%)	Pipe Rotated?	Cement Returns When
	100		

Depth tagged (mKB)	Tag Method	Depth Plug Drilled Out To (mKB)	Drill out diameter (mm)

Cement: Water ahead

Cement Type	Fluid Description	Amount (tonnes)	Fluid Type	Volume Pumped (m³)	Yield (m³/tonnes)
	Water ahead		Preflush		

Mix H2O Ratio (m³/tonnes)	Free Water (%)	Density (kg/m³)	Plastic Viscosity (cp)	Thickening Time (hrs)	Tst Compressive Strength (kPa)

Cement: 0:1:0 G

Cement Type	Fluid Description	Amount (tonnes)	Fluid Type	Volume Pumped (m³)	Yield (m³/tonnes)
0:1:0 G		4.0	Lead	3.00	0.76

Mix H2O Ratio (m³/tonnes)	Free Water (%)	Density (kg/m³)	Plastic Viscosity (cp)	Thickening Time (hrs)	Tst Compressive Strength (kPa)
0.44		1901			

Surface Hole Location	Regulatory Field Name	Orig. Geographic Area	Operator	Licence No.	KB Elev (m)	GR Elev (m)
00/0-52-66*51' 55.912"/120*39' 53.951"			Conadien Natural Resources Limited	1960	265.00	258.90

Conductor, 19.00mKB

Btm (mKB)	Tension (daN)	Max OD (mm)	Drift Min (mm)	Centralizers	Scratchers
19.00	0.0	406.4	382.6	none	None

Jts	Item Des	OD (mm)	ID (mm)	Wt (kg/m)	Grade	Burst Pres. (kPa)	Collapse Pres. (kPa)	Top Thread	Top (mKB)	Btm (mKB)	Len (m)	Cum Len (m)
1	Casing Joints	406.4	387.3	12601.808		11,312	4,344	Weld on	5.72	19.00	13.28	13.28

Surface, 193.00mKB

Btm (mKB)	Tension (daN)	Max OD (mm)	Drift Min (mm)	Centralizers	Scratchers
193.00	45.0	339.7	311.4	none	none

Jts	Item Des	OD (mm)	ID (mm)	Wt (kg/m)	Grade	Burst Pres. (kPa)	Collapse Pres. (kPa)	Top Thread	Top (mKB)	Btm (mKB)	Len (m)	Cum Len (m)
14	Casing Joints	339.7	315.3	73051.459	K-55	23,816	13,445	Hydrill CTS	5.72	180.04	174.32	187.28
1	Casing Joints	339.7	315.3	12865.689	K-55	23,816	13,445	Hydrill CTS	180.04	193.00	12.96	12.96

Intermediate, 806.64mKB

Btm (mKB)	Tension (daN)	Max OD (mm)	Drift Min (mm)	Centralizers	Scratchers
806.64		244.5	220.4	Yes jts 1,3,5,7,20,35,42,63,65,67	No

Jts	Item Des	OD (mm)	ID (mm)	Wt (kg/m)	Grade	Burst Pres. (kPa)	Collapse Pres. (kPa)	Top Thread	Top (mKB)	Btm (mKB)	Len (m)	Cum Len (m)
67	Casing Joints	244.5	224.4	60288.644	L-80	39,614	21,305	LT&C	5.72	793.94	788.22	800.92
1	Float Shoe	244.5	224.4	204.386				LT&C	793.94	794.29	0.35	12.70
1	Casing Joints	244.5	224.4	6937.443	L-80	39,614	21,305	LT&C	794.29	806.17	11.88	12.35
1	Shoe	244.5	224.4	274.461	L-80	39,614	21,305	LT&C	806.17	806.64	0.47	0.47

Production, 1,530.00mKB

Btm (mKB)	Tension (daN)	Max OD (mm)	Drift Min (mm)	Centralizers	Scratchers
1,530.00	52.0	177.8	156.2	Yes	No

Jts	Item Des	OD (mm)	ID (mm)	Wt (kg/m)	Grade	Burst Pres. (kPa)	Collapse Pres. (kPa)	Top Thread	Top (mKB)	Btm (mKB)	Len (m)	Cum Len (m)
72	Casing Joints	177.8	159.4	80577.469	T-95			LT&C	5.72	1,008.43	1002.71	1524.28
3	Casing Joints	177.8	159.4	15793.029	L-80			LT&C	1,008.43	1,050.04	41.61	521.57
3	Casing Joints	177.8	159.4	15895.508	T-95			LT&C	1,050.04	1,091.92	41.88	479.96
2	Casing Joints	177.8	159.4	10486.936	L-80			LT&C	1,091.92	1,119.55	27.63	438.08
13	Casing Joints	177.8	159.4	89852.172	T-95			LT&C	1,119.55	1,303.59	184.04	410.45
1	Casing Joints	177.8	159.4	5317.480	L-80			LT&C	1,303.59	1,317.60	14.01	226.41
6	Casing Joints	177.8	159.4	32204.723	T-95			LT&C	1,317.60	1,402.45	84.85	212.40
2	Casing Joints	177.8	159.4	10520.686	L-80			LT&C	1,402.45	1,430.19	27.74	127.55
6	Casing Joints	177.8	159.4	32295.813	T-95	59,397	57,985	LT&C	1,430.19	1,515.28	85.09	99.81
1	Float Collar	177.8	159.4	144.229				LT&C	1,515.28	1,515.66	0.38	14.72
1	Casing Joints	177.8	159.4	5290.911	L-80	59,279	40,541	LT&C	1,515.66	1,529.60	13.94	14.34
1	Float Shoe	200.0	159.4	151.820				LT&C	1,529.60	1,530.00	0.40	0.40

Bottom Hole Location	Surface Legal Location	Regulatory Field Name	CNRL Geographic Area	License No.
00/0-52-66°51' 56.912"/126°39' 53.951"	00/0-52-67.00-126.30			1960

Gr Elev (m)	KB Elevation (m)	KB-Grd (m)	Current Well Status (m)	UserTxt1 (m)	Spud Date	Rig Release Date
258.90	265.00	6.10			01/03/03	02/11/03

Name	Vertical Section Direction (°)
Main Hole	0.75

Description	Survey Company
Single shot	Akita/Sahtu

Survey Data

MD (mKB)	Incl (°)	Azm (°)	TVD (mKB)	VS (m)	NS (m)	EW (m)	DLS (°/30m)	Tie-In Pt?	Tie-In TVD (mKB)
39.00	0.75		0.00	0.00	0.00	0.00	0.00	Yes	
92.00	0.25		0.00	0.00	0.00	0.00	0.00	Yes	
148.00	0.75		0.00	0.00	0.00	0.00	0.00	Yes	
193.00	0.15		0.00	0.00	0.00	0.00	0.00	Yes	
291.00	0.25		0.00	0.00	0.00	0.00	0.00	Yes	
397.00	0.50		0.00	0.00	0.00	0.00	0.00	Yes	
490.00	0.25		0.00	0.00	0.00	0.00	0.00	Yes	
594.00	0.50		0.00	0.00	0.00	0.00	0.00	Yes	
692.00	0.15		0.00	0.00	0.00	0.00	0.00	Yes	
899.00	0.15		0.00	0.00	0.00	0.00	0.00	Yes	
1,040.00	1.50		0.00	0.00	0.00	0.00	0.00	Yes	
1,117.00	3.00		0.00	0.00	0.00	0.00	0.00	Yes	
1,145.00	3.50		0.00	0.00	0.00	0.00	0.00	Yes	
1,172.00	3.75		0.00	0.00	0.00	0.00	0.00	Yes	
1,210.00	3.50		0.00	0.00	0.00	0.00	0.00	Yes	
1,303.00	3.50		0.00	0.00	0.00	0.00	0.00	Yes	

Start Date	End Date	Spud Date	Rig Release Date	Name
12/26/02	02/11/03	01/03/03	02/11/03	Main Hole

Rigs

Akita Drilling Ltd.	51

Wellbore Sections

Main Hole	609.6	5.72	19.00
Main Hole	444.5	19.00	199.00
Main Hole	311.1	199.00	809.00
Main Hole	215.4	809.00	1,540.00

Mud Checks

Depth (m)	Type	Density (kg/m³)	Vis (s/L)	YP (Pa)	PV (mPa·s)	10s Gel (Pa)	10m Gel (Pa)	30m Gel (Pa)	Filter Cake (mm)	pH	HTHP Fluid Loss (mL)	Temp (°C)	Solids (%)	Sand (%)	Water (%)	Oil (%)	Corr Solids (%)	LGS (kg/m³)	Oil (%)	Date	Mud Added (m³)	Mud Lost (Hole) (m³)
19.00	Gel-Chem	1120.00	52	7.0	9.0	7.0	15.0	11.0		9.5	0.000		0.000	0.0	0.9	0.0			0.0	01/03/03	19.00	15.00
136.00	Gel-Chem	1075.00	44	12.0	7.0	3.0	6.0	14.0	14.0	10.0	0.000		600.000	0.0	0.0	125.0			0.0	01/05/03		
283.00	Water Base	1050.00	30	1.0	0.5	0.5	0.5			9.0	0.000		350.000	0.0	0.0	84.0			0.0	01/12/03	8.00	8.00
378.00	Water Base	1050.00	30	1.0	0.5	0.5	0.5			9.0	0.000		350.000	0.0	0.0	84.0			0.0	01/13/03	8.00	6.00
410.00	Water Base	1050.00	30	1.0	0.5	0.5	0.5			9.0	0.000		350.000	0.0	0.0	84.0			0.0	01/14/03	8.00	6.00
513.00	Water Base	1170.00	30	1.0	0.5	0.5	0.5			9.0	0.000		350.000	0.0	0.0	84.0			0.0	01/15/03	8.00	6.00
513.00	Water Base	1090.00	30	1.0	0.5	0.5	0.5			9.0	0.000		350.000	0.0	0.0	84.0			0.0	01/16/03	8.00	6.00
513.00	Water Base	1110.00	30	1.0	0.5	0.5	0.5			9.0	0.000		350.000	0.0	0.0	84.0			0.0	01/17/03	8.00	6.00
736.00	Water Base	1140.00	30	1.0	0.5	0.5	0.5			9.0	0.000		350.000	0.0	0.0	84.0			0.0	01/18/03	8.00	6.00
809.00	Water Base	1050.00	30	1.0	0.5	0.5	0.5			9.0	0.000		350.000	0.0	0.0	84.0			0.0	01/19/03	8.00	0.00
809.00	Gel Base	1050.00	30	1.5	0.1	0.1	0.5	0.4		7.5			375.000	0.0	0.0	84.0				01/20/03	0.00	0.00
235.00	Water Base	1050.00	30	1.5	0.1	0.1	0.5	0.4		7.5			375.000	0.0	0.0	84.0				01/21/03	0.00	0.00
907.00	Salt Base	1105.00	31	2.0	0.5	0.5	0.5	16.0		11.0	0.000		77000.000	0.0	0.1	175.0	2		0.0	01/27/03	5.00	0.00
1,040.00	Salt Base	1120.00	31	3.0	0.5	0.5	0.5	16.0		11.0	0.000		77000.000	0.0	0.1	175.0	2		0.0	01/28/03	5.00	0.00
1,220.00	Salt Base	1250.00	35	7.0	1.5	0.5	0.5	10.0		10.0	0.000		85000.003	0.0	0.1	401.0	2		0.0	01/29/03	5.00	0.00
1,250.00	Salt Base	1250.00	39	11.0	2.0	1.0	1.0	10.0		9.0	0.000		87000.007	0.0	0.2	418.0	3		0.0	01/30/03	8.00	0.00
1,384.00	Salt Base	1250.00	41	12.0	6.0	2.0	4.0	16.0		9.0	0.000		85000.003	0.0	0.2	434.0	10		0.0	01/31/03	8.00	0.00
1,425.00	Salt Base	1250.00	41	12.0	6.0	2.0	4.0	16.0		9.0	0.000		85000.003	0.0	0.2	434.0	10		0.0	02/01/03	8.00	0.00
1,451.00	Salt Base	1260.00	41	14.0	5.5	2.0	3.0	16.0		10.5	0.000		89999.998	0.0	0.2	434.0	10		0.0	02/02/03	8.00	0.00
1,451.00	Salt Base	1260.00	41	14.0	5.5	2.0	3.0	16.0		10.5	0.000		89999.998	0.0	0.2	434.0	10		0.0	02/03/03	8.00	0.00
1,540.00	Salt Base	1260.00	60	17.0	8.0	2.0	5.0	10.5		10.5	0.000		85000.003	0.0	0.2	434.0	26		0.0	02/04/03	8.00	0.00
1,540.00	Salt Base	1270.00	64	23.0	12.5	4.0	9.0	9.0		10.0	0.000		85000.003	0.0	0.2	451.0	26		0.0	02/05/03	8.00	0.00
1,540.00	Salt Base	1270.00	64	23.0	12.5	4.0	9.0	9.0		10.0	0.000		85000.003	0.0	0.2	451.0	26		0.0	02/06/03	8.00	0.00
1,540.00	Salt Base	1270.00	64	23.0	12.5	4.0	9.0	9.0		10.0	0.000		85000.003	0.0	0.2	451.0	26		0.0	02/07/03	8.00	0.00

PALYNOLOGICAL ANALYSIS OF FOUR DITCH CUTTING SAMPLES MT. CLARK FORMATION AND UNDERLYING SHALE UNIT COLVILLE O-52 WELL N. W. T.

B. G. T. van Helden
March 2003

Client: R. Befus, Canadian Natural Resources Limited

INTRODUCTION

Four samples from ditch cuttings between 1445 m. and 1540 m. were processed for palynology and their organic content was analyzed.

PURPOSE OF STUDY

The purpose of this study was:

- To identify the age
- To determine the depositional environment
- To assess the thermal maturity
- To comment on the source rock potential

CONCLUSIONS

- A lowermost Paleozoic (pre-Silurian) to a possibly ?Proterozoic age was assigned
- The sediments were deposited in a (?shallow) marine, possibly restricted (?anoxic) environment
- The thermal maturity of the sediments is within the early stage of the dry gas window
- The sediments may have (had) potential for the generation of (liquid) hydrocarbons

PALYNOLOGICAL ANALYSIS: SUMMARY OF RESULTS

The results of the palynological analysis are discussed below.

1445 m. (ditch cuttings)

Lithology:
Sandstone, Mt. Clark Formation.
As the coarse grained clastics in sandstones do not contain palynomorphs, ditch cutting chips from fine grained (dark) shale chips in the sample(presumably interbedded) were separated in an effort to concentrate the fossil-productive horizons.

Organic recovery:
Abundant spore-like microfossils, mostly in clusters, presumably of algal origin. Rare ?Leiospheres. Very few possible ?acritarchs.
Minor uphole contamination (lighter coloured Devonian spores, fungi).
Mostly amorphous, degraded organic matter, presumably of algal origin. Some ?bituminous matter.

1475 m., 1480 m., 1540 m. (ditch cuttings)

Lithology:
Shales, dark grey.

Organic recovery:
Abundant spore-like microfossils, mostly in clusters, presumably algal in origin, poorly preserved. These palynomorphs could be compared with the algal form *Gloeocapsomorpha*, often recorded from Ordovician sediments. Very rare possible Leiospheres. Minor uphole contamination.
Mostly degraded amorphous organic matter, presumably of algal origin. Approximately 30% ?"alginite".

AGE ASSIGNMENT

No age-diagnostic microfossils were observed in the residues. Therefore no precise age can be assigned to the samples other than a **lowermost Paleozoic, pre-Silurian or** even possibly a **Proterozoic** age.

There appears to be **no significant difference** in microfossil content (other than the occurrence of algal forms compared with *Gloeocpsomorpha* in the lower three samples) between the sample collected from **the Mt. Clark Formation of Cambrian age and those from the underlying shale unit**, which is considered to be of Proterozoic age (R. Befus, pers. comm.). It is possible however that uphole contamination in the samples masked effectively barren organic residues of Proterozoic age.

DEPOSITIONAL ENVIRONMENT

The abundance of partially degraded organic matter suggests quiet, **possibly anoxic** conditions. The observed organisms including spore-like bodies of algal origin, ?Leiospheres and organisms resembling the algal form *Gloeocapsomorpha,* which also suggest **shallow marine, possibly restricted conditions.**

THERMAL MATURITY

Thermal maturity can be determined quantitatively from Vitrinite Reflectance by measuring the intensity of the reflected light (Ro%) on small fragments of vitrinite, representing the woody tissue of vascular land plants. This method affords precise measurements, but has disadvantages: it cannot be determined whether the vitrinite is *in situ*, recycled or uphole contamination.

An alternative qualitative method consists of observing the colour of spores in the residue (Thermal Alteration Index) and comparing this colour with the colour of spores from samples with known vitrinite reflectance values (Ro%). Although this method produces no precise values, it is in some respect very accurate as the spore colour is obtained from *in situ* fossils.

A third method involves the behaviour of organic matter under fluorescent light. The degree of fluorescence and fluorescent colour provide indications of the degree of thermal maturity.

None of the studied samples yielded vitrinite or land-derived spores as vascular land plants made their first appearance on earth in the Silurian period. Therefore vitrinite reflectance or T.A.I. measurements cannot be obtained. However, the colour of the ?algal spore bodies affords some indication as to their thermal maturity. Based on the observed "spore" colour and on the absence of fluorescence in the samples it is suggested that **the sediments are within the early stage of the dry gas window, just beyond the liquid hydrocarbon generative window.**

BIOSTRATIGRAPHIC SERVICES
B. G. T. van Helden

SOURCE ROCK POTENTIAL

Analysis of the organic residue (kerogens) provides qualitative information on the ability of the sediment to generate hydrocarbons. Quantitative geochemical information is required to determine the "richness" of such hydrocarbon generative organic matter.

The kerogen residues contain abundant algal spore-like bodies, many of which are similar to the Ordovician algal form *Gloeocapsomorpha*. This form is the principal organic component of middle Ordovician oil shales known as Kukersites. In addition to these algal bodies the residues contain abundant degraded amorphous matter. Based on these observations it is suggested that **the shales may have (had) potential for the generation of (liquid) hydrocarbons.**

REFERENCES

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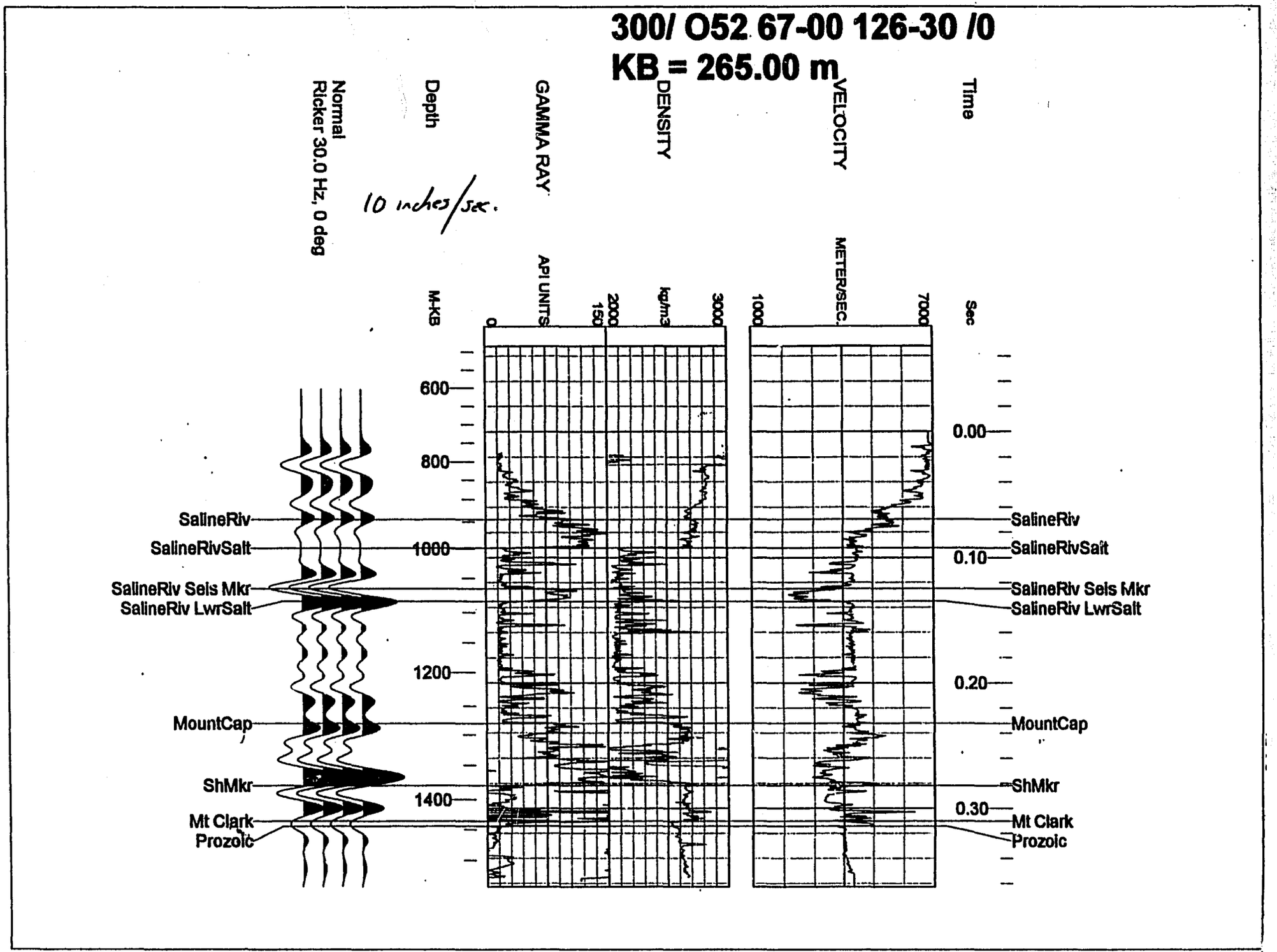

300/ O52 67-00 126-30 /0
KB = 265.00 m
Normal
Ricker 30.0 Hz, 0 deg
Depth
M-KB
10 inches/sec.
GAMMA RAY
API UNITS
0
150
DENSITY
kg/m3
2000
3000
VELOCITY
METER/SEC.
1000
7000
Time
Sec
600
800
1000
1200
1400
0.00
0.10
0.20
0.30
SalineRiv
SalineRivSalt
SalineRiv Seis Mkr
SalineRiv LwrSalt
MountCap
ShMkr
Mt Clark
Prozoic

AGAT Laboratories

WATER ANALYSIS

Container Identification	Laboratory Number
PB1A	W037819A

Operator Name
CANADIAN NATURAL RESOURCES LIMITED

Unique Well Identifier	Well Name	Elevation
LAT 66 deg, LONG 126 deg	CNES BEHOZIA	KB m GRD m

Field or Area	Pool or Zone	Sampler's Company
BEHOZIA	NOT AVAILABLE	OPSCO

Test Type	Test No.	Test Recovery	Name of Sampler

Test Interval or Perfs		Sampling Point
		BAILER

	Separator	Reservoir	Source	Sampled	Received
Pressure (kPa)					
Temperature					

Date Sampled	Date Received	Date Reported	Entered By	Certified By
Feb 10, 2003	Feb 19, 2003	Feb 25, 2003	PL	PL

Other Information
LAT 51 min 56.912 sec., DOWN HOLE

Note: Sampling Point, Unique Well Identifier and/or Pool or Zone information was unavailable at time of reporting. This information is integral to AGAT's WebFLUIDs, a comparison, history and trending analysis system.

Cations

ION	mg/L	Mass Fraction	mmol/L
Na	71870.0	0.350	3126.2
K	1640.0	0.008	41.9
Ca	7900.0	0.038	197.1
Mg	1530.0	0.007	63.0
Fe	1.3	TRACE	TRACE
		Total Cations	3688.3

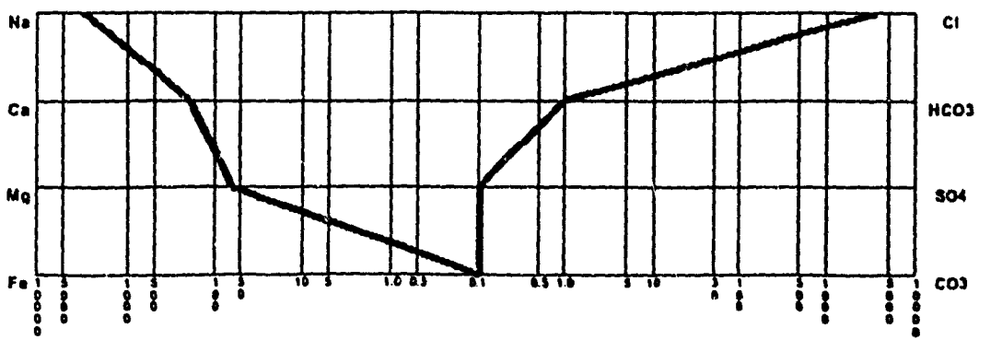
Anions

ION	mg/L	Mass Fraction	mmol/L
Cl	122462.0	0.596	3454.2
HCO3	57.3	TRACE	0.9
SO4	0.7	TRACE	TRACE
CO3	Nil	Nil	Nil
OH	Nil	Nil	Nil
		Total Anions	3455.2

Other Measurements

Measurement	Value
Total Dissolved Solids (Calculated) mg/L	205461
Observed pH	6.57
H2S (25°C) mg/L	0.00
Relative Density (25°C)	1.145
Resistivity/OHM m (25°C)	0.048
Salinity %	19.32

Logarithmic Pattern mmol/L



NEB

0-52 well

CNRL Behozia Lat 66-Long-126
Lat. 66*51 Min – Long 126*39 Min
~~Colville~~ Formation
Mount Clare
Inline Prover Test (PRD)
February 10, 2003

GENERAL INFORMATION

Client Information:

Company: CANADIAN NATURAL RESOURCES LTD.

Contact: BLAINE HOOK

Phone: 403-517-6700 Fax: e-mail:

Site Information:

Contact:

Phone: Fax: e-mail:

Well Information:

Name: CNRL BEHOZIA LAT 66-LONG 126

Operator: CANADIAN NATURAL RESOURCES LTD.

Location-Downhole: LAT.66*51 MIN LONG 126*39 MIN

Location-Surface:

Test Information:

Company: OPSCO ENERGY INDUSTRIES LTD.

Representative: RICHARD KLYMOK

Supervisor:

Test Type: FLOW TEST

Test Unit:

Start Date: 2003/02/10

End Date: 2003/02/10

Report Date: 2003/02/24

Job Number:

Start Time: 07:20:00

End Time: 18:00:00

Prepared By: MICHELLE BOND

Qualified By: RICK DOLL

Remarks:

ALL PRESSURES ARE REPORTED IN kPa(a)

CANADIAN NATURAL RESOURCES LTD. FieldNotes CNRL BEHOZIA LAT 66-LONG 126
LAT.66*51 MIN LONG 126*39 MIN Formation: COLEVILLE
Start Test Date: 2003/02/10
Final Test Date: 2003/02/10

METER REPORT

Gas Meter 1

Meter Type:	Orifice Meter
Meter Size (ID):	101.65 mm
Previous Gas Production:	0.000 10^3m^3
Tap Type:	Flange
Tap Location:	Downstream
Gas Gravity (G):	0.650
CO_2:	0.00 %
H_2S:	0.00 %
N_2:	0.00 %
Critical Temperature (T_c):	207.76 K
Critical Pressure (P_c):	4625.74 kPa

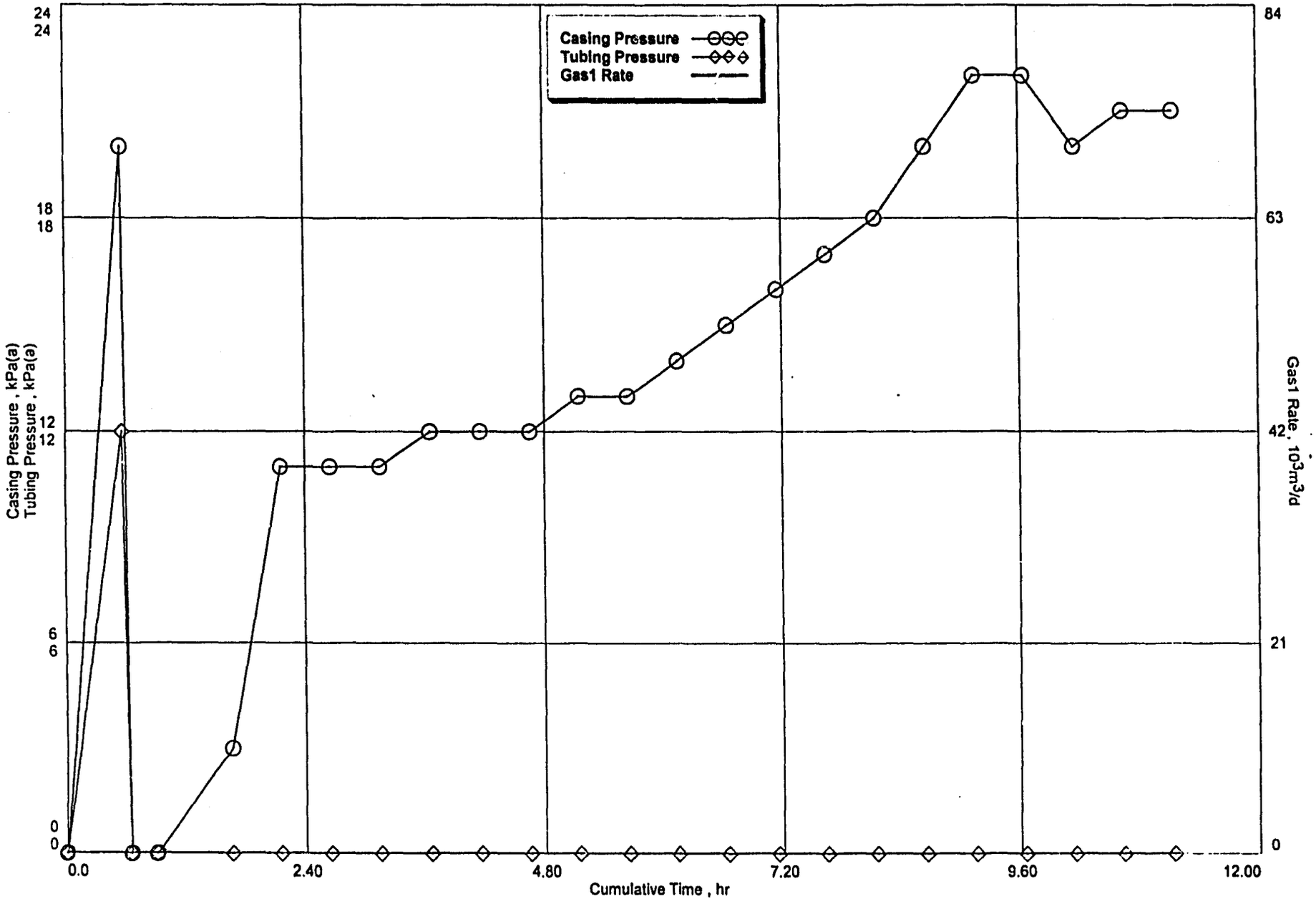
Oil Meter 1

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

CANADIAN NATURAL RESOURCES LTD.
LAT.66*51 MIN LONG 126*39 MIN
Start Test Date: 2003/02/10
Final Test Date: 2003/02/10

CNRL BEHOZIA LAT 66-LONG 126
Formation: COLEVILLE

CNRL BEHDZIA LAT 66-LONG 126



CANADIAN NATURAL RESOURCES LTD.
LAT.66*51 MIN LONG 126*39 MIN
Start Test Date: 2003/02/10
Final Test Date: 2003/02/10

FieldNotes
Field Measurements

CNRL BEHOZIA LAT 66-LONG 126
Formation: COLEVILLE

	Date	Clock Time	Cum Time	Tbg Pres	Csg Pres	WHT	Stat Pres	Diff Pres	MRT	Orifice	Gas Rate	Cum Gas	Fld Vol	Sal	pH
	yyyy/mm/dd	hh:mm:ss	hr	kPa(a)	kPa(a)	°C	kPa(a)	kPa	°C	mm	10^3m^3/	10^3m^3	m^3	ppm	
1	2003/03/10	06:51:00	0.000	WELL PERFORATED											
2		07:15:00	0.400				0	0.00	0.00		0.000	0.000	0.000		
3		07:15:00	0.400	OPEN TO FLOW											
4		07:25:00	0.567	12	20										
5		07:30:00	0.650	0	0										
6		07:45:00	0.900	0	0										
7		08:00:00	1.150	SHUT IN WELL, RIG IN WIRELINE											
8		08:30:00	1.650	0	3		0	0.00	0.00		0.000	0.000	0.000		
9		09:00:00	2.150	0	11										
10		09:30:00	2.650	0	11										
11		10:00:00	3.150	0	11										
12		10:30:00	3.650	0	12										
13		11:00:00	4.150	0	12										
14		11:30:00	4.650	0	12										
15		12:00:00	5.150	0	13										
16		12:30:00	5.650	0	13										
17		12:35:00	5.733	RECORDERS SET											
18		12:36:00	5.750				0	0.00	0.00		0.000	0.000	0.000		
19		12:48:00	5.950	OPEN TO FLOW											
20		13:00:00	6.150	0	14										
21		13:30:00	6.650	0	15										
22		14:00:00	7.150	0	16										
23		14:30:00	7.650	0	17										
24		15:00:00	8.150	0	18										
25		15:30:00	8.650	0	20										
26		16:00:00	9.150	0	22										

CANADIAN NATURAL RESOURCES LTD.
LAT.66*51 MIN LONG 126*39 MIN
Start Test Date: 2003/02/10
Final Test Date: 2003/02/10

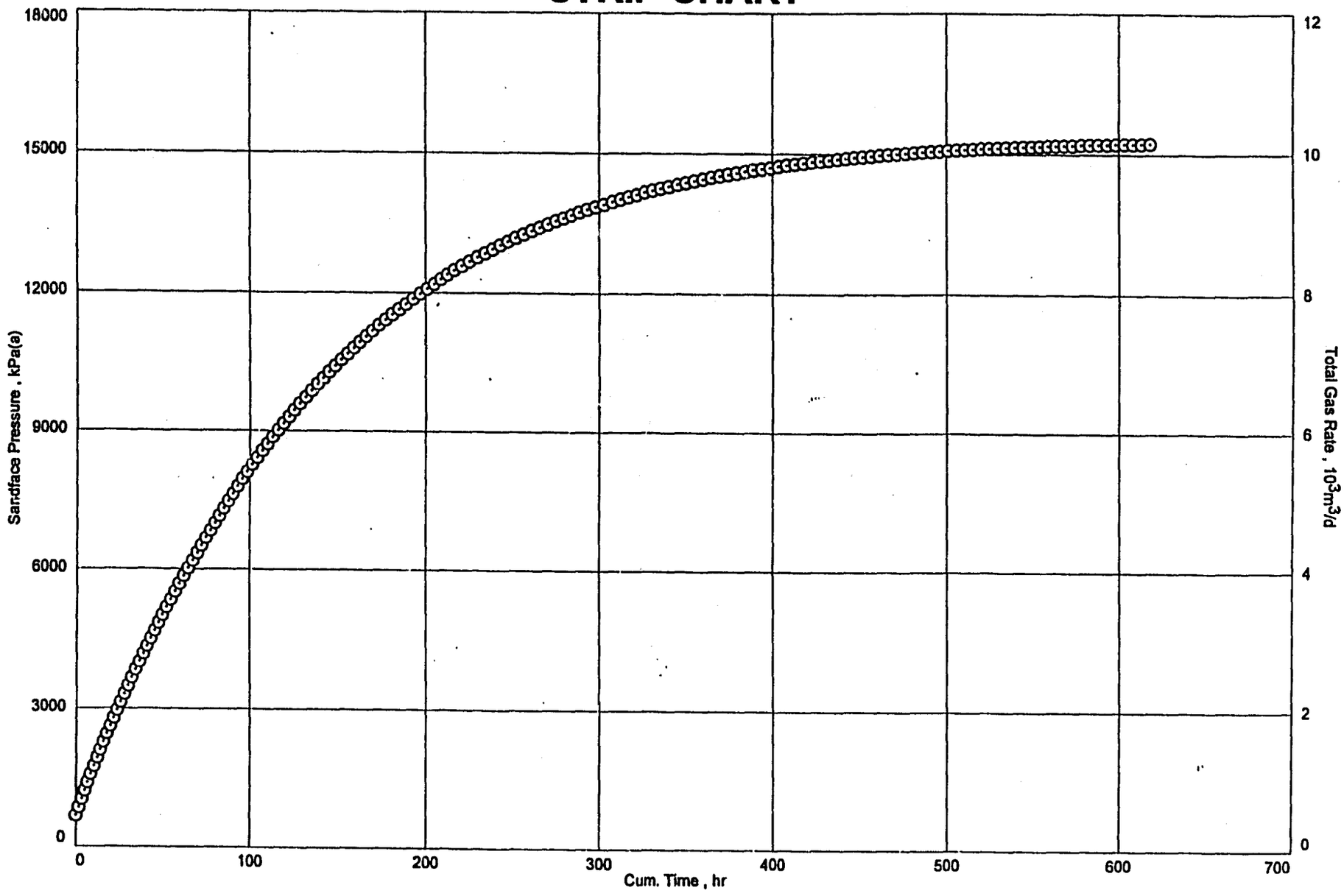
FieldNotes
Field Measurements

CNRL BEHOZIA LAT 66-LONG 126
Formation: COLEVILLE

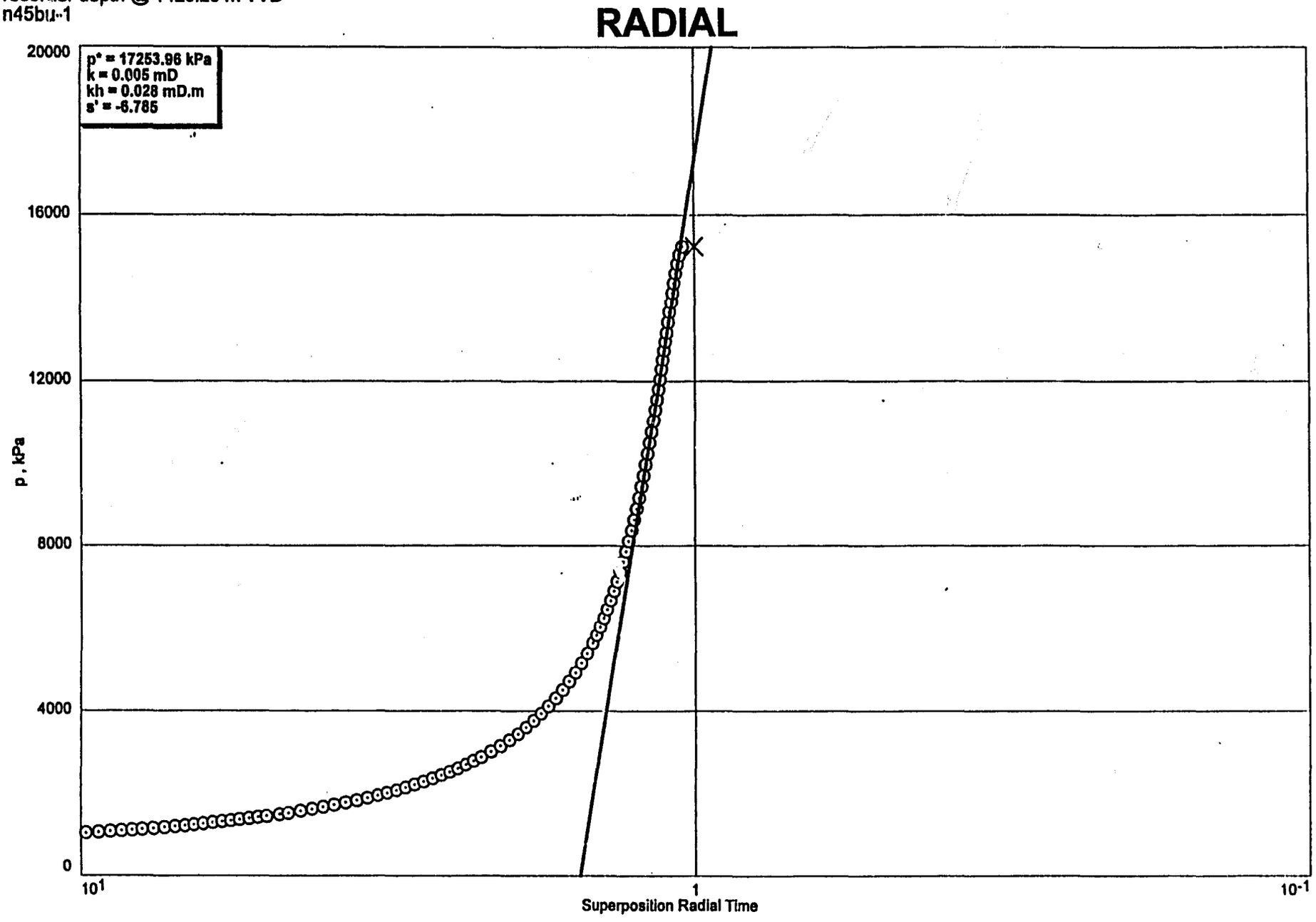
	Date	Clock Time	Cum Time	Tbg Pres	Csg Pres	WHT	Stat Pres	Diff Pres	MRT	Orifice	Gas Rate	Cum Gas	Fld Vol	Sal	pH
	yyyy/mm/dd	hh:mm:ss	hr	kPa(a)	kPa(a)	°C	kPa(a)	kPa	°C	mm	10^3m^3/	10^3m^3	m^3	ppm	
27	2003/03/10	16:30:00	9.650	0	22										
28		17:00:00	10.150	0	20										
29		17:30:00	10.650	0	21										
30		18:00:00	11.150	0	21										
31		18:01:00	11.167	SHUT IN WELL											
32		18:02:00	11.183				0	0.00	0.00		0.000	0.000	0.000		
33		18:03:00	11.200	ONE LOW PRESSURE WATER SAMPLE TAKEN. pH = 6 SALINITY = 21000 pm											
34		18:04:00	11.217	END OF TEST											

O-52 2003-02-10 to 03-08
N45 recorder
recorder depth @ 1425.25 m TVD
n45bu

STRIP CHART



O-52 2003-02-10 to 03-08
N45 recorder
recorder depth @ 1425.25 m TVD
n45bu-1



Fast

GEOLOGICAL REPORT

N.E.B. COPY

CANADIAN NATURAL RESOURCES LIMITED

GEOLOGICAL REPORT

CNRES Behdziah Youh 00/O-52-67.00-126.30

Colville Lake, NWT

Prepared by: Nancy Sinnott, P. Geol.

Reported to: Robert Befus

February 13, 2003

Cabra
CONSULTING
A DIVISION OF CABRA ENTERPRISES LTD.

1623 – 48th Ave SW
Calgary, Alberta T2T 2S9
(403) 243-5022

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WELL DATA SUMMARY

Company:	Canadian Natural Resources Limited
Well Name:	CNRES Behdziah Youh O-52-67.00-126.30
Surface Location:	O-52-67.00-126.30
Surface Co-ordinates:	Lat 66°51"56' Long 126°39"53'
Elevations:	***Ground:*** 258.9 meters ***Kelly Bushing:*** 265.0 meters ***KB to Ground:*** 6.1 meters
Field:	Undefined
Classification:	New Pool Wildcat
Objectives:	***Primary*** – Mount Clarke Formation ***Secondary*** – Mount Cap Formation
Terminating Zone:	Precambrian basement
Security:	Confidential
AFE Number:	DO2A-0552-D312
Licence Number:	1960
Spud Date:	January 3, 2003 @ 01:15
Total Depth:	1540.5 m, February 4 @ 10:54
Sampled Interval:	5 m intervals from 200 m to TD
Contractor:	Akita Sahtu Drilling Rig # 51
Drilling Supervision:	Craig Skubleny
Geological Supervision:	Nancy Sinnott

Hole Size:	***Conductor:*** 445 mm ***Surface:*** 387 mm ***Intermediate:*** 311 mm ***Main:*** 216 mm
Conductor Casing:	***Size:*** 406.4 mm ***Type:*** 12.9m conductor pipe ***Landed*** @ 19 m ***Cement:*** 10 tonnes of Arctic Set cement
Surface Casing:	***Size:*** 339.7 mm ***Type:*** 14 joints and 1 shoe joint 101.19 kg/m ***Landed*** @ 193 m ***Cement:*** 24 tonnes of Arctic Set cement
Intermediate Casing:	***Size:*** 244.5 mm ***Type:*** 67 joints 46,029 daN ***Landed*** @ 806.64 m ***Cement:*** 7000 liters of Arctic Set cement (first attempt failed and had to be drilled out, remainder top fill cemented).
Main Casing:	***Size:*** 177.8 mm ***Type:*** 109 joints 38.69 kg/m ***Landed*** @ 1530 m ***Cement:*** 53.6 tonnes of "G" +10% D044, BWOW+4% D065+0.4% D167+0.15% D013
Open Hole Logs:	Schlumberger Wireline Services
Final Status:	Cased
Rig Release:	February 12, 2003
Final Costs:	$5,403,678 (before completion)

FORMATION MARKERS

KB: 265.0 m

	Prognosis		Samples			Logs		
Formation	TVD (m)	Subsea (m)	MD (m)	TVD (m)	Subsea (m)	MD (m)	TVD (m)	Subsea (m)
Franklin Mtn.	-	-	350	350	-85	350	350	-85
Saline River	856	-591	945	945	-680	940.5	940.5	-675.5
Saline River Salt	888	-623	999	999	-734	997.5	997.5	-732.5
Seismic Marker	968	-703	1068	1068	-803	1067	1067	-802
Mt. Cap	1090	-825	1280	1280	-1015	1278	1278	-1013
Shale Marker	1240	-975	1375	1375	-1061	1380.5	1380.5	-1115.5
Dolomite Marker	1306	-1041	No pick	No pick	-	No pick	No pick	-
Mt. Clark	1310	-1045	1438	1438	-1173	1436.5	1436.5	-1171.5
Proterozoic	1330	-1065	1446	1446	-1181	1445	1445	-1180
TD	1355	-1090	1540.5	1540.5	-1275.5	1533	1533	-1268

DAILY SUMMARY

Date	DFS	Cum. Costs	Depth @ 24:00 Hrs	Progress (m)	Drilling Hours	Avg. ROP	Formation	Operation	Operations Summary
03/01/03	0	1,982,629	19	19	2.00	9.5	Surface	Spud, drill, cement casing	Spud 445 mm hole @ 01:15; drill to 19m set conductor in with Arctic blend cement; rig up Grant head and blooie lines.
03/01/04	1	$2,020,768	41	22	6.0	3.7	Surface	Drill out, drill ahead	Rig up blooie line and make tees for air drilling on blooie line, drill out cement and drill ahead.
03/01/05	2	$2,057,037	98	57	6.00	9.5	Cretaceous	Drill ahead	Conductor barrel fell – chain up cement and modify conductor; resume air drilling
03/01/06	3	$2,095,006	135	37	5.5	6.7	Cretaceous?	Drilling	Air drilled to 142m – trouble with stuck pipe, clean hole, drill ahead.
03/01/07	4	$2,499,351	199	57	6.50	8.8	Bear Rock	Drill; POOH	Air drilled w/ rotary from 142-199m, trip for pressure spikes, sand causing problems with hammer, call TD 199m, circulate hole clean, POOH to run casing.
03/01/08	5	$2,548,361	199	0	0	0	Bear Rock	RIH air hammer	Lay down casing, pick up air hammer BHA, RIH for clean out – no circulation, POOH – sand in hammer, clear hammer, RIH, POOH, run reamer.

Date	DFS	Cum. Costs	Depth @ 24:00 Hrs	Progress (m)	Drilling Hours	Avg. ROP	Formation	Operation	Operations Summary
03/01/09	6	$2,613,389	199	0	0	0	Bear Rock	Run/cement casing	Run 339.7mm casing to 193m, circulate, test, cement casing, nipple up diverter and Grant head.
03/01/10	7	$2,660,274	199	0	0	0	Bear Rock	Prepare to drill out	Nipple up 387mm BOP equipment, pressure test, make up BHA, service hammer tools, RIH to drill out
03/01/11	8	$2,711,018	199	0	0	0	Bear Rock	Drill out, drill ahead	Drill out cement from 180m to shoe at 193m, blow down hole, trip out to run hammer, air drill to 216m; control water influx of 0.49m^3/min.
03/01/12	9	$2,757,592	245	46	4.00	11.5	Bear Rock	Rig to run rotary drill	Rig up extra 400bbl tanks to try to drill with water influx to 240m, try to squeeze water back into formation; repair 4" stand pipe valve, trip out and rig to run with conventional rotary drill mode.
03/01/13	10	$2,804,346	346	101	15.00	6.7	Bear Rock	Drilling	Drill from 245m to 351m, deviation survey, trip for pipe swap to increase weight on bit – increased ROP from 5.5 to 8.7 m/hr.
03/01/14	11	$2,901,363	467	119	20.00	5.9	Franklin Mountain	Drilling	Drill from 348m to 467m, deviation survey.
03/01/15	12	$2,948,667	572	105	20.50	5.1	Franklin Mountain	Drilling	Drill from 467m to 572m, deviation survey.

Date	DFS	Cum. Costs	Depth @ 24:00 Hrs	Progress (m)	Drilling Hours	Avg. ROP	Formation	Operation	Operations Summary
03/01/16	13	$2,993,996	648	76	14.25	5.3	Franklin Mountain	Drilling	Drill from 572m to 605m, POOH to change bit, RIH with bit #8, rotary drill to 648m, deviation survey.
03/01/17	14	$3,157,630	696	48	13.50	3.6	Franklin Mountain	Drilling, tripping	Drill to 661m, POOH to change out bit, RIH bit #9, drill to 696m, POOH with bit #9.
03/01/18	15	$3,205,419	778	82	16.25	5.0	Franklin Mountain	Drilling	Drill to 780m, deviation survey.
03/01/19	16	$3,253,589	809	31	8.25	3.8	Franklin Mountain	Drilling, logging	Drill to 792m, POOH to change bit, RIH bit #11 and drill to 809m, POOH w/ bit #11; rig up loggers, start logging
03/01/20	17	$3,783,330	809	0	0	0	Franklin Mountain	Logging, casing, cementing	Run logs, rig out loggers, rig to and run casing, cement casing
03/01/21	18	$3,831,269	809	0	0	0	Franklin Mountain	Cementing	Cement casing – cement set in casing, couldn't nipple down diverter and cut casing flare, weld casing, rig up to and drill out cement in casing
03/01/22	19	$3,882,169	809	0	0	0	Franklin Mountain	Drilling cement	Drill out cement from 335 to 788m, trip out to nipple up BOP
03/01/23	20	$3,930,108	809	0	0	0	Franklin Mountain	Prepare to drill ahead	Finished trip, weld on bowl, nipple up 11" stack, pressure test all BOP equipment

Date	DFS	Cum. Costs	Depth @ 24:00 Hrs	Progress (m)	Drilling Hours	Avg. ROP	Formation	Operation	Operations Summary
03/01/24	21	$3,978,047	809	0	0	0	Franklin Mountain	Fishing	Finish up with P.T, RIH and P.T. pipe rams upper and lower kellly valves, RIH to work fish, POOH with fish
03/01/25	22	$4,025,986	809	0	0	0	Franklin Mountain	Fishing	Used magnets and baskets to fish
03/01/26	23	$4,098,752	867	58	13.25	4.4	Franklin Mountain	Fishing, drilling	Work fish with Hollier basket, POOH with fish, make up bit and RIH, drill out cement, float and shoe track, drill to 882m
03/01/27	24	$4,357,338	942	75	14	5.4	Saline River	Drilling	Drill to 869m, bit trip
03/01/28	25	$4,424,092	1053	111	14.75	7.5	SR Salt	Drilling, tripping	Drill to 974m, trip for bit, RIH with bit #15, drill to 1053m
03/01/29	26	$4,475,377	1223	170	17.75	9.6	SR Salt	Drilling	Drill and survey to 1223m
03/01/30	27	$4,527,066	1296	73	22.25	3.3	Mt. Cap	Tripping, drilling	Trip for bit, RIH with bit #16, drill to 1296m
03/01/31	28	$4,709,854	1402	106	21.00	5.0	Mt. Cap	Drilling	Drill to 1402m, survey
03/02/01	29	$4,759,963	1451	49	11.50	4.3	Mt. Cap	Drilling	Drill to 1451m, survey, drilling failure, POOH for bit, 49m drill collars left in hole

Date	DFS	Cum. Costs	Depth @ 24:00 Hrs	Progress (m)	Drilling Hours	Avg. ROP	Formation	Operation	Operations Summary
03/02/02	30	$4,828,383	1451	0	0	0	Proterozoic	Fishing	Make up fishing tools, RIH and work fish, POOH with fish tools and lay down, inspect DCs and bit, slip and cut, POOH due to drill string pressure up
03/02/03	31	$4,958,156	1506	55	12.50	4.4	Proterozoic	Drilling	POOH due to drill string pressure up, unplug bit, RIH and wash from 1334m to 1451m, drill to 1548m
03/02/04	32	$5,012,192	1540	34	10.25	3.3	Proterozoic	Drilling	Drill to TD 1540m, circulate and condition hole, wiper trip, circulate and POOH to log
03/02/04	33	$5,064,631	1540	0	0	0	Proterozoic	Logging	Run log to 1351m, bridge, and log up to 809m, rig out loggers, RIH to 1540m reaming from 1345m to bottom, circulate hole clean, POOH to log, log
03/02/06	34	$5,209,662	1540	0	0	0		Logging	Run log to 1535m, log up to 809m, RIH and circulate, lay down drill string, rig to and run casing
03/02/07	35	$5,403,678	1540	0	0	0		Casing	Run 177.8mm casing to 1530m, rig to and run cement, rig down and nipple up tubing hanger

DFS VS DEPTH & CUMULATIVE COST CHART

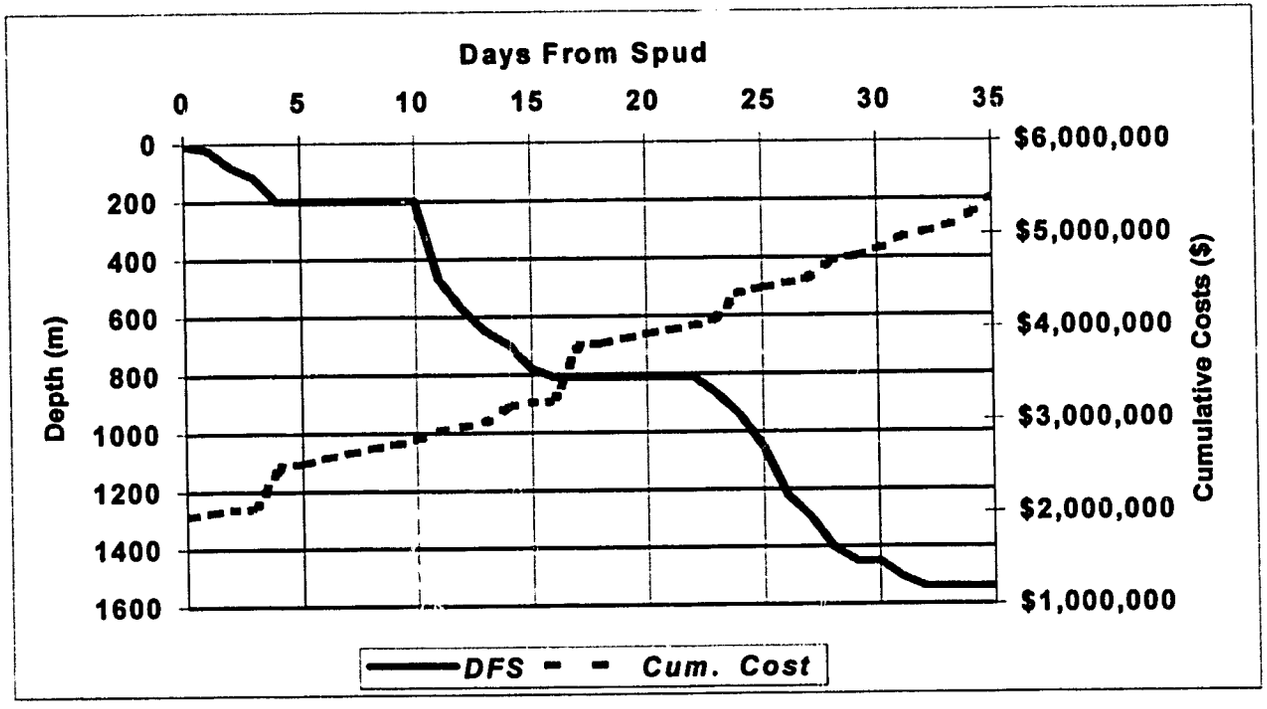


Figure 1

BIT RECORD

Bit #	Type	Serial	Size	Depth Out	Int. Cut	Hrs	FOB	RPM	Condition								Comments
Surface																	
1	GTX-1	W78JT	444.5	19	19	10.0	1	25	1	1	NO	A	2	1	RG	TD	ADD ROP
Intermediate																	
2	Hammer	2L001	374.6	137	118	14.25	1	25	-	-	-	-	-	-	-	-	Hammer
3	Hammer	210415	381.0	199	57	8.00	3	25	-	-	-	-	-	-	-	-	Hammer
4	GT-1	R15JP	311.1	199	0	0	-	-	-	-	-	-	-	-	-	-	Hammer
5RR	GT-1	R15JP	311.1	193	0	0	-	-	-	-	-	-	-	-	-	-	Drill out
6	Hammer	M12-03	311.1	240	41	6.00	3	25	-	-	-	-	-	-	-	-	Hammer
7	ATJ33C	B2233C58	311.1	605	365	63.75	20-24	60-90	8	8	BT	A	E	1	WT	PR	
8	MX-28	M2228	311.1	661	56	14.25	18-19	85-90	8	7	WT	A	1	1	BT	PR	
9	EHP51H	MT8757	311.1	675	14	3.75	18	80	1	1	NO	A	0	0	NO	PR	
10	ED7130	ED7130	311.1	792	96	21.50	15-25	75-90	8	8	WT	A	E	1	BT	PR	
Main																	
11	HP61ADG	NQ1469	311.1	809	17	5.75	22	80	1	1	NO	A	0	0	NO	TD	
12	DS102	H473227	215.9	506	397	16.25	5-9	90-110									D/O cement
13	EHP61A	LK4753	215.9	869	60	13.75	18-24	65-80	6	8	WT	A	E	1	BT	PR	
14	EHP61ADH	LK4753	215.9	974	105	29.25	23	70	5	8	BT	A	E	1	CT	PR	
15	ATJPS35C	J75CL	215	1223	249	31.25	10-23	60-105	1	1	NO	A	E	1	NO	BHA	
16	EHP61	LK4583	215	1429	228	33.00	20-25	70	2	1	BT	C	F	1	LT	DSF	
17	EPH61ADG KPR	NN3425	215	1451	89	22.75	10-11	60-125	1	1	NO	A	E	1	NO	TD	

MUD RECORD

Date	Depth (m)	Time	Density (kg/m^3)	Viscosity (s/l)	pH	W.L.
Water-based mud						
03/01/13	No data					
03/01/14	467	00:00	1050	30	9.0	-
03/01/15	513	11:21	1170	30	9.0	-
03/01/16	513	13:00	1090	30	9.0	-
03/01/17	513	13:00	1110	30	9.0	-
03/01/18	736	15:57	1140	30	9.0	-
03/01/19	809	15:57	1050	30	9.0	-
Gel-based mud						
03/01/20	809	18:45	1050	30	7.5	0.4
Water-based mud						
03/01/21	235	18:45	1050	30	7.5	0.4
03/01/22	No data					
03/01/23	No data					
03/01/24	No data					
03/01/25	No data					
Salt-based mud						
03/01/26	No data					
03/01/27	907	19:45	1105	31	11.0	16.0
03/01/28	1040	19:45	1120	31	11.0	16.0
03/01/29	1220	23:50	1250	35	10.0	10.0
03/01/30	1250	23:50	1250	39	9.0	10.0
03/01/31	1384	23:50	1250	41	9.0	16.0
03/02/01	1425	06:32	1250	41	9.0	16.0
03/02/02	1451	21:51	1260	41	10.5	16.0
03/02/03	1451	06:30	1260	41	10.5	16.0
03/02/04	1540	15:30	1260	60	10.5	10.5
03/02/05	1540	15:30	1270	64	10.0	9.0

DEVIATION RECORD

Survey No.	Depth (m)	Deviation (degrees)	Interval (m)
1	92	0.25	92
2	148	0.75	56
3	188	0.12	40
4	291	0.25	103
5	397	0.50	209
6	490	0.25	93
7	594	0.50	104
8	692	0.15	98
9	899	0.15	207
10	1040	1.50	141
11	1117	3.00	77
12	1145	3.50	28
13	1172	3.75	27
14	1210	3.50	38
15	1303	3.50	93
16	1449	8.00	146

OPEN HOLE LOG SUMMARY Intermediate

INTERMEDIATE RUN to 809m

Logging Company: Schlumberger Wireline Services

***Field Engineer*:** Kelly Roncin

District: Norman Wells

Truck No.: 3025

On Location: January 19 @ 1610

Off Location: January 20 @ 0830

Circulation Ended: January 19 @ 1800

***Mud Properties*:** **Mud Type:** water
Density: 1060 g/cc
Viscosity: 29 s/l
Fluid Loss: NA.
pH: NA

Rmf: NA
Rm: 4.750 ohm.m @ 15°C

Tool: Platform Express

Interval logged: 805.6 m to surface

Rig Up: January 19 @ 23:00

Tool on Bottom: January 20 @00:15

Rig Down: January 20 @07:00

Time Losses: None

Logging Time: 0.75 hrs

Remarks: No hole problems. Required second run to obtain better quality data for resistivity and sonic, but precluded by equipment problems.

OPEN HOLE LOG SUMMARY Main

Logging Company: Schlumberger Wireline Services

Field Engineer: Devin Bean

District: Norman Wells

Truck No.: 8416

On Location: February 4 @ 17:15

Off Location: February 6 @ 12:00

Circulation Ended: February 4 @ 16:30

Mud Properties:

Mud Type: salt base
Density: 1260 g/cc
Viscosity: 60 s/l
Fluid Loss: 10.5 cm3
pH: 10.0

Rmf: 0.038 ohm.m @ 20°C
Rm: 0.045 ohm.m @ 20°C
Rmc: 0.118 ohm.m @ 17°C

Tool: Run 1 – DTC/GPIT/BHC/HGNS (no source)/HALS; Run 2 – HGNS/Microlog

Interval logged: 800m to 1533m

Rig Up: February 4 @ 20:00

Tool on Bottom: February 4 @ 23:15

Rig Down: February 6 @ 04:30

Time Losses: 21.75 hrs (non-bill time).

Logging Time: 13.25 hrs.

Remarks: Bridged on first run in at 1350m, second attempt failed – wiper trip. Driller TD not reached, log TD at 1533m. Main pass spliced at 1325m. Caliper closed at approximately 1350m on third descent.

SAMPLE DESCRIPTIONS

200-210m: DOLOSTONE - very light brown, extremely fine crystalline, moderately calcareous, silty (silica), Archie IIIB & C, very variable - 2-12% visible pinpoint intergranular and vuggy porosity, 0.5-40 mD perm; minor patchy bright white fibrous and platy secondary anhydrite cement. Trace to 3% brown black to black, hard bitumen as discreet grains and fibrous fossil remnants in dolostone (coral?), trace bright yellow moderate streaming cut.

210-220m: ANHYDRITE - white to light gray brown, massive, vitreous, trace clear selenite, trace dolostone, very tight, no show.

220-225m: CALCAREOUS DOLOSTONE - cream, mottled with light gray in part, micro- to extremely fine crystalline, abundant clear selenite vug fill and crystal fragments, relict fossils (coral?) outlined by bitumen, channels lined with very fine brown mica? - bitumen? stained, no show.

225-235m: DOLOSTONE - medium brown, minor medium gray, extremely fine crystalline, rare vugs <100 microns, moderately calcareous, trace vuggy clear and white tabular anhydrite, rare clear quartz grains, tight, no show.

235-245m: DOLOSTONE - medium brown, minor medium gray, extremely fine crystalline (Archie IA), moderately calcareous, rare very finely disseminated pyrite, tight, no show; 10% white tabular anhydrite - vug filling; common clear (rare orange), well rounded, fU to cU quartz; rare light gray, hard, subfissile, argillaceous, micromicaceous, pyritic shale (milled grains) - sub-Devonian unconformity?

245-265m: DOLOSTONE - buff, light brown and minor gray brown, massive, extremely fine crystalline (Archie IA), to sugary (Archie IIIA & B - 1-3% visible pinpoint porosity), weakly to moderately calcareous, rare very finely disseminated pyrite, no show; trace to 1% white and clear, tabular anhydrite - probably cavings.

265-285m: DOLOSTONE - buff, light brown and minor gray brown, massive, extremely fine crystalline (Archie IA), weakly to moderately calcareous, no show; trace to 1% white and clear, tabular anhydrite and rounded quartz (cavings?); one grain of laminated white/gray chert.

285-295m: CALCAREOUS DOLOSTONE & DOLOMITIC LIMESTONE - Dolomite (60%) - cream to light buff, massive, hard, extremely fine to fine crystalline (Archie IA, trace IB & C), mod calcareous, tight, no show; Limestone (40%) - white, sugary (Archie IIIB), slightly cons, calcite cement, 2-4% visible porosity, common extremely fine disseminated pyrite, no show. Trace quartz sandstone stringers - mostly unconsolidated grains, slightly consolidated, fU, very angular to subangular, well sorted, clear quartz and trace smoky quartz, calcite matrix, excellent porosity occluded by matrix, no shows. Trace very light gray green CLAYSTONE.

295-345m: CALCAREOUS DOLOSTONE - cream to light buff, massive, hard, extremely fine to fine crystalline (Archie IA, trace IB & C), mod calcareous, tight, no show, trace clear selenite crystals, trace pyrite-anhydrite blebs to 0.5mm, trace very light gray green CLAYSTONE, 305-310m rare white layered CHERT.

345-350m: DOLOSTONE - light to medium brown, very hard, blocky, extremely fine crystalline (Archie IA), weakly to moderately calcareous, tight, no show.

Franklin Mountain 350m

350-380m: DOLOSTONE - white to very light gray and brown, firm, fine to coarse crystalline (Archie IA), trace light gray clay as matrix to coarse euhedral crystals, weakly to moderately calcareous, trace to 2% white and clear anhydrite crystals, trace dark red orange, tight, no show; trace bright white to light gray "chert" - siliceous angular chips with irregular fracture; trace very light green (rare red brown silty), waxy, soft, CLAYSTONE.

380-395m: DOLOSTONE - as previous, fine crystalline; CLAYSTONE and red dolostone increased to 10%.

395-405m: DOLOSTONE - white to very light buff, firm to hard, fine crystalline (Archie IA), trace light gray clay as matrix to coarse euhedral crystals, weakly to moderately calcareous, trace to 2% white anhydrite crystals, trace dark red orange dolomite, tight, no show; trace bright white to light gray "chert" - siliceous angular chips with irregular fracture and irregular silica mesh (residue), 4% very light green, waxy, soft, CLAYSTONE.

405-415m: DOLOSTONE - very light buff to light brown, firm to hard, fine to medium crystalline (Archie IA), weakly to moderately calcareous, 1 to 2% white anhydrite crystals, trace well rounded clear quartz grains (fine to coarse), trace dark red orange dolomite, tight, no show; 2% very light green, waxy, soft, CLAYSTONE.

415-420m: NO SAMPLE (missed).

420-430m: DOLOSTONE - very light buff to light brown, firm to hard, microcrystalline and fine to medium crystalline (Archie IA), weakly to moderately calcareous, 3% white anhydrite crystals, trace well rounded clear quartz grains (fine to coarse) and white chert with clear very fine vuggy quartz, 5% dark red brown dolostone, rare white layered chert, tight, no show; 2% very light green, waxy, soft, CLAYSTONE.

430-435m: DOLOSTONE - as previous, 10% dark red orange to gray dolostone.

435-445m: DOLOSTONE - cream to very light buff, firm to hard, microcrystalline to medium crystalline (Archie IA), weakly to moderately calcareous, trace dark red brown dolostone, tight, no show; 6% very light green waxy, soft, CLAYSTONE, trace brick red and red/green mottled, firm, blocky claystone, trace white chert with clear very fine

vuggy quartz.

445-465m: DOLOSTONE - cream to very light buff, firm to hard, microcrystalline to medium crystalline (Archie IA), common sub- to euhedral dolomite, some with green clay coatings, weakly to moderately calcareous, trace to 15% dark red brown dolostone, trace white platy anhydrite, anhydritic in part, tight, no show; 1-6% very light green waxy, soft CLAYSTONE with very finely disseminated pyrite in part, trace brick red, firm, blocky claystone; rare quartz sandstone, well sorted, well rounded fL, yellow brown calcite matrix, no show.

465-485: DOLOSTONE - as previous, minor gray dolostone locally, trace light gray to brown 'chert' with brittle fracture as blebs, trace pyrite, tight, no show; trace brick red, firm, blocky and light green waxy, soft, CLAYSTONE; trace extremely fine white calcareous SILTSTONE with dark red flecks, trace clear angular and euhedral quartz and euhedral dolomite (vuggy).

485-490m: DOLOSTONE - cream to medium gray, firm to hard, microcrystalline to fine crystalline (Archie IA), weakly to moderately calcareous, anhydritic in part, tight, no show; trace brick red and light green mottled, firm, blocky CLAYSTONE.

490-500m: DOLOSTONE - cream to buff, hard, microcrystalline to fine crystalline (Archie IA), weakly to moderately calcareous, spotty hematitic matrix in part, anhydritic in part, minor spotty hematitic matrix, tight, no show; 3% maroon hematitic CLAYSTONE.

500-520m: DOLOSTONE - cream to buff to light brown red, hard, microcrystalline to fine crystalline (Archie IA), weakly to moderately calcareous, anhydritic in part, tight, no show; trace maroon hematitic CLAYSTONE.

520-550m: DOLOSTONE - cream to buff, light gray brown to dark brown red, hard, microcrystalline to fine crystalline (Archie IA), rare Archie IIIA with calcite matrix, weakly to moderately calcareous, anhydritic in part, rare clear to translucent masses of euhedral dolomite with clay matrix and dark yellow euhedral dolomite with extremely fine drusy pyrite on surface (vuggy), tight, no show; trace light green and maroon hematitic CLAYSTONE and SILTSTONE.

550-585m: DOLOSTONE - cream to light red brown, hard, microcrystalline to fine crystalline (Archie IA), rare Archie IIIA with calcite and clay matrix, weakly to moderately calcareous, anhydritic in part, tight, no show; trace light green and maroon hematitic (and red/green mottled) CLAYSTONE and brick red SHALE.

585-595m: DOLOSTONE - cream to light pink and medium red brown, hard, microcrystalline to fine crystalline (Archie IA), minor Archie IIIA with calcite and clay matrix, weakly to moderately calcareous, anhydritic in part, blebs of dark red hematitic matrix and rare specularite, rare fine euhedral pyrite clusters, tight, no show; trace light green and maroon hematitic (and red/green mottled) CLAYSTONE and brick red,

micromicaceous SHALE.

595-610m: DOLOSTONE - cream, light to medium gray, gray brown and brown gray, microcrystalline to fine crystalline (Archie IA), minor Archie IIIA with calcite and clay matrix and trace vuggy porosity filled with anhydrite in part, weakly to moderately calcareous, anhydritic in part, tight, no show; trace light green to gray and brick red CLAYSTONE and brick red, micromicaceous SHALE.

610-620m: DOLOSTONE - very light to medium gray (gray laminae <1mm evident in some chips), hard, microcrystalline to extremely fine crystalline (Archie IA), minor Archie IIIA with calcite matrix in part, weakly to moderately calcareous, anhydritic in part, trace white anhydrite blebs <1mm, tight, no show; trace pale green and red mottled CLAYSTONE with clear angular fine quartz.

620-625m: NO SAMPLE (missed).

625-630m: as previous sample.

630-645m: DOLOSTONE - as previous, white to cream and minor very light gray and pink.

645-670m: DOLOSTONE - as previous, white to light brown gray and gray brown (slightly argillaceous and silty).

670-675m: DOLOSTONE - white to very light gray brown, hard to brittle, microcrystalline to extremely fine crystalline (Archie IA), trace white oolitic grainstone replaced by silica, trace loose sub- to euhedral clear and cloudy dolomite (vuggy), trace very fine disseminated pyrite, tight, no show.

675-700m: DOLOSTONE - white to very light gray brown, hard to brittle, microcrystalline to extremely fine crystalline (Archie IA), trace shaly laminae.

700-705m: DOLOSTONE - light to dark brown, gray brown, hard to brittle, microcrystalline to fine crystalline (Archie IA).

705-714m: DOLOSTONE - white to medium brown and light gray, hard to brittle, microcrystalline to fine crystalline (Archie IA).

714-720m: DOLOSTONE - mixed white to light brown and light medium bluish gray (argillaceous and pyritic - extremely fine), hard to brittle, microcrystalline to extremely fine crystalline (Archie IA), trace medium blue gray pyritic shaly partings.

720-750m: DOLOSTONE - as previous, alternating white to very light brown and medium to dark brown over intervals <5m; trace dark brown bituminous shaly, finely banded laminae (algae?) with pale yellow slow streaming cut

750-770m: DOLOSTONE - alternating white to very light brown and medium to dark brown over intervals <5m, hard to brittle, microcrystalline to extremely fine crystalline (Archie IA); trace dark brown bituminous shaly laminae (algae?) with pale yellow slow streaming cut.

770-790m: DOLOSTONE - as previous.

790-809m: DOLOSTONE - alternating white to very light brown and medium to dark brown over intervals <5m, hard to brittle, microcrystalline to extremely fine crystalline (Archie IA); 3% medium blue gray, soft subfissile shale with 2% very finely disseminated pyrite and trace light brown, coarse euhedral dolomite crystals.

809-832m: DOLOSTONE - white, sugary and friable, very fine crystalline, (Archie IIIB) to light gray, hard and brittle, microcrystalline (Archie 1A), trace tabular bright white anhydrite.

832-850m: LIMESTONE - buff to dark gray brown, massive, hard, microcrystalline (trace white extremely fine crystalline Archie IIIB), moderately dolomitic, slightly silty in part, tight, no show; trace dark brown micromicaceous shale, bituminous in part, moderate yellow slow streaming cut.

850-859m: DOLOMITIC LIMESTONE - cream to medium gray brown, massive, hard, microcrystalline to extremely fine crystalline mudstone, trace dark brown micromicaceous shale, tight, no show.

859-865m: LIMESTONE - cream to light brown gray, soft to firm, flaky, microcrystalline mudstone, Archie IA (trace white extremely fine crystalline Archie IIIB), dolomitic in part, trace extremely fine disseminated pyrite, tight, no show.

865-870m: No Sample - missed.

870-885m: LIMESTONE - white, cream to medium gray, hard, microcrystalline mudstone, dolomitic in part, argillaceous in part, trace extremely fine disseminated pyrite, tight, no show.

885-905m: DOLOMITIC LIMESTONE - cream to medium gray brown and gray, massive, hard, microcrystalline to extremely fine crystalline mudstone (trace white extremely fine crystalline Archie IIIB), trace clear platy and fibrous selenite crystals and bright white anhydrite, trace light brown chert, trace very dark gray shaly partings and laminae, tight, no show.

905-915m: DOLOMITIC LIMESTONE - cream to buff and light to medium gray, massive, very hard, microcrystalline to extremely fine crystalline mudstone (minor soft, white extremely fine crystalline Archie IIIB), slightly argillaceous in part, trace very dark gray shaly partings and laminae, tight, no show.

915-925m: DOLOMITIC LIMESTONE - cream, buff and light gray, massive, hard, microcrystalline to extremely fine crystalline mudstone (minor soft, white extremely fine crystalline Archie IIIB), slightly argillaceous in part, rare light brown chert flakes, tight, no show, 2% very dark gray, soft, fissile, strongly calcareous SHALE and limy shale laminae.

925-930m: LIMESTONE - cream to very pale gray, as previous but IIIB increased to 40%, weakly to moderately dolomitic, tight to poor porosity, no show, 2% very dark gray, hard, blocky to subfissile, moderately calcareous SHALE.

930-935m: LIMESTONE and SHALE - limestone as previous, 20-40% medium gray to blue gray, firm to hard, blocky to subfissile, moderately calcareous shale.

935-945m: DOLOMITIC LIMESTONE and SHALE - Limestone - buff, firm to hard, flaky to blocky, extremely fine crystalline, Archie IIIA to IIIB, weakly argillaceous in part, rare pyrite blebs <1mm, tight to poor porosity, no show; Shale - 20-40% medium blue gray to gray, soft to firm, blocky to subfissile, moderately calcareous.

Saline River 945m

945-955m: INTERBEDDED DOLOMITIC LIMESTONE and SHALE - Limestone - buff, firm to hard, flaky to blocky, extremely fine crystalline, Archie IIIA to IIIB, weakly argillaceous in part, tight to poor porosity, no show; Shale - 40-50% medium blue gray to gray and dark red brown, soft to firm, blocky to subfissile, moderately calcareous.

955-985m: Thinly interbedded and interlaminated SHALE and CALCAREOUS DOLOSTONE - Shale - 50-70% dark red brown and minor medium gray green, firm to hard, sub-blocky to fissile, moderately to strongly dolomitic, minor soft, white anhydrite laminae. Dolomite - cream to buff and red brown, soft to firm, flaky, microcrystalline to extremely fine crystalline, Archie IIIA to IIIB, moderately to strongly calcareous and dolomitic, anhydritic in part, argillaceous and silty in part, tight to poor porosity, no show.

985-999m: Thinly interbedded and interlaminated CALCAREOUS DOLOSTONE and SHALE - Dolomite - cream to medium red brown, soft to firm, flaky, microcrystalline to extremely fine crystalline, Archie IIIA to IIIB, moderately to strongly calcareous and dolomitic, anhydritic in part, argillaceous and silty in part, tight to poor porosity, no show. Shale - 20-40% dark red brown and medium gray green, firm to hard, sub-blocky to fissile, moderately to strongly dolomitic, minor soft, white anhydrite laminae.

Saline River Salt 999m

999-1007m: Thinly interbedded and interlaminated CALCAREOUS DOLOSTONE, SHALE and ANHYDRITE - as previous, minor clear to pale blue gray anhydrite,

samples muddy and slimy - SALT? Mud is not salt saturated. POOR SAMPLE QUALITY (mud not salt saturated).

1007-1040m: Thinly interbedded and interlaminated CALCAREOUS DOLOSTONE, SHALE and ANHYDRITE (+SALT?): as previous, shale lighter in colour and softer, 20% lenses and pods of clear to pale orange sub - to euhedral tabular anhydrite crystals (vuggy), trace very fine doubly terminated euhedral quartz in sugary anhydrite, trace very fine, euhedral specular hematite. POOR SAMPLE QUALITY.

1040-1068m: Thinly interbedded and interlaminated CALCAREOUS DOLOSTONE, SHALE and ANHYDRITE (+SALT?): as previous, shale lighter in colour and softer. POOR SAMPLE QUALITY.

Seismic Marker 1068m

1068-1075m: Thinly interbedded and interlaminated SHALE - soft, blocky medium brick red, minor soft, fissile to splintery pale gray green and trace dark gray green, dolomitic and anhydritic; minor white to very light gray, soft, dolomitic LIMESTONE and white to pale gray ANHYDRITE. POOR SAMPLE QUALITY.

1075-1100m: Thinly interbedded and interlaminated DOLOMITIC LIMESTONE to CALCAREOUS DOLOSTONE, SHALE and ANHYDRITE (+SALT?) - as previous, dominantly green shale with minor dark brick red soft, fissile shale. POOR SAMPLE QUALITY.

1100-1110m: Thinly interbedded and interlaminated DOLOMITIC LIMESTONE to CALCAREOUS DOLOSTONE, SHALE and ANHYDRITE (+SALT?) - as previous, dominantly green shale with minor dark brick red soft, fissile shale. Common very fine clear euhedral doubly terminated quartz crystals. POOR SAMPLE QUALITY.

1110-1125m: SALT - clear to cloudy white, minor pale orange halite.

1125-1150m: SALT - clear to cloudy white, minor pale orange halite, minor soft, blocky, medium brick red and soft, fissile to splintery pale gray green SHALE.

1150-1175m: SALT - clear to cloudy white, minor pale orange halite.

1175-1200m: SALT - clear to cloudy white, minor pale orange halite.

1200-1210m: Minor SHALE (cavings?): very pale green and dark brick red, firm to hard, subfissile to fissile, calcareous, anhydritic in part, trace salt casts and pods of orange salt, rare cloudy anhedral quartz.

1210-1223m: SALT - clear to cloudy white, minor pale orange halite.

1223-1230m: Mostly mud, minor silty anhydritic DOLOSTONE and shale, abundant very fine rounded to euhedral clear quartz (cavings?).

1230-1240m: No sample - no chips in mud.

1240-1250m: Minor silty anhydritic DOLOSTONE and shale cavings.

1250-1270m: SALT - clear to cloudy white, minor pale orange halite. Trace very fine clear doubly terminated quartz.

1270-1275m: Poor sample. Poor returns. LIMESTONE - cream, extremely fine crystalline Archie IA and IIIA/B, intercrystalline, pinpoint and very fine vuggy porosity, visible porosity 0 to 2%, streaks to 8%, no show. CALCAREOUS DOLOSTONE - light brown to brown gray and medium brown, extremely fine crystalline Archie IA, argillaceous in part, silty in part, sandy in part (1% clear, angular to well rounded and rare euhedral fU-cL quartz) rare white dolostone with 4% fenestral porosity, tight, no show. SHALE - light gray green to light gray, firm, sub-blocky to sub-fissile and splintery, moderately to strongly calcareous, dolomitic laminae, anhydritic in part.

1275-1280m: SALT - clear to cloudy white, minor pale orange halite. Trace very fine clear doubly terminated quartz.

Mt. Cap 1280m

1280-1285m: Poor sample. Poor returns. CALCAREOUS DOLOSTONE, LIMESTONE, SHALE - as 1270-1275m.

1285-1290m: SALT - clear to cloudy white, minor pale orange halite. Trace very fine clear doubly terminated quartz.

1290-1300m: Poor sample. Poor returns. CALCAREOUS DOLOSTONE, LIMESTONE and SHALE as previous.

1300-1315m: CALCAREOUS DOLOSTONE - cream to light brown and medium brown gray, extremely fine crystalline Archie IIIA and IIIB, silty (trace white quartz siltstone stringers) and sandy (1% clear, angular to well rounded and rare euhedral fU-cL quartz) in part, argillaceous in part, anhydritic in part, poor porosity, tight, no show. Trace medium brown DOLOMITIC LIMESTONE, Archie II and IIIB, 15% visible porosity, even oil stain, very pale yellow, very pale, very slow streaming cut. 4-6% medium to very dark brown CHERT shards. Minor pale green soft SHALE (cavings?).

1315-1325m: CALCAREOUS DOLOSTONE - medium brown (even oil stain), extremely fine to fine Archie IIIB and IIIC with 5-12% visible intercrystalline, pinpoint and fine vuggy porosity, spotty moderate greenish yellow fluorescence, dull yellow slow streaming cut, minor light brown gray microcrystalline Archie IA with no visible porosity. 10% light to very dark brown CHERT shards, replacing oolites? in part,

calcareous matrix with spotty moderate yellow fluorescence and pale yellow slow streaming cut.

1325-1340m: SHALE - dark brown gray, firm to hard, subblocky to subfissile and splintery, very strongly calcareous, very pale yellow, very faint slow streaming cut in part, oily odor, transitional to dark brown, very argillaceous DOLOMITIC LIMESTONE, extremely fine crystalline Archie IIA with very good but ineffective intercrystalline porosity in part.

1340-1345m: LIMESTONE - cream to light brown, microcrystalline to earthy, cherty and dolomitic, no show. SHALE as previous. 10% light to medium brown chert.

1345-1375m: SHALE - dark brown gray and trace light red brown, light to medium gray green (cavings in part), firm to hard, subblocky to subfissile and splintery, moderately calcareous, waxy (green),bituminous in part, trace very fine white calcareous laminations in green shale, very pale yellow, very faint slow streaming cut in part. Trace light brown DOLOSTONE (Archie IIIB) and white chalky limestone laminae. Minor white to cream microcrystalline dolostone, silty dolostone and dolomitic siltstone with trace vfL to mL sub- to euhedral pyrite. Trace light to medium brown chert with spotty very pale yellow slow streaming cut. Trace clear, angular to well rounded fU-cL quartz.

Shale Marker 1380m

1375-1390m: SHALE - medium gray green, gray brown, firm to hard, subblocky to fissile, moderately to strongly calcareous, bituminous in part, trace medium brown limestone and white anhydrite laminations. DOLOSTONE - cream to light gray and brown, greenish in part (rare glauconite grains), extremely fine microcrystalline Archie IA and IIIA, trace IIIB with excellent intergranular porosity, dark even oil stain (1375-1380m). Minor light to dark brown cherty DOLOSTONE, microfractured in part with calcareous matrix, bright yellow and white fluorescence and pale yellow slow streaming cut.

1390-1395m: DOLOMITIC LIMESTONE - cream to light gray and light brown, microcrystalline Archie 1A, chalky IIA in part, tight, no show.

1395-1404m: SHALE - medium gray green, subblocky to fissile and splintery, firm to hard, weakly calcareous, minor DOLOMITIC LIMESTONE - cream to light gray and light brown, microcrystalline Archie 1A, rare glauconite blebs << 1mm, tight, no show.

1404-1410m: SHALE - medium gray green and minor medium brick red and micromicaceous, subblocky to fissile and splintery, firm to hard, weakly calcareous, minor DOLOMITIC LIMESTONE - cream to light gray and light brown, microcrystalline Archie 1A, tight, no show, trace cream chalky anhydrite, rare glauconite blebs << 1mm.

1410-1420m: SHALE - medium gray green and minor medium brick red and micromicaceous, subblocky to fissile and splintery, firm to hard, weakly calcareous, minor DOLOMITIC LIMESTONE and CALCAREOUS DOLOSTONE - cream to light gray and light to dark brown, microcrystalline Archie 1A, tight, no show, trace cream chalky anhydrite, trace pyrite, trace glauconite blebs << 1mm.

1420-1430m: DOLOSTONE - light to dark brown, fine crystalline Archie 1A, trace 1B, calcareous, mostly tight, trace pinpoint porosity, 5% moderate pale yellow patchy fluorescence, pale yellow slow streaming cut. SHALE - medium gray green and minor medium brick red and micromicaceous, subblocky to fissile and splintery, firm to hard, weakly calcareous.

1430-1438m: DOLOSTONE and SHALE - as previous, higher shale content (50%).

Mount Clarke 1438m

1438-1445m: SANDSTONE - white, clear and frosted, angular to rounded and subhedral, vfU-mU, moderately sorted, quartz, mostly unconsolidated and moderately to well consolidated with silica cement, common quartz overgrowths, poor to good relief, Sneider II and III, tight to poor intercrystalline porosity generally - possibly better porosity in now unconsolidated beds, trace very fine pyrite. Spotty oil stain on 10% of grains, few consolidated stained grains with excellent relief, large pore throats and good to excellent porosity Sneider IA. 15% spotty, strong, yellow fluorescence, bright yellow slow streaming cut. 3% bright white chalky anhydrite, trace very dark green rounded glauconite grains.

Proterozoic 1445m

1445-1450m: SHALE - very dark brown, soft, subfissile to fissile and splintery, and hard, blocky, silty, micromicaceous in part, no show.

1450-1470m: SHALE/SILTSTONE - very dark brown, soft, subfissile to fissile and splintery, and hard, blocky, very silty, very micromicaceous, transitional to very argillaceous siltstone, no show. 6% green shale cavings.

1470-1480m: SHALE - very dark brown to black, firm to hard, subblocky to subfissile, micromicaceous, rare patches of very fine disseminated pyrite - locally contains abundant extremely fine pyrite, 3% white, blocky and platy, chalky, calcareous anhydritic dolostone, strong oily odor, no show.

1480-1500m: SHALE - black, firm to hard, subblocky to subfissile, fissile in part, micromicaceous, 2-3% white, chalky, very silty (quartz), calcareous dolostone and cream, hard, cryptocrystalline dolomitic limestone laminae, no show.

1500-1525m: SHALE - black, firm to hard, subblocky to subfissile, fissile in part, micromicaceous, 2-3% white, chalky, very silty (quartz), calcareous dolostone and cream, hard, cryptocrystalline dolomitic limestone laminae, no show.

1525-1535m: SHALE - dark gray, hard, subblocky to subfissile, micromicaceous in part, silty in part, no show.

1535-1540m: SHALE - dark brown gray, very hard, siliceous, blocky to subfissile, extremely finely silty, micromicaceous (muscovite on discrete cleavage planes), rare green chlorite blebs <1mm also flattened along cleavage planes.

1540.5 m: Driller's TD

LITHOLOGY LOG POCKET

Logs from this section can be found in the log section of the fiche

SUB-SURFACE PRESSURE REPORT

NEB

CHALLENGER WIRELINE

4100, 150 - 6th Ave S.W., Calgary, Alberta, T2P 3Y7

Subsurface Pressure Reports

Canadian Natural Resources Ltd.
00/0-52-67.00-126.30
03/02/10 - 03/03/08

Challenger - Silverline

ZI Pressure Recorder

1 (403) 262-6306 Calgary Head Office
1 (403) 303-2317 Reporting Dept.
1 (403) 342-2112 Red Deer
1 (780) 539-3257 Grande Prairie
1 (403) 362-2433 Brooks
1 (780) 849-4448 Slave Lake
1 (250) 785-9486 Fort St.John

CHALLENGER WIRELINE
4100, 150 - 6th Ave S.W., Calgary, Alberta, T2P 3Y7

Subsurface Pressure Measurements

Company:	Canadian Natural Resources Ltd.
Address:	2500, 855 - 2 St. S.W. Calgary, AB T2P 4J8
Well Name:	CNRES Behdzia Youh 0-52
Location:	00/0-52-67.00-126.30
Field/Pool:	Behdzia / Mount Clark
Type of Test:	Buildup
Well Status:	Gas
Producing Interval (mKB MD):	1436.00 - 1445.00
Producing Interval (mKB TVD):	1434.91 - 1443.69
Mid Point Perfs (mKB MD):	1440.50
Mid Point Perfs (mKB TVD):	1439.30
Elevations (m):	**GL:** 258.90 **KB:** 265.00
Pool datum (mSS):	
Datum Depth (mKB):	
Producing Through Tubing (mm):	73.0 **Casing:**
Probe Serial #:	N45[Bottom]
Probe Range:	93 - 20775 kPaa
Last Calibration Date:	02/10/01

Tubing Pressure	**Initial**	93	**Final**	kPaa
Casing Pressure	**Initial**	114	**Final**	kPaa

Run Depth (mKB MD):	1426.10
Run Depth (mKB TVD):	1425.25
Time On Bottom:	03/02/10 13:20:28
Time Off Bottom:	03/03/08 09:14:28
Maximum Temperature:	20.2 °C
Date of Test:	03/02/10

Comments:

Report to: Rick Meyers
57.15 mm R Nipple @ 1410.85 mGL

Ran/Pulled: Dennis Samms

CHALLENGER - WIRELINE

Canadian Natural Resources Ltd. **CNRES Behdzia Youh 0-52** **(00/0-52-67.00-126.30)**

Item #	Date	Total Acc Time	Event Acc Time	Temp C	Pres kPaa
3001	03/02/12 15:20:28	50.000		19.72	5047.66
3061	03/02/12 16:20:28	51.000		19.71	5119.12
3121	03/02/12 17:20:28	52.000		19.69	5190.72
3181	03/02/12 18:20:28	53.000		19.70	5259.19
3241	03/02/12 19:20:28	54.000		19.69	5328.03
3301	03/02/12 20:20:28	55.000		19.70	5398.35
3361	03/02/12 21:20:28	56.000		19.69	5467.51
3421	03/02/12 22:20:28	57.000		19.68	5536.87
3481	03/02/12 23:20:28	58.000		19.68	5605.54
3541	03/02/13 00:20:28	59.000		19.67	5673.22
3601	03/02/13 01:20:28	60.000		19.66	5741.95
3661	03/02/13 02:20:28	61.000		19.66	5809.30
3721	03/02/13 03:20:28	62.000		19.65	5876.52
3781	03/02/13 04:20:28	63.000		19.64	5943.77
3841	03/02/13 05:20:28	64.000		19.62	6007.45
3901	03/02/13 06:20:28	65.000		19.65	6072.72
3961	03/02/13 07:20:28	66.000		19.64	6139.73
4021	03/02/13 08:20:28	67.000		19.62	6205.05
4081	03/02/13 09:20:28	68.000		19.60	6269.98
4141	03/02/13 10:20:28	69.000		19.60	6336.12
4201	03/02/13 11:20:28	70.000		19.56	6400.47
4261	03/02/13 12:20:28	71.000		19.61	6464.58
4321	03/02/13 13:20:28	72.000		19.60	6529.07
4381	03/02/13 14:20:28	73.000		19.58	6592.15
4441	03/02/13 15:20:28	74.000		19.54	6656.45
4501	03/02/13 16:20:28	75.000		19.57	6719.21
4561	03/02/13 17:20:28	76.000		19.59	6779.14
4621	03/02/13 18:20:28	77.000		19.55	6842.27
4681	03/02/13 19:20:28	78.000		19.55	6904.36
4741	03/02/13 20:20:28	79.000		19.55	6966.61
4801	03/02/13 21:20:28	80.000		19.54	7028.08
4861	03/02/13 22:20:28	81.000		19.52	7088.98
4921	03/02/13 23:20:28	82.000		19.51	7149.26
4981	03/02/14 00:20:28	83.000		19.50	7210.74
5041	03/02/14 01:20:28	84.000		19.52	7270.77
5101	03/02/14 02:20:28	85.000		19.51	7330.18
5161	03/02/14 03:20:28	86.000		19.50	7390.39
5221	03/02/14 04:20:28	87.000		19.44	7450.16
5281	03/02/14 05:20:28	88.000		19.50	7503.97
5341	03/02/14 06:20:28	89.000		19.49	7562.34
5401	03/02/14 07:20:28	90.000		19.47	7621.57
5461	03/02/14 08:20:28	91.000		19.46	7679.15
5521	03/02/14 09:20:28	92.000		19.46	7736.32
5581	03/02/14 10:20:28	93.000		19.46	7794.47
5641	03/02/14 11:20:28	94.000		19.45	7850.80
5701	03/02/14 12:20:28	95.000		19.43	7907.79
5761	03/02/14 13:20:28	96.000		19.42	7964.65
5821	03/02/14 14:20:28	97.000		19.42	8019.77
5881	03/02/14 15:20:28	98.000		19.41	8075.35
5941	03/02/14 16:20:28	99.000		19.41	8130.77
6001	03/02/14 17:20:28	100.000		19.42	8186.26
6061	03/02/14 18:20:28	101.000		19.40	8238.56
6121	03/02/14 19:20:28	102.000		19.39	8292.76

* denotes fast readings

Run depth (mKB MD): 1426.10
Run depth (mKB TVD): 1425.25

Recorder: N45

Canadian Natural Resources Ltd. | CNRES Behdzia Youh 0-52 | (00/0-52-67.00-126.30)

Item #	Date	Total Acc Time	Event Acc Time	Temp C	Pres kPaa
6181	03/02/14 20:20:28	103.000		19.40	8347.52
6241	03/02/14 21:20:28	104.000		19.41	8400.99
6301	03/02/14 22:20:28	105.000		19.41	8454.26
6361	03/02/14 23:20:28	106.000		19.40	8507.69
6421	03/02/15 00:20:28	107.000		19.39	8560.33
6481	03/02/15 01:20:28	108.000		19.39	8611.93
6541	03/02/15 02:20:28	109.000		19.38	8663.49
6601	03/02/15 03:20:28	110.000		19.38	8715.72
6661	03/02/15 04:20:28	111.000		19.37	8766.68
6721	03/02/15 05:20:28	112.000		19.33	8818.00
6781	03/02/15 06:20:28	113.000		19.35	8868.68
6841	03/02/15 07:20:28	114.000		19.35	8919.17
6901	03/02/15 08:20:28	115.000		19.36	8965.92
6961	03/02/15 09:20:28	116.000		19.36	9014.52
7021	03/02/15 10:20:28	117.000		19.35	9064.67
7081	03/02/15 11:20:28	118.000		19.33	9113.18
7141	03/02/15 12:20:28	119.000		19.34	9161.65
7201	03/02/15 13:20:28	120.000		19.33	9209.57
7261	03/02/15 14:20:28	121.000		19.33	9257.88
7321	03/02/15 15:20:28	122.000		19.33	9305.07
7381	03/02/15 16:20:28	123.000		19.33	9351.89
7441	03/02/15 17:20:28	124.000		19.31	9398.37
7501	03/02/15 18:20:28	125.000		19.31	9445.34
7561	03/02/15 19:20:28	126.000		19.33	9491.39
7621	03/02/15 20:20:28	127.000		19.31	9536.91
7681	03/02/15 21:20:28	128.000		19.30	9581.79
7741	03/02/15 22:20:28	129.000		19.30	9627.38
7801	03/02/15 23:20:28	130.000		19.29	9671.81
7861	03/02/16 00:20:28	131.000		19.28	9713.23
7921	03/02/16 01:20:28	132.000		19.29	9757.02
7981	03/02/16 02:20:28	133.000		19.29	9800.70
8041	03/02/16 03:20:28	134.000		19.29	9844.64
8101	03/02/16 04:20:28	135.000		19.28	9887.45
8161	03/02/16 05:20:28	136.000		19.28	9929.86
8221	03/02/16 06:20:28	137.000		19.27	9972.29
8281	03/02/16 07:20:28	138.000		19.27	10014.92
8341	03/02/16 08:20:28	139.000		19.27	10056.15
8401	03/02/16 09:20:28	140.000		19.27	10097.35
8461	03/02/16 10:20:28	141.000		19.27	10138.38
8521	03/02/16 11:20:28	142.000		19.26	10179.77
8581	03/02/16 12:20:28	143.000		19.26	10219.96
8641	03/02/16 13:20:28	144.000		19.24	10259.44
8701	03/02/16 14:20:28	145.000		19.25	10299.50
8761	03/02/16 15:20:28	146.000		19.25	10338.74
8821	03/02/16 16:20:28	147.000		19.24	10378.57
8881	03/02/16 17:20:28	148.000		19.25	10417.56
8941	03/02/16 18:20:28	149.000		19.23	10450.81
9001	03/02/16 19:20:28	150.000		19.24	10487.50
9061	03/02/16 20:20:28	151.000		19.24	10525.31
9121	03/02/16 21:20:28	152.000		19.22	10564.19
9181	03/02/16 22:20:28	153.000		19.22	10600.89
9241	03/02/16 23:20:28	154.000		19.22	10638.63
9301	03/02/17 00:20:28	155.000		19.22	10675.36

* denotes fast readings

Run depth (mKB MD): 1426.10
Run depth (mKB TVD): 1425.25

Recorder: N45

Canadian Natural Resources Ltd. | CNRES Behdzia Youh 0-52 | (00/0-52-67.00-126.30)

Item #	Date	Total Acc Time	Event Acc Time	Temp C	Pres kPaa
9361	03/02/17 01:20:28	156.000		19.22	10711.50
9421	03/02/17 02:20:28	157.000		19.21	10749.24
9481	03/02/17 03:20:28	158.000		19.21	10784.44
9541	03/02/17 04:20:28	159.000		19.22	10819.96
9601	03/02/17 05:20:28	160.000		19.20	10855.06
9661	03/02/17 06:20:28	161.000		19.20	10890.04
9721	03/02/17 07:20:28	162.000		19.19	10926.21
9781	03/02/17 08:20:28	163.000		19.20	10960.57
9841	03/02/17 09:20:28	164.000		19.20	10995.16
9901	03/02/17 10:20:28	165.000		19.19	11029.33
9961	03/02/17 11:20:28	166.000		19.19	11062.56
10021	03/02/17 12:20:28	167.000		19.18	11096.94
10081	03/02/17 13:20:28	168.000		19.18	11130.54
10141	03/02/17 14:20:28	169.000		19.18	11163.04
10201	03/02/17 15:20:28	170.000		19.18	11194.12
10261	03/02/17 16:20:28	171.000		19.18	11226.28
10321	03/02/17 17:20:28	172.000		19.17	11258.07
10381	03/02/17 18:20:28	173.000		19.17	11291.42
10441	03/02/17 19:20:28	174.000		19.17	11323.00
10501	03/02/17 20:20:28	175.000		19.17	11354.55
10561	03/02/17 21:20:28	176.000		19.16	11386.25
10621	03/02/17 22:20:28	177.000		19.16	11416.87
10681	03/02/17 23:20:28	178.000		19.16	11447.69
10741	03/02/18 00:20:28	179.000		19.16	11479.30
10801	03/02/18 01:20:28	180.000		19.15	11509.19
10861	03/02/18 02:20:28	181.000		19.14	11538.82
10921	03/02/18 03:20:28	182.000		19.14	11568.99
10981	03/02/18 04:20:28	183.000		19.15	11597.96
11041	03/02/18 05:20:28	184.000		19.15	11626.96
11101	03/02/18 06:20:28	185.000		19.14	11657.66
11161	03/02/18 07:20:28	186.000		19.14	11686.77
11221	03/02/18 08:20:28	187.000		19.14	11715.20
11281	03/02/18 09:20:28	188.000		19.13	11743.89
11341	03/02/18 10:20:28	189.000		19.12	11772.25
11401	03/02/18 11:20:28	190.000		19.12	11800.13
11461	03/02/18 12:20:28	191.000		19.12	11828.72
11521	03/02/18 13:20:28	192.000		19.11	11856.95
11581	03/02/18 14:20:28	193.000		19.10	11883.85
11641	03/02/18 15:20:28	194.000		19.11	11910.49
11701	03/02/18 16:20:28	195.000		19.11	11935.59
11761	03/02/18 17:20:28	196.000		19.10	11962.10
11821	03/02/18 18:20:28	197.000		19.10	11988.18
11881	03/02/18 19:20:28	198.000		19.10	12015.87
11941	03/02/18 20:20:28	199.000		19.09	12042.79
12001	03/02/18 21:20:28	200.000		19.09	12067.96
12061	03/02/18 22:20:28	201.000		19.09	12093.98
12121	03/02/18 23:20:28	202.000		19.09	12120.05
12181	03/02/19 00:20:28	203.000		19.09	12145.55
12241	03/02/19 01:20:28	204.000		19.09	12170.67
12301	03/02/19 02:20:28	205.000		19.08	12196.18
12361	03/02/19 03:20:28	206.000		19.07	12222.03
12421	03/02/19 04:20:28	207.000		19.08	12246.20
12481	03/02/19 05:20:28	208.000		19.08	12270.59

* denotes fast readings

Run depth (mKB MD): 1426.10
Run depth (mKB TVD): 1425.25

Recorder: N45

Canadian Natural Resources Ltd: **CNRES Behdzia Youh 0-52** **(00/0-52-67.00-126.30)**

Item #	Date	Total Acc Time	Event Acc Time	Temp C	Pres kPaa
12541	03/02/19 06:20:28	209.000		19.08	12294.98
12601	03/02/19 07:20:28	210.000		19.07	12319.16
12661	03/02/19 08:20:28	211.000		19.06	12342.34
12721	03/02/19 09:20:28	212.000		19.07	12366.04
12781	03/02/19 10:20:28	213.000		19.07	12390.77
12841	03/02/19 11:20:28	214.000		19.06	12414.41
12901	03/02/19 12:20:28	215.000		19.06	12437.23
12961	03/02/19 13:20:28	216.000		19.06	12460.18
13021	03/02/19 14:20:28	217.000		19.05	12483.35
13081	03/02/19 15:20:28	218.000		19.05	12506.54
13141	03/02/19 16:20:28	219.000		19.04	12528.45
13201	03/02/19 17:20:28	220.000		19.04	12550.78
13261	03/02/19 18:20:28	221.000		19.03	12573.75
13321	03/02/19 19:20:28	222.000		19.04	12596.24
13381	03/02/19 20:20:28	223.000		19.03	12617.58
13441	03/02/19 21:20:28	224.000		19.04	12638.98
13501	03/02/19 22:20:28	225.000		19.03	12659.36
13561	03/02/19 23:20:28	226.000		19.03	12679.64
13621	03/02/20 00:20:28	227.000		19.03	12700.76
13681	03/02/20 01:20:28	228.000		19.01	12721.31
13741	03/02/20 02:20:28	229.000		19.01	12742.77
13801	03/02/20 03:20:28	230.000		19.01	12764.45
13861	03/02/20 04:20:28	231.000		19.01	12785.26
13921	03/02/20 05:20:28	232.000		19.01	12805.20
13981	03/02/20 06:20:28	233.000		19.01	12825.70
14041	03/02/20 07:20:28	234.000		19.01	12846.11
14101	03/02/20 08:20:28	235.000		19.00	12866.83
14161	03/02/20 09:20:28	236.000		19.00	12886.14
14221	03/02/20 10:20:28	237.000		19.00	12905.27
14281	03/02/20 11:20:28	238.000		19.00	12925.14
14341	03/02/20 12:20:28	239.000		18.98	12945.42
14401	03/02/20 13:20:28	240.000		18.99	12964.89
14461	03/02/20 14:20:28	241.000		18.99	12983.68
14521	03/02/20 15:20:28	242.000		18.98	13002.69
14581	03/02/20 16:20:28	243.000		18.99	13021.06
14641	03/02/20 17:20:28	244.000		18.99	13039.88
14701	03/02/20 18:20:28	245.000		18.98	13058.25
14761	03/02/20 19:20:28	246.000		18.97	13076.44
14821	03/02/20 20:20:28	247.000		18.97	13094.23
14881	03/02/20 21:20:28	248.000		18.97	13112.76
14941	03/02/20 22:20:28	249.000		18.97	13131.43
15001	03/02/20 23:20:28	250.000		18.98	13149.50
15061	03/02/21 00:20:28	251.000		18.97	13166.78
15121	03/02/21 01:20:28	252.000		18.96	13183.87
15181	03/02/21 02:20:28	253.000		18.97	13201.80
15241	03/02/21 03:20:28	254.000		18.96	13218.93
15301	03/02/21 04:20:28	255.000		18.96	13236.73
15361	03/02/21 05:20:28	256.000		18.96	13253.49
15421	03/02/21 06:20:28	257.000		18.95	13269.89
15481	03/02/21 07:20:28	258.000		18.95	13286.81
15541	03/02/21 08:20:28	259.000		18.95	13303.95
15601	03/02/21 09:20:28	260.000		18.95	13321.09
15661	03/02/21 10:20:28	261.000		18.95	13337.69

* denotes fast readings

Run depth (mKB MD): 1426.10
Run depth (mKB TVD): 1425.25

Recorder: N45

Canadian Natural Resources Ltd. | CNRES Behdzia Youh 0-52 | (00/0-52-67.00-126.30)

Item #	Date	Total Acc Time	Event Acc Time	Temp C	Pres kPaa
15721	03/02/21 11:20:28	262.000		18.94	13353.46
15781	03/02/21 12:20:28	263.000		18.93	13369.65
15841	03/02/21 13:20:28	264.000		18.94	13384.80
15901	03/02/21 14:20:28	265.000		18.94	13398.96
15961	03/02/21 15:20:28	266.000		18.94	13413.36
16021	03/02/21 16:20:28	267.000		18.93	13428.43
16081	03/02/21 17:20:28	268.000		18.93	13443.53
16141	03/02/21 18:20:28	269.000		18.93	13458.93
16201	03/02/21 19:20:28	270.000		18.92	13473.73
16261	03/02/21 20:20:28	271.000		18.92	13489.82
16321	03/02/21 21:20:28	272.000		18.92	13505.67
16381	03/02/21 22:20:28	273.000		18.92	13520.83
16441	03/02/21 23:20:28	274.000		18.92	13535.09
16501	03/02/22 00:20:28	275.000		18.92	13549.74
16561	03/02/22 01:20:28	276.000		18.91	13563.97
16621	03/02/22 02:20:28	277.000		18.91	13579.03
16681	03/02/22 03:20:28	278.000		18.90	13593.72
16741	03/02/22 04:20:28	279.000		18.91	13608.14
16801	03/02/22 05:20:28	280.000		18.90	13622.21
16861	03/02/22 06:20:28	281.000		18.90	13636.12
16921	03/02/22 07:20:28	282.000		18.91	13649.96
16981	03/02/22 08:20:28	283.000		18.90	13664.01
17041	03/02/22 09:20:28	284.000		18.90	13678.46
17101	03/02/22 10:20:28	285.000		18.90	13692.22
17161	03/02/22 11:20:28	286.000		18.90	13705.93
17221	03/02/22 12:20:28	287.000		18.89	13719.16
17281	03/02/22 13:20:28	288.000		18.89	13732.28
17341	03/02/22 14:20:28	289.000		18.89	13745.25
17401	03/02/22 15:20:28	290.000		18.88	13758.48
17461	03/02/22 16:20:28	291.000		18.88	13771.44
17521	03/02/22 17:20:28	292.000		18.88	13784.66
17581	03/02/22 18:20:28	293.000		18.88	13797.55
17641	03/02/22 19:20:28	294.000		18.88	13809.95
17701	03/02/22 20:20:28	295.000		18.88	13822.17
17761	03/02/22 21:20:28	296.000		18.86	13834.47
17821	03/02/22 22:20:28	297.000		18.87	13846.83
17881	03/02/22 23:20:28	298.000		18.87	13859.73
17941	03/02/23 00:20:28	299.000		18.87	13872.50
18001	03/02/23 01:20:28	300.000		18.87	13884.60
18061	03/02/23 02:20:28	301.000		18.86	13896.98
18121	03/02/23 03:20:28	302.000		18.86	13908.62
18181	03/02/23 04:20:28	303.000		18.86	13920.21
18241	03/02/23 05:20:28	304.000		18.86	13931.85
18301	03/02/23 06:20:28	305.000		18.85	13943.65
18361	03/02/23 07:20:28	306.000		18.86	13955.25
18421	03/02/23 08:20:28	307.000		18.85	13966.98
18481	03/02/23 09:20:28	308.000		18.84	13978.72
18541	03/02/23 10:20:28	309.000		18.84	13989.56
18601	03/02/23 11:20:28	310.000		18.84	14000.83
18661	03/02/23 12:20:28	311.000		18.84	14011.71
18721	03/02/23 13:20:28	312.000		18.84	14022.57
18781	03/02/23 14:20:28	313.000		18.84	14034.25
18841	03/02/23 15:20:28	314.000		18.84	14045.61

* denotes fast readings

Run depth (mKB MD): 1426.10
Run depth (mKB TVD): 1425.25

Recorder: N45

Canadian Natural Resources Ltd. | CNRES Behdzia Youh 0-52 | (00/0-52-67.00-126.30)

Item #	Date	Total Acc Time	Event Acc Time	Temp C	Pres kPaa
18901	03/02/23 16:20:28	315.000		18.84	14056.97
18961	03/02/23 17:20:28	316.000		18.83	14067.98
19021	03/02/23 18:20:28	317.000		18.83	14078.40
19081	03/02/23 19:20:28	318.000		18.83	14088.82
19141	03/02/23 20:20:28	319.000		18.83	14099.05
19201	03/02/23 21:20:28	320.000		18.83	14109.34
19261	03/02/23 22:20:28	321.000		18.83	14119.28
19321	03/02/23 23:20:28	322.000		18.83	14128.89
19381	03/02/24 00:20:28	323.000		18.82	14138.58
19441	03/02/24 01:20:28	324.000		18.81	14147.93
19501	03/02/24 02:20:28	325.000		18.82	14157.73
19561	03/02/24 03:20:28	326.000		18.82	14167.90
19621	03/02/24 04:20:28	327.000		18.81	14177.45
19681	03/02/24 05:20:28	328.000		18.82	14187.11
19741	03/02/24 06:20:28	329.000		18.81	14196.57
19801	03/02/24 07:20:28	330.000		18.81	14206.27
19861	03/02/24 08:20:28	331.000		18.81	14216.05
19921	03/02/24 09:20:28	332.000		18.80	14225.72
19981	03/02/24 10:20:28	333.000		18.81	14235.60
20041	03/02/24 11:20:28	334.000		18.81	14245.37
20101	03/02/24 12:20:28	335.000		18.80	14254.54
20161	03/02/24 13:20:28	336.000		18.80	14263.61
20221	03/02/24 14:20:28	337.000		18.80	14272.67
20281	03/02/24 15:20:28	338.000		18.80	14281.35
20341	03/02/24 16:20:28	339.000		18.80	14290.43
20401	03/02/24 17:20:28	340.000		18.80	14299.25
20461	03/02/24 18:20:28	341.000		18.79	14308.05
20521	03/02/24 19:20:28	342.000		18.80	14317.02
20581	03/02/24 20:20:28	343.000		18.79	14325.75
20641	03/02/24 21:20:28	344.000		18.79	14334.70
20701	03/02/24 22:20:28	345.000		18.79	14343.37
20761	03/02/24 23:20:28	346.000		18.79	14351.49
20821	03/02/25 00:20:28	347.000		18.79	14359.77
20881	03/02/25 01:20:28	348.000		18.79	14367.92
20941	03/02/25 02:20:28	349.000		18.78	14375.89
21001	03/02/25 03:20:28	350.000		18.78	14384.10
21061	03/02/25 04:20:28	351.000		18.78	14391.93
21121	03/02/25 05:20:28	352.000		18.78	14400.00
21181	03/02/25 06:20:28	353.000		18.78	14408.30
21241	03/02/25 07:20:28	354.000		18.78	14416.46
21301	03/02/25 08:20:28	355.000		18.77	14424.75
21361	03/02/25 09:20:28	356.000		18.77	14432.71
21421	03/02/25 10:20:28	357.000		18.77	14440.40
21481	03/02/25 11:20:28	358.000		18.77	14448.00
21541	03/02/25 12:20:28	359.000		18.77	14455.86
21601	03/02/25 13:20:28	360.000		18.77	14463.20
21661	03/02/25 14:20:28	361.000		18.76	14470.60
21721	03/02/25 15:20:28	362.000		18.76	14477.90
21781	03/02/25 16:20:28	363.000		18.76	14485.12
21841	03/02/25 17:20:28	364.000		18.76	14492.27
21901	03/02/25 18:20:28	365.000		18.76	14499.52
21961	03/02/25 19:20:28	366.000		18.76	14506.59
22021	03/02/25 20:20:28	367.000		18.75	14513.62

* denotes fast readings

Run depth (mKB MD): 1426.10
Run depth (mKB TVD): 1425.25

Recorder: N45

Canadian Natural Resources Ltd. | CNRES Behdzia Youh 0-52 | (00/0-52-67.00-126.30)

Item #	Date	Total Acc Time	Event Acc Time	Temp C	Pres kPaa
22081	03/02/25 21:20:28	368.000		18.76	14520.94
22141	03/02/25 22:20:28	369.000		18.75	14527.69
22201	03/02/25 23:20:28	370.000		18.76	14534.66
22261	03/02/26 00:20:28	371.000		18.76	14541.36
22321	03/02/26 01:20:28	372.000		18.75	14548.10
22381	03/02/26 02:20:28	373.000		18.75	14554.59
22441	03/02/26 03:20:28	374.000		18.74	14561.30
22501	03/02/26 04:20:28	375.000		18.75	14567.64
22561	03/02/26 05:20:28	376.000		18.75	14574.12
22621	03/02/26 06:20:28	377.000		18.75	14580.89
22681	03/02/26 07:20:28	378.000		18.75	14587.60
22741	03/02/26 08:20:28	379.000		18.75	14594.65
22801	03/02/26 09:20:28	380.000		18.74	14600.69
22861	03/02/26 10:20:28	381.000		18.74	14607.62
22921	03/02/26 11:20:28	382.000		18.74	14614.24
22981	03/02/26 12:20:28	383.000		18.74	14620.79
23041	03/02/26 13:20:28	384.000		18.74	14626.88
23101	03/02/26 14:20:28	385.000		18.74	14632.79
23161	03/02/26 15:20:28	386.000		18.74	14639.03
23221	03/02/26 16:20:28	387.000		18.74	14644.78
23281	03/02/26 17:20:28	388.000		18.73	14650.48
23341	03/02/26 18:20:28	389.000		18.73	14656.52
23401	03/02/26 19:20:28	390.000		18.73	14661.96
23461	03/02/26 20:20:28	391.000		18.72	14667.54
23521	03/02/26 21:20:28	392.000		18.73	14673.20
23581	03/02/26 22:20:28	393.000		18.73	14679.14
23641	03/02/26 23:20:28	394.000		18.72	14684.73
23701	03/02/27 00:20:28	395.000		18.72	14690.46
23761	03/02/27 01:20:28	396.000		18.72	14695.96
23821	03/02/27 02:20:28	397.000		18.73	14701.52
23881	03/02/27 03:20:28	398.000		18.72	14706.94
23941	03/02/27 04:20:28	399.000		18.73	14712.15
24001	03/02/27 05:20:28	400.000		18.72	14717.34
24061	03/02/27 06:20:28	401.000		18.71	14722.69
24121	03/02/27 07:20:28	402.000		18.71	14728.07
24181	03/02/27 08:20:28	403.000		18.72	14733.15
24241	03/02/27 09:20:28	404.000		18.71	14738.03
24301	03/02/27 10:20:28	405.000		18.71	14743.48
24361	03/02/27 11:20:28	406.000		18.71	14748.58
24421	03/02/27 12:20:28	407.000		18.70	14753.69
24481	03/02/27 13:20:28	408.000		18.71	14758.72
24541	03/02/27 14:20:28	409.000		18.70	14763.69
24601	03/02/27 15:20:28	410.000		18.71	14768.91
24661	03/02/27 16:20:28	411.000		18.71	14774.20
24721	03/02/27 17:20:28	412.000		18.70	14779.14
24781	03/02/27 18:20:28	413.000		18.70	14784.20
24841	03/02/27 19:20:28	414.000		18.70	14789.05
24901	03/02/27 20:20:28	415.000		18.70	14794.07
24961	03/02/27 21:20:28	416.000		18.70	14798.82
25021	03/02/27 22:20:28	417.000		18.70	14803.55
25081	03/02/27 23:20:28	418.000		18.69	14807.91
25141	03/02/28 00:20:28	419.000		18.69	14812.45
25201	03/02/28 01:20:28	420.000		18.69	14816.91

* denotes fast readings

Run depth (mKB MD): 1426.10
Run depth (mKB TVD): 1425.25

Recorder: N45

Canadian Natural Resources Ltd. | CNRES Behdzia Youh 0-52 | (00/0-52-67.00-126.30)

Item #	Date	Total Acc Time	Event Acc Time	Temp C	Pres kPaa
25261	03/02/28 02:20:28	421.000		18.69	14821.11
25321	03/02/28 03:20:28	422.000		18.69	14825.38
25381	03/02/28 04:20:28	423.000		18.69	14829.75
25441	03/02/28 05:20:28	424.000		18.70	14833.97
25501	03/02/28 06:20:28	425.000		18.69	14838.36
25561	03/02/28 07:20:28	426.000		18.68	14842.57
25621	03/02/28 08:20:28	427.000		18.68	14846.79
25681	03/02/28 09:20:28	428.000		18.69	14850.84
25741	03/02/28 10:20:28	429.000		18.69	14854.88
25801	03/02/28 11:20:28	430.000		18.68	14858.85
25861	03/02/28 12:20:28	431.000		18.68	14862.74
25921	03/02/28 13:20:28	432.000		18.69	14866.74
25981	03/02/28 14:20:28	433.000		18.68	14870.42
26041	03/02/28 15:20:28	434.000		18.67	14873.98
26101	03/02/28 16:20:28	435.000		18.67	14877.69
26161	03/02/28 17:20:28	436.000		18.69	14881.54
26221	03/02/28 18:20:28	437.000		18.68	14885.35
26281	03/02/28 19:20:28	438.000		18.68	14889.04
26341	03/02/28 20:20:28	439.000		18.68	14892.71
26401	03/02/28 21:20:28	440.000		18.68	14896.78
26461	03/02/28 22:20:28	441.000		18.67	14900.52
26521	03/02/28 23:20:28	442.000		18.67	14904.29
26581	03/03/01 00:20:28	443.000		18.66	14908.04
26641	03/03/01 01:20:28	444.000		18.67	14911.36
26701	03/03/01 02:20:28	445.000		18.66	14915.02
26761	03/03/01 03:20:28	446.000		18.67	14918.55
26821	03/03/01 04:20:28	447.000		18.67	14921.80
26881	03/03/01 05:20:28	448.000		18.66	14925.56
26941	03/03/01 06:20:28	449.000		18.67	14928.88
27001	03/03/01 07:20:28	450.000		18.66	14932.53
27061	03/03/01 08:20:28	451.000		18.66	14936.07
27121	03/03/01 09:20:28	452.000		18.66	14939.54
27181	03/03/01 10:20:28	453.000		18.66	14943.04
27241	03/03/01 11:20:28	454.000		18.65	14946.16
27301	03/03/01 12:20:28	455.000		18.66	14949.70
27361	03/03/01 13:20:28	456.000		18.65	14953.09
27421	03/03/01 14:20:28	457.000		18.66	14956.78
27481	03/03/01 15:20:28	458.000		18.65	14960.31
27541	03/03/01 16:20:28	459.000		18.65	14963.77
27601	03/03/01 17:20:28	460.000		18.65	14967.05
27661	03/03/01 18:20:28	461.000		18.65	14970.54
27721	03/03/01 19:20:28	462.000		18.66	14973.64
27781	03/03/01 20:20:28	463.000		18.65	14977.16
27841	03/03/01 21:20:28	464.000		18.66	14980.25
27901	03/03/01 22:20:28	465.000		18.65	14983.16
27961	03/03/01 23:20:28	466.000		18.65	14986.52
28021	03/03/02 00:20:28	467.000		18.65	14989.27
28081	03/03/02 01:20:28	468.000		18.65	14992.42
28141	03/03/02 02:20:28	469.000		18.65	14995.42
28201	03/03/02 03:20:28	470.000		18.64	14998.18
28261	03/03/02 04:20:28	471.000		18.65	15001.15
28321	03/03/02 05:20:28	472.000		18.64	15003.80
28381	03/03/02 06:20:28	473.000		18.63	15006.71

* denotes fast readings

Run depth (mKB MD): 1426.10
Run depth (mKB TVD): 1425.25

Recorder: N45

Canadian Natural Resources Ltd. CNRES Behdzia Youh 0-52 (00/0-52-67.00-126.30)

Item #	Date	Total Acc Time	Event Acc Time	Temp C	Pres kPaa
28441	03/03/02 07:20:28	474.000		18.65	15009.39
28501	03/03/02 08:20:28	475.000		18.64	15012.16
28561	03/03/02 09:20:28	476.000		18.64	15014.74
28621	03/03/02 10:20:28	477.000		18.64	15017.74
28681	03/03/02 11:20:28	478.000		18.64	15020.51
28741	03/03/02 12:20:28	479.000		18.64	15023.57
28801	03/03/02 13:20:28	480.000		18.64	15026.05
28861	03/03/02 14:20:28	481.000		18.64	15028.93
28921	03/03/02 15:20:28	482.000		18.64	15031.50
28981	03/03/02 16:20:28	483.000		18.64	15034.22
29041	03/03/02 17:20:28	484.000		18.63	15036.90
29101	03/03/02 18:20:28	485.000		18.64	15039.59
29161	03/03/02 19:20:28	486.000		18.65	15042.11
29221	03/03/02 20:20:28	487.000		18.63	15044.65
29281	03/03/02 21:20:28	488.000		18.63	15047.31
29341	03/03/02 22:20:28	489.000		18.63	15049.59
29401	03/03/02 23:20:28	490.000		18.63	15052.17
29461	03/03/03 00:20:28	491.000		18.63	15054.72
29521	03/03/03 01:20:28	492.000		18.63	15057.07
29581	03/03/03 02:20:28	493.000		18.63	15059.59
29641	03/03/03 03:20:28	494.000		18.63	15062.09
29701	03/03/03 04:20:28	495.000		18.63	15064.14
29761	03/03/03 05:20:28	496.000		18.63	15066.64
29821	03/03/03 06:20:28	497.000		18.63	15069.08
29881	03/03/03 07:20:28	498.000		18.63	15071.31
29941	03/03/03 08:20:28	499.000		18.63	15073.89
30001	03/03/03 09:20:28	500.000		18.63	15076.06
30061	03/03/03 10:20:28	501.000		18.63	15078.56
30121	03/03/03 11:20:28	502.000		18.62	15080.79
30181	03/03/03 12:20:28	503.000		18.62	15082.91
30241	03/03/03 13:20:28	504.000		18.62	15085.50
30301	03/03/03 14:20:28	505.000		18.61	15087.73
30361	03/03/03 15:20:28	506.000		18.61	15089.86
30421	03/03/03 16:20:28	507.000		18.62	15091.84
30481	03/03/03 17:20:28	508.000		18.61	15094.10
30541	03/03/03 18:20:28	509.000		18.62	15096.13
30601	03/03/03 19:20:28	510.000		18.62	15098.34
30661	03/03/03 20:20:28	511.000		18.61	15100.18
30721	03/03/03 21:20:28	512.000		18.61	15102.20
30781	03/03/03 22:20:28	513.000		18.61	15104.39
30841	03/03/03 23:20:28	514.000		18.61	15106.33
30901	03/03/04 00:20:28	515.000		18.61	15108.20
30961	03/03/04 01:20:28	516.000		18.60	15109.94
31021	03/03/04 02:20:28	517.000		18.61	15112.06
31081	03/03/04 03:20:28	518.000		18.61	15113.93
31141	03/03/04 04:20:28	519.000		18.61	15115.89
31201	03/03/04 05:20:28	520.000		18.60	15117.80
31261	03/03/04 06:20:28	521.000		18.61	15119.56
31321	03/03/04 07:20:28	522.000		18.61	15121.47
31381	03/03/04 08:20:28	523.000		18.61	15123.23
31441	03/03/04 09:20:28	524.000		18.60	15124.91
31501	03/03/04 10:20:28	525.000		18.60	15127.01
31561	03/03/04 11:20:28	526.000		18.60	15128.65

* denotes fast readings

Run depth (mKB MD): 1426.10
Run depth (mKB TVD): 1425.25

Recorder: N45

Canadian Natural Resources Ltd. | CNRES Behdzia Youh 0-52 | (00/0-52-67.00-126.30)

Item #	Date	Total Acc Time	Event Acc Time	Temp C	Pres kPaa
31621	03/03/04 12:20:28	527.000		18.60	15130.57
31681	03/03/04 13:20:28	528.000		18.60	15132.79
31741	03/03/04 14:20:28	529.000		18.60	15134.57
31801	03/03/04 15:20:28	530.000		18.60	15136.39
31861	03/03/04 16:20:28	531.000		18.60	15138.52
31921	03/03/04 17:20:28	532.000		18.60	15140.23
31981	03/03/04 18:20:28	533.000		18.60	15142.13
32041	03/03/04 19:20:28	534.000		18.60	15143.62
32101	03/03/04 20:20:28	535.000		18.59	15145.43
32161	03/03/04 21:20:28	536.000		18.59	15146.98
32221	03/03/04 22:20:28	537.000		18.59	15148.79
32281	03/03/04 23:20:28	538.000		18.59	15150.32
32341	03/03/05 00:20:28	539.000		18.59	15151.50
32401	03/03/05 01:20:28	540.000		18.60	15153.32
32461	03/03/05 02:20:28	541.000		18.59	15155.37
32521	03/03/05 03:20:28	542.000		18.59	15156.63
32581	03/03/05 04:20:28	543.000		18.59	15158.40
32641	03/03/05 05:20:28	544.000		18.59	15160.02
32701	03/03/05 06:20:28	545.000		18.59	15161.69
32761	03/03/05 07:20:28	546.000		18.60	15163.28
32821	03/03/05 08:20:28	547.000		18.59	15164.68
32881	03/03/05 09:20:28	548.000		18.58	15166.31
32941	03/03/05 10:20:28	549.000		18.59	15167.83
33001	03/03/05 11:20:28	550.000		18.59	15169.43
33061	03/03/05 12:20:28	551.000		18.59	15170.83
33121	03/03/05 13:20:28	552.000		18.58	15172.20
33181	03/03/05 14:20:28	553.000		18.58	15173.53
33241	03/03/05 15:20:28	554.000		18.59	15175.10
33301	03/03/05 16:20:28	555.000		18.59	15176.72
33361	03/03/05 17:20:28	556.000		18.58	15177.85
33421	03/03/05 18:20:28	557.000		18.59	15179.33
33481	03/03/05 19:20:28	558.000		18.58	15180.65
33541	03/03/05 20:20:28	559.000		18.59	15182.20
33601	03/03/05 21:20:28	560.000		18.58	15183.30
33661	03/03/05 22:20:28	561.000		18.59	15184.93
33721	03/03/05 23:20:28	562.000		18.58	15186.02
33781	03/03/06 00:20:28	563.000		18.58	15187.39
33841	03/03/06 01:20:28	564.000		18.58	15188.61
33901	03/03/06 02:20:28	565.000		18.58	15189.82
33961	03/03/06 03:20:28	566.000		18.58	15191.10
34021	03/03/06 04:20:28	567.000		18.58	15192.17
34081	03/03/06 05:20:28	568.000		18.58	15193.48
34141	03/03/06 06:20:28	569.000		18.58	15194.66
34201	03/03/06 07:20:28	570.000		18.58	15196.09
34261	03/03/06 08:20:28	571.000		18.58	15197.13
34321	03/03/06 09:20:28	572.000		18.58	15198.49
34381	03/03/06 10:20:28	573.000		18.58	15199.64
34441	03/03/06 11:20:28	574.000		18.58	15201.13
34501	03/03/06 12:20:28	575.000		18.58	15202.18
34561	03/03/06 13:20:28	576.000		18.58	15203.16
34621	03/03/06 14:20:28	577.000		18.58	15204.60
34681	03/03/06 15:20:28	578.000		18.57	15206.04
34741	03/03/06 16:20:28	579.000		18.57	15206.97

* denotes fast readings

Run depth (mKB MD): 1426.10
Run depth (mKB TVD): 1425.25

Recorder: N45

Canadian Natural Resources Ltd. **CNRES Behdzia Youh 0-52** **(00/0-52-67.00-126.30)**

Item #	Date	Total Acc Time	Event Acc Time	Temp C	Pres kPaa
34801	03/03/06 17:20:28	580.000		18.58	15208.46
34861	03/03/06 18:20:28	581.000		18.57	15209.44
34921	03/03/06 19:20:28	582.000		18.57	15210.77
34981	03/03/06 20:20:28	583.000		18.57	15211.43
35041	03/03/06 21:20:28	584.000		18.57	15212.18
35101	03/03/06 22:20:28	585.000		18.58	15213.26
35161	03/03/06 23:20:28	586.000		18.57	15214.14
35221	03/03/07 00:20:28	587.000		18.57	15215.06
35281	03/03/07 01:20:28	588.000		18.56	15216.08
35341	03/03/07 02:20:28	589.000		18.57	15216.99
35401	03/03/07 03:20:28	590.000		18.57	15218.15
35461	03/03/07 04:20:28	591.000		18.57	15218.97
35521	03/03/07 05:20:28	592.000		18.57	15219.92
35581	03/03/07 06:20:28	593.000		18.57	15221.00
35641	03/03/07 07:20:28	594.000		18.57	15222.07
35701	03/03/07 08:20:28	595.000		18.57	15222.91
35761	03/03/07 09:20:28	596.000		18.57	15224.18
35821	03/03/07 10:20:28	597.000		18.56	15225.13
35881	03/03/07 11:20:28	598.000		18.57	15226.35
35941	03/03/07 12:20:28	599.000		18.56	15227.35
36001	03/03/07 13:20:28	600.000		18.56	15228.47
36061	03/03/07 14:20:28	601.000		18.57	15229.59
36121	03/03/07 15:20:28	602.000		18.56	15230.58
36181	03/03/07 16:20:28	603.000		18.56	15231.58
36241	03/03/07 17:20:28	604.000		18.56	15232.40
36301	03/03/07 18:20:28	605.000		18.56	15233.44
36361	03/03/07 19:20:28	606.000		18.56	15234.42
36421	03/03/07 20:20:28	607.000		18.56	15235.22
36481	03/03/07 21:20:28	608.000		18.56	15236.15
36541	03/03/07 22:20:28	609.000		18.56	15237.39
36601	03/03/07 23:20:28	610.000		18.56	15238.14
36661	03/03/08 00:20:28	611.000		18.56	15238.99
36721	03/03/08 01:20:28	612.000		18.56	15239.84
36781	03/03/08 02:20:28	613.000		18.56	15240.69
36841	03/03/08 03:20:28	614.000		18.56	15241.44
36901	03/03/08 04:20:28	615.000		18.56	15242.23
36961	03/03/08 05:20:28	616.000		18.56	15242.97
37021	03/03/08 06:20:28	617.000		18.56	15243.99
37081	03/03/08 07:20:28	618.000		18.56	15244.52
37141	03/03/08 08:20:28	619.000		18.56	15245.62

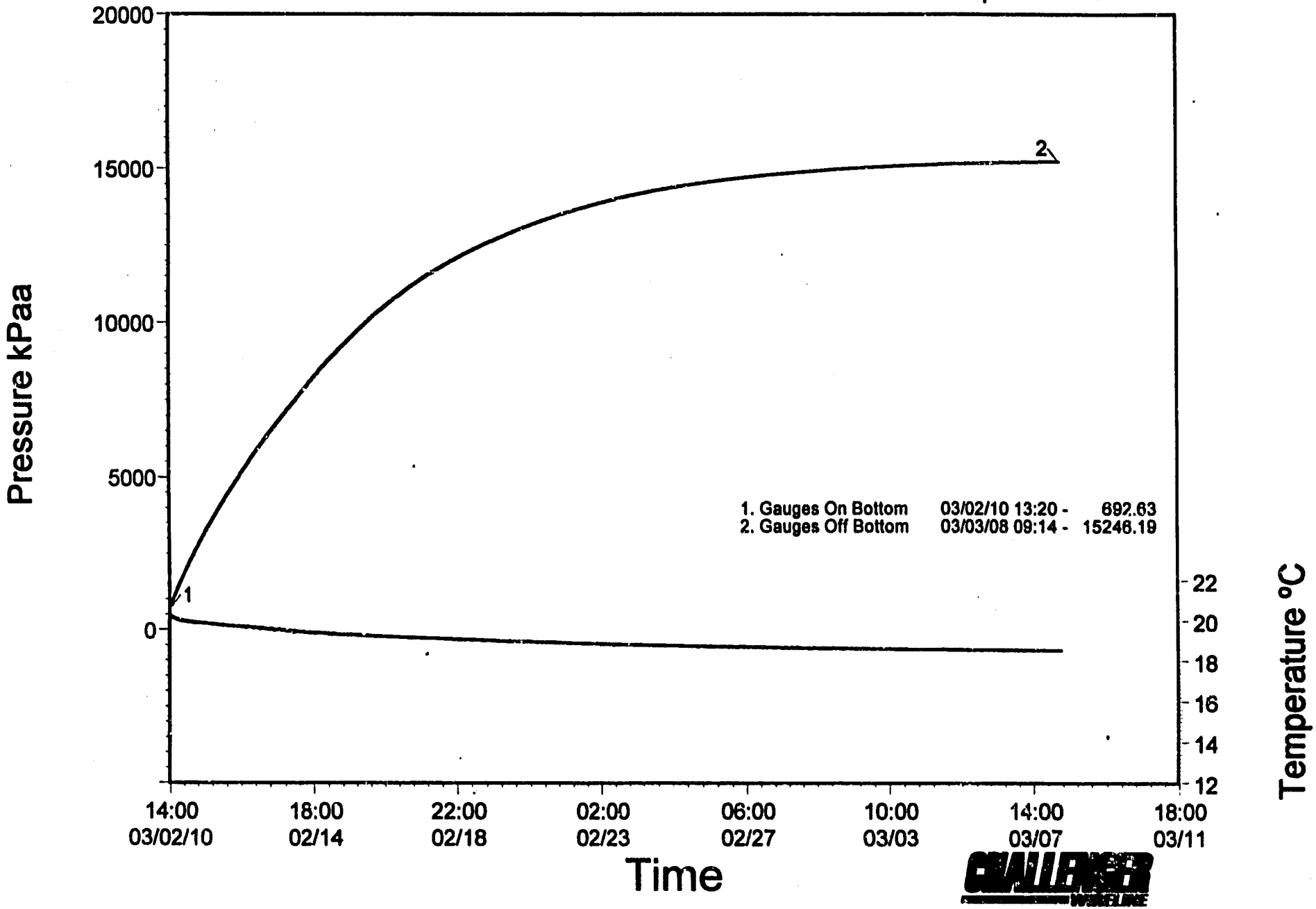
Recorders off bottom - 03/03/08 09:14:28

Canadian Natural Resources Ltd.

CNRES Behdzia Youh 0-52 (00/0-52-67.00-126.30)

Buildup
Behdzia / Mount Clark

Probe: N45 [Bottom]
Depth: 1425.25 mKB TVD



CHALLENGER WIRELINE

CHALLENGER WIRELINE
4100, 150 - 6th Ave S.W., Calgary, Alberta, T2P 3Y7

Subsurface Pressure Reports

Canadian Natural Resources Ltd.
00/0-52-67.00-126.30
03/02/10 - 03/03/08

Challenger - Silverline

ZI Pressure Recorder

1 (403) 262-6306 Calgary Head Office
1 (403) 303-2317 Reporting Dept.
1 (403) 342-2112 Red Deer
1 (780) 539-3257 Grande Prairie
1 (403) 362-2433 Brooks
1 (780) 849-4448 Slave Lake
1 (250) 785-9486 Fort St.John

CHALLENGER WIRELINE
4100, 150 - 6th Ave S.W., Calgary, Alberta, T2P 3Y7

Subsurface Pressure Measurements

Company:	Canadian Natural Resources Ltd.
Address:	2500, 855 - 2 St. S.W. Calgary, AB T2P 4J8
Well Name:	CNRES Behdzia Youh 0-52
Location:	00/0-52-67.00-126.30
Field/Pool:	Behdzia / Mount Clark
Type of Test:	Buildup
Well Status:	Gas
Producing Interval (mKB MD):	1436.00 - 1445.00
Producing Interval (mKB TVD):	1434.91 - 1443.69
Mid Point Perfs (mKB MD):	1440.50
Mid Point Perfs (mKB TVD):	1439.30
Elevations (m):	**GL:** 258.90 **KB:** 265.00
Pool datum (mSS):	
Datum Depth (mKB):	
Producing Through Tubing (mm):	73.0 **Casing:**
Probe Serial #:	M56[Tcp]
Probe Range:	93 - 20775 kPaa
Last Calibration Date:	02/10/01

Tubing Pressure	**Initial**	93	**Final**	kPaa
Casing Pressure	**Initial**	114	**Final**	kPaa

Run Depth (mKB MD):	1425.10
Run Depth (mKB TVD):	1424.25
Time On Bottom:	03/02/10 13:20:28
Time Off Bottom:	03/03/08 09:14:28
Maximum Temperature:	20.3 °C
Date of Test:	03/02/10

Comments:

Report to: Rick Meyers
57.15 mm R Nipple @ 1410.85 mGL

Ran/Pulled: Dennis Samms

CHALLENGER - WIRELINE

Canadian Natural Resources Ltd. **CNRES Behdzia Youh 0-52** **(00/0-52-67.00-126.30)**

Item #	Date	Total Acc Time	Event Acc Time	Temp C	Pres kPa
	Recorders on bottom - 03/02/10 13:20:28				
1	03/02/10 13:20:28	0.000		11.91	680.67
61	03/02/10 14:20:28	1.000		20.28	798.72
121	03/02/10 15:20:28	2.000		20.23	911.97
181	03/02/10 16:20:28	3.000		20.19	1022.21
241	03/02/10 17:20:28	4.000		20.16	1130.95
301	03/02/10 18:20:28	5.000		20.13	1238.75
361	03/02/10 19:20:28	6.000		20.11	1344.56
421	03/02/10 20:20:28	7.000		20.09	1448.45
481	03/02/10 21:20:28	8.000		20.08	1550.64
541	03/02/10 22:20:28	9.000		20.06	1651.30
601	03/02/10 23:20:28	10.000		20.05	1750.92
661	03/02/11 00:20:28	11.000		20.04	1849.39
721	03/02/11 01:20:28	12.000		20.03	1946.20
781	03/02/11 02:20:28	13.000		20.03	2041.59
841	03/02/11 03:20:28	14.000		20.00	2136.07
901	03/02/11 04:20:28	15.000		19.99	2229.50
961	03/02/11 05:20:28	16.000		19.98	2322.02
1021	03/02/11 06:20:28	17.000		19.97	2413.29
1081	03/02/11 07:20:28	18.000		19.96	2503.81
1141	03/02/11 08:20:28	19.000		19.95	2593.39
1201	03/02/11 09:20:28	20.000		19.94	2681.84
1261	03/02/11 10:20:28	21.000		19.93	2769.57
1321	03/02/11 11:20:28	22.000		19.93	2856.46
1381	03/02/11 12:20:28	23.000		19.91	2942.65
1441	03/02/11 13:20:28	24.000		19.92	3028.16
1501	03/02/11 14:20:28	25.000		19.89	3112.74
1561	03/02/11 15:20:28	26.000		19.90	3196.82
1621	03/02/11 16:20:28	27.000		19.89	3280.31
1681	03/02/11 17:20:28	28.000		19.88	3362.82
1741	03/02/11 18:20:28	29.000		19.88	3444.63
1801	03/02/11 19:20:28	30.000		19.86	3525.93
1861	03/02/11 20:20:28	31.000		19.86	3606.93
1921	03/02/11 21:20:28	32.000		19.85	3687.11
1981	03/02/11 22:20:28	33.000		19.84	3766.68
2041	03/02/11 23:20:28	34.000		19.84	3845.58
2101	03/02/12 00:20:28	35.000		19.83	3923.99
2161	03/02/12 01:20:28	36.000		19.82	4001.98
2221	03/02/12 02:20:28	37.000		19.81	4079.21
2281	03/02/12 03:20:28	38.000		19.81	4156.16
2341	03/02/12 04:20:28	39.000		19.81	4232.78
2401	03/02/12 05:20:28	40.000		19.80	4308.49
2461	03/02/12 06:20:28	41.000		19.80	4383.87
2521	03/02/12 07:20:28	42.000		19.78	4458.61
2581	03/02/12 08:20:28	43.000		19.78	4532.76
2641	03/02/12 09:20:28	44.000		19.78	4606.70
2701	03/02/12 10:20:28	45.000		19.77	4680.46
2761	03/02/12 11:20:28	46.000		19.77	4753.60
2821	03/02/12 12:20:28	47.000		19.76	4826.00
2881	03/02/12 13:20:28	48.000		19.76	4898.13
2941	03/02/12 14:20:28	49.000		19.75	4969.91

* denotes fast readings

Run depth (mKB MD): 1425.10
Run depth (mKB TVD): 1424.25

Recorder: M56

Canadian Natural Resources Ltd. | CNRES Behdzia Youh 0-52 | (00/0-52-67.00-126.30)

Item #	Date	Total Acc Time	Event Acc Time	Temp C	Pres kPaa
3001	03/02/12 15:20:28	50.000		19.75	5041.45
3061	03/02/12 16:20:28	51.000		19.74	5112.58
3121	03/02/12 17:20:28	52.000		19.74	5183.24
3181	03/02/12 18:20:28	53.000		19.74	5253.48
3241	03/02/12 19:20:28	54.000		19.73	5323.29
3301	03/02/12 20:20:28	55.000		19.73	5392.39
3361	03/02/12 21:20:28	56.000		19.73	5461.59
3421	03/02/12 22:20:28	57.000		19.72	5530.55
3481	03/02/12 23:20:28	58.000		19.72	5598.69
3541	03/02/13 00:20:28	59.000		19.70	5666.73
3601	03/02/13 01:20:28	60.000		19.69	5734.57
3661	03/02/13 02:20:28	61.000		19.70	5802.08
3721	03/02/13 03:20:28	62.000		19.69	5868.27
3781	03/02/13 04:20:28	63.000		19.68	5935.84
3841	03/02/13 05:20:28	64.000		19.66	6002.28
3901	03/02/13 06:20:28	65.000		19.68	6068.46
3961	03/02/13 07:20:28	66.000		19.67	6134.28
4021	03/02/13 08:20:28	67.000		19.65	6199.88
4081	03/02/13 09:20:28	68.000		19.63	6265.08
4141	03/02/13 10:20:28	69.000		19.62	6330.04
4201	03/02/13 11:20:28	70.000		19.60	6394.76
4261	03/02/13 12:20:28	71.000		19.65	6458.90
4321	03/02/13 13:20:28	72.000		19.62	6523.01
4381	03/02/13 14:20:28	73.000		19.60	6586.44
4441	03/02/13 15:20:28	74.000		19.57	6649.99
4501	03/02/13 16:20:28	75.000		19.60	6712.88
4561	03/02/13 17:20:28	76.000		19.61	6775.41
4621	03/02/13 18:20:28	77.000		19.57	6837.87
4681	03/02/13 19:20:28	78.000		19.56	6900.13
4741	03/02/13 20:20:28	79.000		19.56	6962.01
4801	03/02/13 21:20:28	80.000		19.53	7023.22
4861	03/02/13 22:20:28	81.000		19.55	7084.25
4921	03/02/13 23:20:28	82.000		19.53	7144.79
4981	03/02/14 00:20:28	83.000		19.51	7205.25
5041	03/02/14 01:20:28	84.000		19.54	7265.29
5101	03/02/14 02:20:28	85.000		19.51	7324.70
5161	03/02/14 03:20:28	86.000		19.51	7384.37
5221	03/02/14 04:20:28	87.000		19.47	7443.65
5281	03/02/14 05:20:28	88.000		19.51	7502.63
5341	03/02/14 06:20:28	89.000		19.50	7560.98
5401	03/02/14 07:20:28	90.000		19.48	7619.16
5461	03/02/14 08:20:28	91.000		19.46	7676.80
5521	03/02/14 09:20:28	92.000		19.46	7734.16
5581	03/02/14 10:20:28	93.000		19.46	7791.19
5641	03/02/14 11:20:28	94.000		19.46	7848.21
5701	03/02/14 12:20:28	95.000		19.44	7904.61
5761	03/02/14 13:20:28	96.000		19.43	7960.83
5821	03/02/14 14:20:28	97.000		19.43	8016.26
5881	03/02/14 15:20:28	98.000		19.41	8071.66
5941	03/02/14 16:20:28	99.000		19.41	8126.65
6001	03/02/14 17:20:28	100.000		19.42	8181.74
6061	03/02/14 18:20:28	101.000		19.41	8236.21
6121	03/02/14 19:20:28	102.000		19.39	8290.63

* denotes fast readings

Run depth (mKB MD): 1425.10
Run depth (mKB TVD): 1424.25

Recorder: M56

Canadian Natural Resources Ltd. | CNRES Behdzia Youh 0-52 | (00/0-52-67.00-126.30)

Item #	Date	Total Acc Time	Event Acc Time	Temp C	Pres kPaa
6181	03/02/14 20:20:28	103.000		19.40	8344.30
6241	03/02/14 21:20:28	104.000		19.41	8398.00
6301	03/02/14 22:20:28	105.000		19.41	8450.87
6361	03/02/14 23:20:28	106.000		19.40	8503.68
6421	03/02/15 00:20:28	107.000		19.39	8555.70
6481	03/02/15 01:20:28	108.000		19.40	8607.71
6541	03/02/15 02:20:28	109.000		19.39	8659.37
6601	03/02/15 03:20:28	110.000		19.39	8710.70
6661	03/02/15 04:20:28	111.000		19.37	8761.51
6721	03/02/15 05:20:28	112.000		19.36	8812.46
6781	03/02/15 06:20:28	113.000		19.36	8862.68
6841	03/02/15 07:20:28	114.000		19.37	8912.57
6901	03/02/15 08:20:28	115.000		19.36	8962.00
6961	03/02/15 09:20:28	116.000		19.36	9011.17
7021	03/02/15 10:20:28	117.000		19.36	9060.14
7081	03/02/15 11:20:28	118.000		19.35	9108.44
7141	03/02/15 12:20:28	119.000		19.35	9156.62
7201	03/02/15 13:20:28	120.000		19.35	9204.31
7261	03/02/15 14:20:28	121.000		19.35	9251.86
7321	03/02/15 15:20:28	122.000		19.36	9298.95
7381	03/02/15 16:20:28	123.000		19.36	9345.70
7441	03/02/15 17:20:28	124.000		19.35	9392.19
7501	03/02/15 18:20:28	125.000		19.36	9438.25
7561	03/02/15 19:20:28	126.000		19.36	9484.07
7621	03/02/15 20:20:28	127.000		19.35	9529.37
7681	03/02/15 21:20:28	128.000		19.34	9574.33
7741	03/02/15 22:20:28	129.000		19.33	9619.02
7801	03/02/15 23:20:28	130.000		19.33	9663.09
7861	03/02/16 00:20:28	131.000		19.32	9707.18
7921	03/02/16 01:20:28	132.000		19.33	9750.62
7981	03/02/16 02:20:28	133.000		19.35	9794.08
8041	03/02/16 03:20:28	134.000		19.34	9837.35
8101	03/02/16 04:20:28	135.000		19.34	9880.08
8161	03/02/16 05:20:28	136.000		19.34	9922.39
8221	03/02/16 06:20:28	137.000		19.32	9964.53
8281	03/02/16 07:20:28	138.000		19.32	10006.28
8341	03/02/16 08:20:28	139.000		19.32	10047.94
8401	03/02/16 09:20:28	140.000		19.33	10089.10
8461	03/02/16 10:20:28	141.000		19.33	10129.70
8521	03/02/16 11:20:28	142.000		19.32	10170.29
8581	03/02/16 12:20:28	143.000		19.31	10210.40
8641	03/02/16 13:20:28	144.000		19.31	10250.08
8701	03/02/16 14:20:28	145.000		19.31	10290.07
8761	03/02/16 15:20:28	146.000		19.31	10329.32
8821	03/02/16 16:20:28	147.000		19.30	10368.19
8881	03/02/16 17:20:28	148.000		19.31	10407.16
8941	03/02/16 18:20:28	149.000		19.30	10445.38
9001	03/02/16 19:20:28	150.000		19.29	10483.54
9061	03/02/16 20:20:28	151.000		19.30	10521.68
9121	03/02/16 21:20:28	152.000		19.29	10559.24
9181	03/02/16 22:20:28	153.000		19.28	10596.34
9241	03/02/16 23:20:28	154.000		19.28	10633.72
9301	03/02/17 00:20:28	155.000		19.28	10670.43

* denotes fast readings

Run depth (mKB MD): 1425.10
Run depth (mKB TVD): 1424.25

Recorder: M56

Canadian Natural Resources Ltd. | CNRES Behdzia Youh 0-52 | (00/0-52-67.00-126.30)

Item #	Date	Total Acc Time	Event Acc Time	Temp C	Pres kPaa
9361	03/02/17 01:20:28	156.000		19.27	10706.73
9421	03/02/17 02:20:28	157.000		19.27	10743.26
9481	03/02/17 03:20:28	158.000		19.26	10779.08
9541	03/02/17 04:20:28	159.000		19.27	10814.60
9601	03/02/17 05:20:28	160.000		19.26	10850.10
9661	03/02/17 06:20:28	161.000		19.25	10885.10
9721	03/02/17 07:20:28	162.000		19.26	10919.84
9781	03/02/17 08:20:28	163.000		19.25	10954.45
9841	03/02/17 09:20:28	164.000		19.24	10989.01
9901	03/02/17 10:20:28	165.000		19.25	11023.08
9961	03/02/17 11:20:28	166.000		19.25	11056.82
10021	03/02/17 12:20:28	167.000		19.24	11090.61
10081	03/02/17 13:20:28	168.000		19.24	11123.86
10141	03/02/17 14:20:28	169.000		19.24	11156.90
10201	03/02/17 15:20:28	170.000		19.23	11189.90
10261	03/02/17 16:20:28	171.000		19.22	11222.38
10321	03/02/17 17:20:28	172.000		19.22	11254.51
10381	03/02/17 18:20:28	173.000		19.22	11286.58
10441	03/02/17 19:20:28	174.000		19.22	11318.44
10501	03/02/17 20:20:28	175.000		19.22	11350.08
10561	03/02/17 21:20:28	176.000		19.21	11381.26
10621	03/02/17 22:20:28	177.000		19.20	11412.38
10681	03/02/17 23:20:28	178.000		19.20	11443.25
10741	03/02/18 00:20:28	179.000		19.20	11473.73
10801	03/02/18 01:20:28	180.000		19.19	11503.93
10861	03/02/18 02:20:28	181.000		19.20	11534.04
10921	03/02/18 03:20:28	182.000		19.18	11563.92
10981	03/02/18 04:20:28	183.000		19.19	11593.42
11041	03/02/18 05:20:28	184.000		19.19	11622.85
11101	03/02/18 06:20:28	185.000		19.18	11652.12
11161	03/02/18 07:20:28	186.000		19.18	11681.37
11221	03/02/18 08:20:28	187.000		19.18	11709.96
11281	03/02/18 09:20:28	188.000		19.17	11738.64
11341	03/02/18 10:20:28	189.000		19.16	11766.85
11401	03/02/18 11:20:28	190.000		19.17	11795.23
11461	03/02/18 12:20:28	191.000		19.15	11823.09
11521	03/02/18 13:20:28	192.000		19.16	11850.87
11581	03/02/18 14:20:28	193.000		19.17	11878.47
11641	03/02/18 15:20:28	194.000		19.15	11905.81
11701	03/02/18 16:20:28	195.000		19.16	11932.94
11761	03/02/18 17:20:28	196.000		19.16	11959.84
11821	03/02/18 18:20:28	197.000		19.17	11986.76
11881	03/02/18 19:20:28	198.000		19.17	12013.22
11941	03/02/18 20:20:28	199.000		19.15	12039.47
12001	03/02/18 21:20:28	200.000		19.14	12065.53
12061	03/02/18 22:20:28	201.000		19.15	12091.43
12121	03/02/18 23:20:28	202.000		19.14	12116.97
12181	03/02/19 00:20:28	203.000		19.14	12142.60
12241	03/02/19 01:20:28	204.000		19.14	12167.97
12301	03/02/19 02:20:28	205.000		19.13	12193.06
12361	03/02/19 03:20:28	206.000		19.12	12218.13
12421	03/02/19 04:20:28	207.000		19.12	12242.79
12481	03/02/19 05:20:28	208.000		19.12	12267.63

* denotes fast readings

Run depth (mKB MD): 1425.10
Run depth (mKB TVD): 1424.25

Recorder: M56

Canadian Natural Resources Ltd. **CNRES Behdzia Youh 0-52** **(00/0-52-67.00-126.30)**

Item #	Date	Total Acc Time	Event Acc Time	Temp C	Pres kPaa
12541	03/02/19 06:20:28	209.000		19.12	12291.84
12601	03/02/19 07:20:28	210.000		19.12	12315.97
12661	03/02/19 08:20:28	211.000		19.11	12339.79
12721	03/02/19 09:20:28	212.000		19.12	12363.55
12781	03/02/19 10:20:28	213.000		19.12	12387.18
12841	03/02/19 11:20:28	214.000		19.11	12410.54
12901	03/02/19 12:20:28	215.000		19.11	12433.78
12961	03/02/19 13:20:28	216.000		19.11	12456.76
13021	03/02/19 14:20:28	217.000		19.10	12479.66
13081	03/02/19 15:20:28	218.000		19.10	12502.70
13141	03/02/19 16:20:28	219.000		19.09	12525.08
13201	03/02/19 17:20:28	220.000		19.09	12547.42
13261	03/02/19 18:20:28	221.000		19.10	12569.80
13321	03/02/19 19:20:28	222.000		19.08	12591.38
13381	03/02/19 20:20:28	223.000		19.08	12613.18
13441	03/02/19 21:20:28	224.000		19.21	12636.87
13501	03/02/19 22:20:28	225.000		19.22	12658.51
13561	03/02/19 23:20:28	226.000		19.07	12677.70
13621	03/02/20 00:20:28	227.000		19.15	12700.72
13681	03/02/20 01:20:28	228.000		19.07	12720.25
13741	03/02/20 02:20:28	229.000		19.07	12742.13
13801	03/02/20 03:20:28	230.000		19.05	12761.80
13861	03/02/20 04:20:28	231.000		19.06	12782.48
13921	03/02/20 05:20:28	232.000		19.04	12802.80
13981	03/02/20 06:20:28	233.000		19.03	12823.05
14041	03/02/20 07:20:28	234.000		19.04	12843.17
14101	03/02/20 08:20:28	235.000		19.03	12863.33
14161	03/02/20 09:20:28	236.000		19.04	12883.22
14221	03/02/20 10:20:28	237.000		19.06	12904.26
14281	03/02/20 11:20:28	238.000		19.05	12923.40
14341	03/02/20 12:20:28	239.000		19.04	12942.46
14401	03/02/20 13:20:28	240.000		19.03	12961.72
14461	03/02/20 14:20:28	241.000		19.03	12980.38
14521	03/02/20 15:20:28	242.000		19.03	12999.68
14581	03/02/20 16:20:28	243.000		19.02	13017.92
14641	03/02/20 17:20:28	244.000		19.03	13037.20
14701	03/02/20 18:20:28	245.000		19.03	13055.81
14761	03/02/20 19:20:28	246.000		19.03	13073.94
14821	03/02/20 20:20:28	247.000		19.05	13092.50
14881	03/02/20 21:20:28	248.000		19.06	13110.68
14941	03/02/20 22:20:28	249.000		19.05	13128.65
15001	03/02/20 23:20:28	250.000		19.06	13146.48
15061	03/02/21 00:20:28	251.000		19.06	13164.19
15121	03/02/21 01:20:28	252.000		19.03	13181.13
15181	03/02/21 02:20:28	253.000		19.05	13198.82
15241	03/02/21 03:20:28	254.000		19.04	13215.70
15301	03/02/21 04:20:28	255.000		19.04	13233.09
15361	03/02/21 05:20:28	256.000		19.03	13250.19
15421	03/02/21 06:20:28	257.000		19.02	13266.79
15481	03/02/21 07:20:28	258.000		19.02	13283.43
15541	03/02/21 08:20:28	259.000		19.01	13300.01
15601	03/02/21 09:20:28	260.000		19.03	13316.62
15661	03/02/21 10:20:28	261.000		19.03	13333.05

* denotes fast readings

Run depth (mKB MD): 1425.10
Run depth (mKB TVD): 1424.25

Recorder: M56

Canadian Natural Resources Ltd. | CNRES Behdzia Youh 0-52 | (00/0-52-67.00-126.30)

Item #	Date	Total Acc Time	Event Acc Time	Temp C	Pres kPaa
15721	03/02/21 11:20:28	262.000		19.04	13349.57
15781	03/02/21 12:20:28	263.000		19.03	13365.56
15841	03/02/21 13:20:28	264.000		19.02	13381.57
15901	03/02/21 14:20:28	265.000		19.02	13397.58
15961	03/02/21 15:20:28	266.000		19.01	13413.26
16021	03/02/21 16:20:28	267.000		19.01	13428.79
16081	03/02/21 17:20:28	268.000		19.01	13444.19
16141	03/02/21 18:20:28	269.000		19.00	13459.25
16201	03/02/21 19:20:28	270.000		19.00	13474.66
16261	03/02/21 20:20:28	271.000		19.00	13489.76
16321	03/02/21 21:20:28	272.000		18.99	13504.72
16381	03/02/21 22:20:28	273.000		18.99	13519.79
16441	03/02/21 23:20:28	274.000		18.99	13534.54
16501	03/02/22 00:20:28	275.000		18.99	13549.32
16561	03/02/22 01:20:28	276.000		19.00	13563.87
16621	03/02/22 02:20:28	277.000		18.98	13578.02
16681	03/02/22 03:20:28	278.000		18.97	13592.45
16741	03/02/22 04:20:28	279.000		18.98	13606.85
16801	03/02/22 05:20:28	280.000		18.98	13620.94
16861	03/02/22 06:20:28	281.000		18.97	13635.23
16921	03/02/22 07:20:28	282.000		18.97	13649.24
16981	03/02/22 08:20:28	283.000		18.97	13662.97
17041	03/02/22 09:20:28	284.000		18.96	13676.61
17101	03/02/22 10:20:28	285.000		18.95	13690.07
17161	03/02/22 11:20:28	286.000		18.95	13703.76
17221	03/02/22 12:20:28	287.000		18.93	13717.04
17281	03/02/22 13:20:28	288.000		18.94	13730.57
17341	03/02/22 14:20:28	289.000		18.95	13743.88
17401	03/02/22 15:20:28	290.000		18.95	13756.95
17461	03/02/22 16:20:28	291.000		18.95	13770.30
17521	03/02/22 17:20:28	292.000		18.94	13783.02
17581	03/02/22 18:20:28	293.000		18.96	13796.23
17641	03/02/22 19:20:28	294.000		18.96	13808.75
17701	03/02/22 20:20:28	295.000		18.95	13820.97
17761	03/02/22 21:20:28	296.000		18.93	13833.13
17821	03/02/22 22:20:28	297.000		18.94	13845.57
17881	03/02/22 23:20:28	298.000		18.94	13858.11
17941	03/02/23 00:20:28	299.000		18.93	13870.04
18001	03/02/23 01:20:28	300.000		18.94	13882.35
18061	03/02/23 02:20:28	301.000		18.93	13894.51
18121	03/02/23 03:20:28	302.000		18.95	13906.63
18181	03/02/23 04:20:28	303.000		18.93	13918.11
18241	03/02/23 05:20:28	304.000		18.92	13929.82
18301	03/02/23 06:20:28	305.000		18.93	13941.64
18361	03/02/23 07:20:28	306.000		18.93	13953.25
18421	03/02/23 08:20:28	307.000		18.93	13964.89
18481	03/02/23 09:20:28	308.000		18.92	13976.19
18541	03/02/23 10:20:28	309.000		18.92	13987.14
18601	03/02/23 11:20:28	310.000		18.91	13998.22
18661	03/02/23 12:20:28	311.000		18.92	14009.82
18721	03/02/23 13:20:28	312.000		18.91	14020.80
18781	03/02/23 14:20:28	313.000		18.90	14031.57
18841	03/02/23 15:20:28	314.000		18.90	14042.76

* denotes fast readings

Run depth (mKB MD): 1425.10
Run depth (mKB TVD): 1424.25

Recorder: M56

Canadian Natural Resources Ltd. **CNRES Bełdzia Youh 0-52** **(00/0-52-67.00-126.30)**

Item #	Date	Total Acc Time	Event Acc Time	Temp C	Pres kPaa
18901	03/02/23 16:20:28	315.000		18.90	14053.59
18961	03/02/23 17:20:28	316.000		18.89	14063.94
19021	03/02/23 18:20:28	317.000		18.89	14074.87
19081	03/02/23 19:20:28	318.000		18.89	14085.21
19141	03/02/23 20:20:28	319.000		18.90	14096.00
19201	03/02/23 21:20:28	320.000		18.90	14106.41
19261	03/02/23 22:20:28	321.000		18.88	14116.29
19321	03/02/23 23:20:28	322.000		18.89	14126.86
19381	03/02/24 00:20:28	323.000		18.90	14136.94
19441	03/02/24 01:20:28	324.000		18.88	14146.86
19501	03/02/24 02:20:28	325.000		18.88	14156.79
19561	03/02/24 03:20:28	326.000		18.89	14167.03
19621	03/02/24 04:20:28	327.000		18.89	14177.11
19681	03/02/24 05:20:28	328.000		18.89	14186.49
19741	03/02/24 06:20:28	329.000		18.88	14195.97
19801	03/02/24 07:20:28	330.000		18.88	14205.82
19861	03/02/24 08:20:28	331.000		18.87	14215.11
19921	03/02/24 09:20:28	332.000		18.88	14224.92
19981	03/02/24 10:20:28	333.000		18.87	14234.01
20041	03/02/24 11:20:28	334.000		18.88	14243.49
20101	03/02/24 12:20:28	335.000		18.86	14252.50
20161	03/02/24 13:20:28	336.000		18.86	14261.63
20221	03/02/24 14:20:28	337.000		18.87	14270.72
20281	03/02/24 15:20:28	338.000		18.87	14280.03
20341	03/02/24 16:20:28	339.000		18.86	14288.70
20401	03/02/24 17:20:28	340.000		18.86	14297.67
20461	03/02/24 18:20:28	341.000		18.89	14306.75
20521	03/02/24 19:20:28	342.000		18.88	14315.58
20581	03/02/24 20:20:28	343.000		18.88	14324.17
20641	03/02/24 21:20:28	344.000		18.87	14332.65
20701	03/02/24 22:20:28	345.000		18.88	14341.20
20761	03/02/24 23:20:28	346.000		18.88	14349.75
20821	03/02/25 00:20:28	347.000		18.87	14357.96
20881	03/02/25 01:20:28	348.000		18.87	14366.30
20941	03/02/25 02:20:28	349.000		18.87	14374.42
21001	03/02/25 03:20:28	350.000		18.87	14382.81
21061	03/02/25 04:20:28	351.000		18.85	14390.39
21121	03/02/25 05:20:28	352.000		18.87	14398.73
21181	03/02/25 06:20:28	353.000		18.86	14406.47
21241	03/02/25 07:20:28	354.000		18.87	14414.40
21301	03/02/25 08:20:28	355.000		18.86	14422.16
21361	03/02/25 09:20:28	356.000		18.86	14430.18
21421	03/02/25 10:20:28	357.000		18.86	14437.65
21481	03/02/25 11:20:28	358.000		18.84	14445.11
21541	03/02/25 12:20:28	359.000		18.86	14453.37
21601	03/02/25 13:20:28	360.000		18.85	14460.74
21661	03/02/25 14:20:28	361.000		18.85	14468.34
21721	03/02/25 15:20:28	362.000		18.85	14475.68
21781	03/02/25 16:20:28	363.000		18.85	14483.22
21841	03/02/25 17:20:28	364.000		18.85	14490.09
21901	03/02/25 18:20:28	365.000		18.85	14497.58
21961	03/02/25 19:20:28	366.000		18.85	14504.62
22021	03/02/25 20:20:28	367.000		18.83	14511.58

* denotes fast readings

Run depth (mKB MD): 1425.10
Run depth (mKB TVD): 1424.25

Recorder: M56

Canadian Natural Resources Ltd. CNRES Beldzia Youh 0-52 (00/0-52-67.00-126.30)

Item #	Date	Total Acc Time	Event Acc Time	Temp C	Pres kPaa
22081	03/02/25 21:20:28	368.000		18.85	14518.82
22141	03/02/25 22:20:28	369.000		18.84	14525.53
22201	03/02/25 23:20:28	370.000		18.84	14532.31
22261	03/02/26 00:20:28	371.000		18.83	14538.92
22321	03/02/26 01:20:28	372.000		18.83	14545.79
22381	03/02/26 02:20:28	373.000		18.81	14552.14
22441	03/02/26 03:20:28	374.000		18.83	14559.24
22501	03/02/26 04:20:28	375.000		18.84	14566.15
22561	03/02/26 05:20:28	376.000		18.83	14572.45
22621	03/02/26 06:20:28	377.000		18.83	14578.97
22681	03/02/26 07:20:28	378.000		18.82	14585.44
22741	03/02/26 08:20:28	379.000		18.83	14592.14
22801	03/02/26 09:20:28	380.000		18.83	14598.59
22861	03/02/26 10:20:28	381.000		18.81	14604.55
22921	03/02/26 11:20:28	382.000		18.81	14610.94
22981	03/02/26 12:20:28	383.000		18.82	14617.46
23041	03/02/26 13:20:28	384.000		18.81	14623.55
23101	03/02/26 14:20:28	385.000		18.82	14629.71
23161	03/02/26 15:20:28	386.000		18.81	14635.76
23221	03/02/26 16:20:28	387.000		18.80	14641.44
23281	03/02/26 17:20:28	388.000		18.80	14647.41
23341	03/02/26 18:20:28	389.000		18.81	14653.61
23401	03/02/26 19:20:28	390.000		18.80	14658.96
23461	03/02/26 20:20:28	391.000		18.81	14665.03
23521	03/02/26 21:20:28	392.000		18.80	14670.42
23581	03/02/26 22:20:28	393.000		18.80	14676.22
23641	03/02/26 23:20:28	394.000		18.79	14681.58
23701	03/02/27 00:20:28	395.000		18.81	14687.48
23761	03/02/27 01:20:28	396.000		18.80	14692.87
23821	03/02/27 02:20:28	397.000		18.79	14698.24
23881	03/02/27 03:20:28	398.000		18.80	14703.41
23941	03/02/27 04:20:28	399.000		18.80	14708.73
24001	03/02/27 05:20:28	400.000		18.79	14714.08
24061	03/02/27 06:20:28	401.000		18.79	14719.48
24121	03/02/27 07:20:28	402.000		18.78	14724.64
24181	03/02/27 08:20:28	403.000		18.80	14730.26
24241	03/02/27 09:20:28	404.000		18.78	14735.27
24301	03/02/27 10:20:28	405.000		18.78	14740.44
24361	03/02/27 11:20:28	406.000		18.78	14745.66
24421	03/02/27 12:20:28	407.000		18.76	14750.76
24481	03/02/27 13:20:28	408.000		18.78	14756.27
24541	03/02/27 14:20:28	409.000		18.79	14761.35
24601	03/02/27 15:20:28	410.000		18.79	14766.27
24661	03/02/27 16:20:28	411.000		18.79	14771.09
24721	03/02/27 17:20:28	412.000		18.78	14775.98
24781	03/02/27 18:20:28	413.000		18.77	14780.49
24841	03/02/27 19:20:28	414.000		18.77	14785.25
24901	03/02/27 20:20:28	415.000		18.76	14789.78
24961	03/02/27 21:20:28	416.000		18.77	14794.56
25021	03/02/27 22:20:28	417.000		18.77	14799.31
25081	03/02/27 23:20:28	418.000		18.78	14803.96
25141	03/02/28 00:20:28	419.000		18.76	14808.11
25201	03/02/28 01:20:28	420.000		18.75	14812.42

* denotes fast readings

Run depth (mKB MD): 1425.10
Run depth (mKB TVD): 1424.25

Recorder: M56

Canadian Natural Resources Ltd. | CNRES Behdzia Youh 0-52 | (00/0-52-67.00-126.30)

Item #	Date	Total Acc Time	Event Acc Time	Temp C	Pres kPaa
25261	03/02/28 02:20:28	421.000		18.76	14817.06
25321	03/02/28 03:20:28	422.000		18.75	14821.25
25381	03/02/28 04:20:28	423.000		18.76	14825.93
25441	03/02/28 05:20:28	424.000		18.77	14830.58
25501	03/02/28 06:20:28	425.000		18.76	14834.63
25561	03/02/28 07:20:28	426.000		18.74	14838.54
25621	03/02/28 08:20:28	427.000		18.75	14842.98
25681	03/02/28 09:20:28	428.000		18.77	14847.39
25741	03/02/28 10:20:28	429.000		18.76	14851.37
25801	03/02/28 11:20:28	430.000		18.77	14856.05
25861	03/02/28 12:20:28	431.000		18.75	14859.78
25921	03/02/28 13:20:28	432.000		18.75	14863.88
25981	03/02/28 14:20:28	433.000		18.75	14868.23
26041	03/02/28 15:20:28	434.000		18.75	14872.37
26101	03/02/28 16:20:28	435.000		18.74	14876.15
26161	03/02/28 17:20:28	436.000		18.77	14880.48
26221	03/02/28 18:20:28	437.000		18.74	14883.97
26281	03/02/28 19:20:28	438.000		18.74	14887.65
26341	03/02/28 20:20:28	439.000		18.71	14890.95
26401	03/02/28 21:20:28	440.000		18.74	14895.83
26461	03/02/28 22:20:28	441.000		18.74	14899.77
26521	03/02/28 23:20:28	442.000		18.73	14903.16
26581	03/03/01 00:20:28	443.000		18.73	14906.95
26641	03/03/01 01:20:28	444.000		18.74	14910.81
26701	03/03/01 02:20:28	445.000		18.74	14914.63
26761	03/03/01 03:20:28	446.000		18.73	14917.83
26821	03/03/01 04:20:28	447.000		18.72	14921.43
26881	03/03/01 05:20:28	448.000		18.73	14925.21
26941	03/03/01 06:20:28	449.000		18.72	14928.71
27001	03/03/01 07:20:28	450.000		18.75	14932.67
27061	03/03/01 08:20:28	451.000		18.73	14935.98
27121	03/03/01 09:20:28	452.000		18.74	14939.59
27181	03/03/01 10:20:28	453.000		18.72	14942.66
27241	03/03/01 11:20:28	454.000		18.72	14946.02
27301	03/03/01 12:20:28	455.000		18.72	14949.52
27361	03/03/01 13:20:28	456.000		18.72	14952.94
27421	03/03/01 14:20:28	457.000		18.72	14956.15
27481	03/03/01 15:20:28	458.000		18.73	14959.89
27541	03/03/01 16:20:28	459.000		18.72	14962.81
27601	03/03/01 17:20:28	460.000		18.71	14966.14
27661	03/03/01 18:20:28	461.000		18.72	14969.44
27721	03/03/01 19:20:28	462.000		18.70	14972.02
27781	03/03/01 20:20:28	463.000		18.70	14975.35
27841	03/03/01 21:20:28	464.000		18.70	14978.31
27901	03/03/01 22:20:28	465.000		18.70	14981.44
27961	03/03/01 23:20:28	466.000		18.72	14984.87
28021	03/03/02 00:20:28	467.000		18.71	14987.83
28081	03/03/02 01:20:28	468.000		18.70	14990.51
28141	03/03/02 02:20:28	469.000		18.71	14993.87
28201	03/03/02 03:20:28	470.000		18.69	14996.46
28261	03/03/02 04:20:28	471.000		18.69	14998.97
28321	03/03/02 05:20:28	472.000		18.70	15002.50
28381	03/03/02 06:20:28	473.000		18.70	15005.18

* denotes fast readings

Run depth (mKB MD): 1425.10
Run depth (mKB TVD): 1424.25

Recorder: M56

Canadian Natural Resources Ltd. | CNRES Behdzia Youh 0-52 | (00/0-52-67.00-126.30)

Item #	Date	Total Acc Time	Event Acc Time	Temp C	Pres kPaa
28441	03/03/02 07:20:28	474.000		18.71	15008.10
28501	03/03/02 08:20:28	475.000		18.70	15010.76
28561	03/03/02 09:20:28	476.000		18.69	15013.52
28621	03/03/02 10:20:28	477.000		18.71	15016.67
28681	03/03/02 11:20:28	478.000		18.70	15019.36
28741	03/03/02 12:20:28	479.000		18.71	15022.45
28801	03/03/02 13:20:28	480.000		18.71	15025.18
28861	03/03/02 14:20:28	481.000		18.70	15027.67
28921	03/03/02 15:20:28	482.000		18.68	15030.06
28981	03/03/02 16:20:28	483.000		18.69	15032.97
29041	03/03/02 17:20:28	484.000		18.69	15035.40
29101	03/03/02 18:20:28	485.000		18.70	15038.17
29161	03/03/02 19:20:28	486.000		18.69	15040.71
29221	03/03/02 20:20:28	487.000		18.70	15043.33
29281	03/03/02 21:20:28	488.000		18.70	15046.03
29341	03/03/02 22:20:28	489.000		18.67	15047.86
29401	03/03/02 23:20:28	490.000		18.69	15050.81
29461	03/03/03 00:20:28	491.000		18.67	15052.75
29521	03/03/03 01:20:28	492.000		18.67	15055.19
29581	03/03/03 02:20:28	493.000		18.67	15057.64
29641	03/03/03 03:20:28	494.000		18.68	15060.04
29701	03/03/03 04:20:28	495.000		18.67	15062.29
29761	03/03/03 05:20:28	496.000		18.68	15064.70
29821	03/03/03 06:20:28	497.000		18.67	15066.99
29881	03/03/03 07:20:28	498.000		18.68	15069.23
29941	03/03/03 08:20:28	499.000		18.67	15071.48
30001	03/03/03 09:20:28	500.000		18.68	15074.05
30061	03/03/03 10:20:28	501.000		18.69	15076.51
30121	03/03/03 11:20:28	502.000		18.67	15078.57
30181	03/03/03 12:20:28	503.000		18.68	15081.22
30241	03/03/03 13:20:28	504.000		18.67	15083.39
30301	03/03/03 14:20:28	505.000		18.66	15085.41
30361	03/03/03 15:20:28	506.000		18.65	15087.53
30421	03/03/03 16:20:28	507.000		18.66	15089.96
30481	03/03/03 17:20:28	508.000		18.66	15092.23
30541	03/03/03 18:20:28	509.000		18.67	15094.19
30601	03/03/03 19:20:28	510.000		18.66	15096.09
30661	03/03/03 20:20:28	511.000		18.65	15098.08
30721	03/03/03 21:20:28	512.000		18.65	15100.11
30781	03/03/03 22:20:28	513.000		18.66	15102.33
30841	03/03/03 23:20:28	514.000		18.65	15104.21
30901	03/03/04 00:20:28	515.000		18.65	15106.12
30961	03/03/04 01:20:28	516.000		18.64	15108.02
31021	03/03/04 02:20:28	517.000		18.64	15109.95
31081	03/03/04 03:20:28	518.000		18.64	15111.86
31141	03/03/04 04:20:28	519.000		18.63	15113.73
31201	03/03/04 05:20:28	520.000		18.63	15115.68
31261	03/03/04 06:20:28	521.000		18.64	15117.61
31321	03/03/04 07:20:28	522.000		18.63	15119.40
31381	03/03/04 08:20:28	523.000		18.63	15121.27
31441	03/03/04 09:20:28	524.000		18.63	15122.94
31501	03/03/04 10:20:28	525.000		18.62	15124.74
31561	03/03/04 11:20:28	526.000		18.62	15126.69

* denotes fast readings

Run depth (mKB MD): 1425.10
Run depth (mKB TVD): 1424.25

Recorder: M56

Canadian Natural Resources Ltd. | CNRES Behdzia Youh 0-52 | (00/0-52-67.00-126.30)

Item #	Date	Total Acc Time	Event Acc Time	Temp C	Pres kPaa
31621	03/03/04 12:20:28	527.000		18.63	15128.72
31681	03/03/04 13:20:28	528.000		18.62	15130.54
31741	03/03/04 14:20:28	529.000		18.62	15132.23
31801	03/03/04 15:20:28	530.000		18.62	15134.26
31861	03/03/04 16:20:28	531.000		18.63	15136.23
31921	03/03/04 17:20:28	532.000		18.62	15137.74
31981	03/03/04 18:20:28	533.000		18.62	15139.40
32041	03/03/04 19:20:28	534.000		18.61	15140.98
32101	03/03/04 20:20:28	535.000		18.61	15142.61
32161	03/03/04 21:20:28	536.000		18.62	15144.15
32221	03/03/04 22:20:28	537.000		18.61	15145.69
32281	03/03/04 23:20:28	538.000		18.62	15147.39
32341	03/03/05 00:20:28	539.000		18.62	15148.90
32401	03/03/05 01:20:28	540.000		18.61	15150.38
32461	03/03/05 02:20:28	541.000		18.62	15152.13
32521	03/03/05 03:20:28	542.000		18.61	15153.56
32581	03/03/05 04:20:28	543.000		18.61	15154.99
32641	03/03/05 05:20:28	544.000		18.61	15156.53
32701	03/03/05 06:20:28	545.000		18.61	15158.09
32761	03/03/05 07:20:28	546.000		18.61	15159.46
32821	03/03/05 08:20:28	547.000		18.61	15161.07
32881	03/03/05 09:20:28	548.000		18.60	15162.53
32941	03/03/05 10:20:28	549.000		18.61	15164.18
33001	03/03/05 11:20:28	550.000		18.60	15165.42
33061	03/03/05 12:20:28	551.000		18.61	15166.89
33121	03/03/05 13:20:28	552.000		18.60	15168.46
33181	03/03/05 14:20:28	553.000		18.60	15169.88
33241	03/03/05 15:20:28	554.000		18.61	15171.53
33301	03/03/05 16:20:28	555.000		18.60	15172.76
33361	03/03/05 17:20:28	556.000		18.60	15174.16
33421	03/03/05 18:20:28	557.000		18.60	15175.60
33481	03/03/05 19:20:28	558.000		18.60	15176.89
33541	03/03/05 20:20:28	559.000		18.60	15178.30
33601	03/03/05 21:20:28	560.000		18.60	15179.63
33661	03/03/05 22:20:28	561.000		18.59	15181.04
33721	03/03/05 23:20:28	562.000		18.59	15182.32
33781	03/03/06 00:20:28	563.000		18.60	15183.69
33841	03/03/06 01:20:28	564.000		18.60	15185.04
33901	03/03/06 02:20:28	565.000		18.60	15186.28
33961	03/03/06 03:20:28	566.000		18.60	15187.51
34021	03/03/06 04:20:28	567.000		18.59	15188.86
34081	03/03/06 05:20:28	568.000		18.60	15190.22
34141	03/03/06 06:20:28	569.000		18.60	15191.51
34201	03/03/06 07:20:28	570.000		18.60	15192.78
34261	03/03/06 08:20:28	571.000		18.59	15193.99
34321	03/03/06 09:20:28	572.000		18.59	15195.05
34381	03/03/06 10:20:28	573.000		18.60	15196.55
34441	03/03/06 11:20:28	574.000		18.60	15197.78
34501	03/03/06 12:20:28	575.000		18.60	15198.98
34561	03/03/06 13:20:28	576.000		18.60	15200.25
34621	03/03/06 14:20:28	577.000		18.60	15201.53
34681	03/03/06 15:20:28	578.000		18.59	15202.56
34741	03/03/06 16:20:28	579.000		18.59	15203.84

* denotes fast readings

Run depth (mKB MD): 1425.10
Run depth (mKB TVD): 1424.25

Recorder: M56

Canadian Natural Resources Ltd. **CNRES Behdzia Youh 0-52** **(00/0-52-67.00-126.30)**

Item #	Date	Total Acc Time	Event Acc Time	Temp C	Pres kPaa
34801	03/03/06 17:20:28	580.000		18.59	15204.88
34861	03/03/06 18:20:28	581.000		18.59	15206.09
34921	03/03/06 19:20:28	582.000		18.59	15207.24
34981	03/03/06 20:20:28	583.000		18.58	15208.14
35041	03/03/06 21:20:28	584.000		18.59	15209.14
35101	03/03/06 22:20:28	585.000		18.59	15210.07
35161	03/03/06 23:20:28	586.000		18.59	15210.87
35221	03/03/07 00:20:28	587.000		18.59	15212.08
35281	03/03/07 01:20:28	588.000		18.58	15212.95
35341	03/03/07 02:20:28	589.000		18.59	15213.94
35401	03/03/07 03:20:28	590.000		18.58	15214.91
35461	03/03/07 04:20:28	591.000		18.59	15215.95
35521	03/03/07 05:20:28	592.000		18.58	15217.02
35581	03/03/07 06:20:28	593.000		18.58	15217.89
35641	03/03/07 07:20:28	594.000		18.58	15218.90
35701	03/03/07 08:20:28	595.000		18.58	15219.94
35761	03/03/07 09:20:28	596.000		18.59	15221.28
35821	03/03/07 10:20:28	597.000		18.58	15222.31
35881	03/03/07 11:20:28	598.000		18.58	15223.19
35941	03/03/07 12:20:28	599.000		18.57	15224.18
36001	03/03/07 13:20:28	600.000		18.57	15225.23
36061	03/03/07 14:20:28	601.000		18.58	15226.50
36121	03/03/07 15:20:28	602.000		18.58	15227.57
36181	03/03/07 16:20:28	603.000		18.58	15228.50
36241	03/03/07 17:20:28	604.000		18.57	15229.37
36301	03/03/07 18:20:28	605.000		18.59	15230.54
36361	03/03/07 19:20:28	606.000		18.58	15231.34
36421	03/03/07 20:20:28	607.000		18.58	15232.32
36481	03/03/07 21:20:28	608.000		18.57	15233.00
36541	03/03/07 22:20:28	609.000		18.58	15234.29
36601	03/03/07 23:20:28	610.000		18.58	15235.02
36661	03/03/08 00:20:28	611.000		18.57	15235.80
36721	03/03/08 01:20:28	612.000		18.57	15236.74
36781	03/03/08 02:20:28	613.000		18.57	15237.70
36841	03/03/08 03:20:28	614.000		18.58	15238.64
36901	03/03/08 04:20:28	615.000		18.57	15239.34
36961	03/03/08 05:20:28	616.000		18.58	15240.38
37021	03/03/08 06:20:28	617.000		18.57	15241.01
37081	03/03/08 07:20:28	618.000		18.57	15241.91
37141	03/03/08 08:20:28	619.000		18.57	15242.64

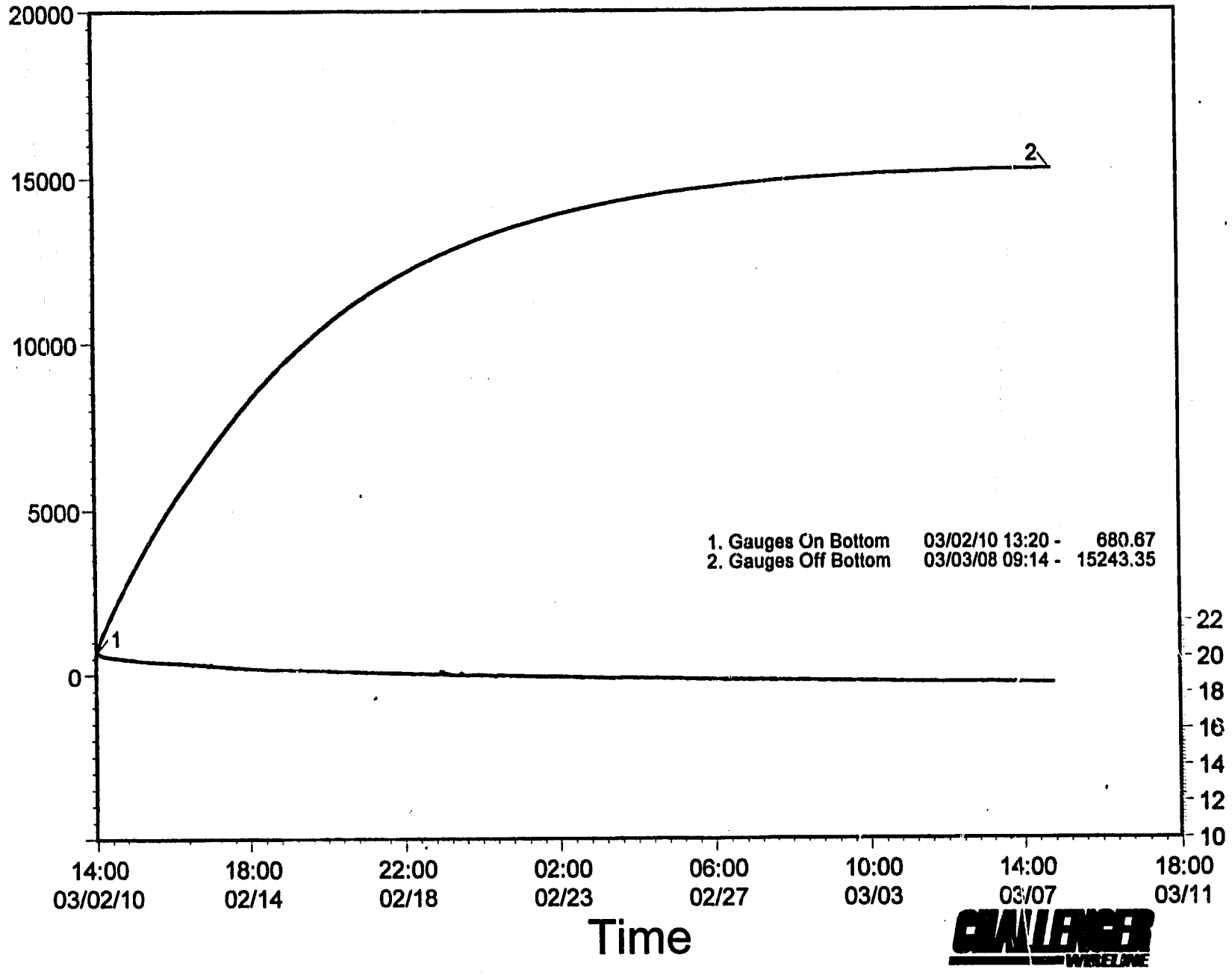
Recorders off bottom - 03/03/08 09:14:28

Canadian Natural Resources Ltd.

CNRES Behdzia Youh 0-52 (00/0-52-67.00-126.30)

Buildup
Behdzia / Mount Clark

Probe: M56 [Top]
Depth: 1424.25 mKB TVD



CHALLENGER WIRELINE

INLINE PROVER TEST

NEB

CNRL Behozia Lat 66-Long-126
Lat. 66*51 Min – Long 126*39 Min
Coleville Formation

Inline Prover Test (PRD)
February 10, 2003

GENERAL INFORMATION

Client Information:

Company: CANADIAN NATURAL RESOURCES LTD.

Contact: BLAINE HOOK

Phone: 403-517-6700 Fax: e-mail:

Site Information:

Contact:

Phone: Fax: e-mail:

Well Information:

Name: CNRL BEHOZIA LAT 66-LONG 126

Operator: CANADIAN NATURAL RESOURCES LTD.

Location-Downhole: LAT.66*51 MIN LONG 126*39 MIN

Location-Surface:

Test Information:

Company: OPSCO ENERGY INDUSTRIES LTD.

Representative: RICHARD KLYMOK

Supervisor:

Test Type: FLOW TEST

Test Unit:

Start Date: 2003/02/10

End Date: 2003/02/10

Report Date: 2003/02/24

Job Number:

Start Time: 07:20:00

End Time: 18:00:00

Prepared By: MICHELLE BOND

Qualified By: RICK DOLL

Remarks:

ALL PRESSURES ARE REPORTED IN kPa(a)

CANADIAN NATURAL RESOURCES LTD. FieldNotes CNRL BEHOZIA LAT 66-LONG 126
LAT.66*51 MIN LONG 126*39 MIN Formation: COLEVILLE
Start Test Date: 2003/02/10
Final Test Date: 2003/02/10

METER REPORT

Gas Meter 1

Meter Type:	Orifice Meter
Meter Size (ID):	101.65 mm
Previous Gas Production:	0.000 10^3m^3
Tap Type:	Flange
Tap Location:	Downstream
Gas Gravity (G):	0.650
CO_2:	0.00 %
H_2S:	0.00 %
N_2:	0.00 %
Critical Temperature (T_c):	207.76 K
Critical Pressure (P_c):	4625.74 kPa

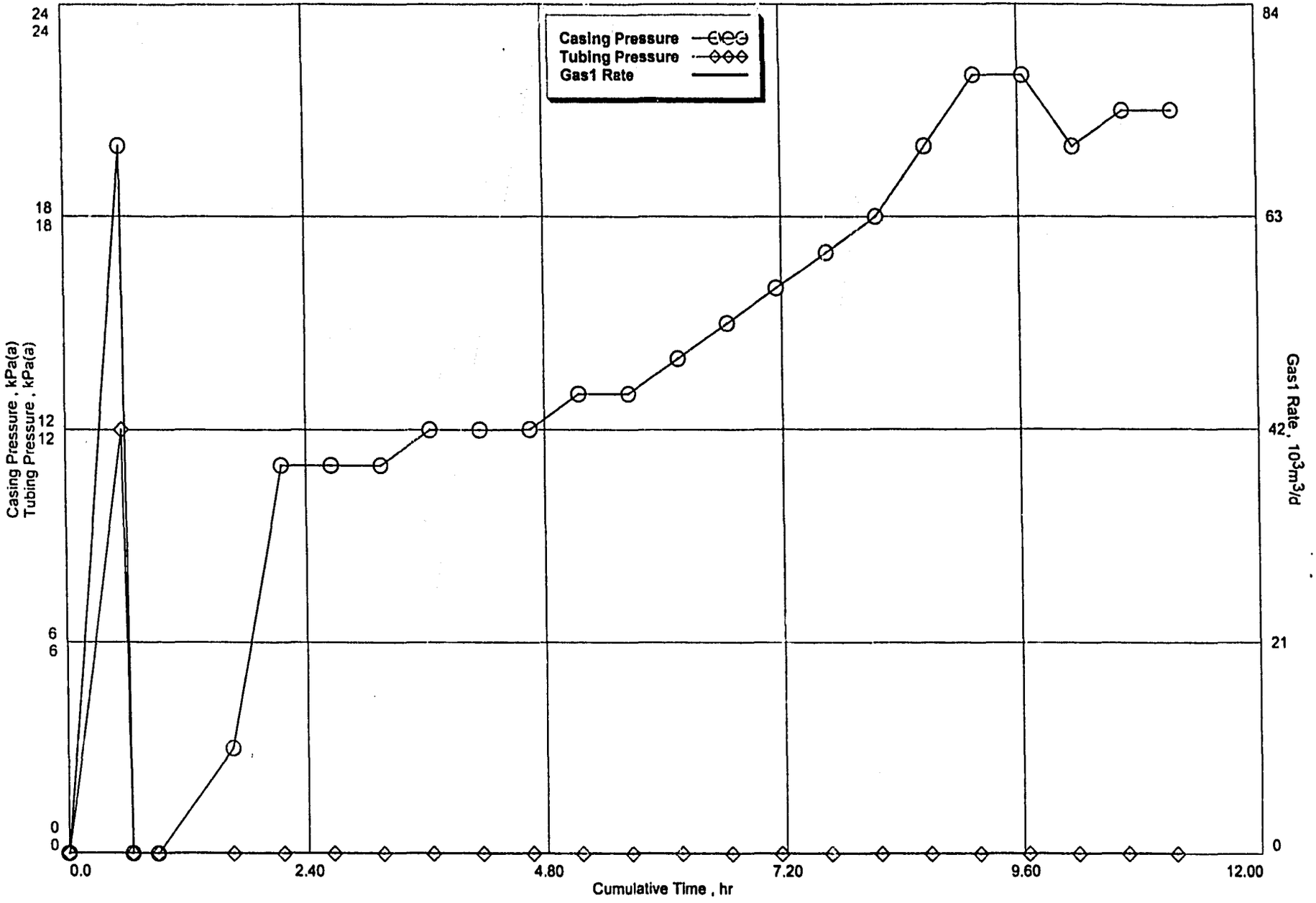
Oil Meter 1

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

CANADIAN NATURAL RESOURCES LTD.
LAT.66*51 MIN LONG 126*39 MIN
Start Test Date: 2003/02/10
Final Test Date: 2003/02/10

CNRL BEHOZIA LAT 66-LONG 126
Formation: COLEVILLE

CNRL BEHDZIA LAT 66-LONG 126



CANADIAN NATURAL RESOURCES LTD.
LAT.66*51 MIN LONG 126*39 MIN
Start Test Date: 2003/02/10
Final Test Date: 2003/02/10

FieldNotes
Field Measurements

CNRL BEHOZIA LAT 66-LONG 126
Formation: COLEVILLE

	Date	Clock Time	Cum Time	Tbg Pres	Csg Pres	WHT	Stat Pres	Diff Pres	MRT	Orifice	Gas Rate	Cum Gas	Fld Vol	Sal	pH
	yyyy/mm/dd	hh:mm:ss	hr	kPa(a)	kPa(a)	°C	kPa(a)	kPa	°C	mm	$10^3m^3/$	10^3m^3	m^3	ppm	
1	2003/03/10	06:51:00	0.000	WELL PERFORATED											
2		07:15:00	0.400				0	0.00	0.00		0.000	0.000	0.000		
3		07:15:00	0.400	OPEN TO FLOW											
4		07:25:00	0.567	12	20										
5		07:30:00	0.650	0	0										
6		07:45:00	0.900	0	0										
7		08:00:00	1.150	SHUT IN WELL, RIG IN WIRELINE											
8		08:30:00	1.650	0	3		0	0.00	0.00		0.000	0.000	0.000		
9		09:00:00	2.150	0	11										
10		09:30:00	2.650	0	11										
11		10:00:00	3.150	0	11										
12		10:30:00	3.650	0	12										
13		11:00:00	4.150	0	12										
14		11:30:00	4.650	0	12										
15		12:00:00	5.150	0	13										
16		12:30:00	5.650	0	13										
17		12:35:00	5.733	RECORDERS SET											
18		12:36:00	5.750				0	0.00	0.00		0.000	0.000	0.000		
19		12:48:00	5.950	OPEN TO FLOW											
20		13:00:00	6.150	0	14										
21		13:30:00	6.650	0	15										
22		14:00:00	7.150	0	16										
23		14:30:00	7.650	0	17										
24		15:00:00	8.150	0	18										
25		15:30:00	8.650	0	20										
26		16:00:00	9.150	0	22										

CANADIAN NATURAL RESOURCES LTD.
LAT.66*51 MIN LONG 126*39 MIN
Start Test Date: 2003/02/10
Final Test Date: 2003/02/10

FieldNotes
Field Measurements

CNRL BEHOZIA LAT 66-LONG 126
Formation: COLEVILLE

	Date	Clock Time	Cum Time	Tbg Pres	Csg Pres	WHT	Stat Pres	Diff Pres	MRT	Orifice	Gas Rate	Cum Gas	Fld Vol	Sal	pH
	yyyy/mm/dd	hh:mm:ss	hr	kPa(a)	kPa(a)	°C	kPa(a)	kPa	°C	mm	10^3m^3/	10^3m^3	m^3	ppm	
27	2003/03/10	16:30:00	9.650	0	22										
28		17:00:00	10.150	0	20										
29		17:30:00	10.650	0	21										
30		18:00:00	11.150	0	21										
31		18:01:00	11.167	SHUT IN WELL											
32		18:02:00	11.183				0	0.00	0.00		0.000	0.000	0.000		
33		18:03:00	11.200	ONE LOW PRESSURE WATER SAMPLE TAKEN. pH = 6 SALINITY = 21000 pm											
34		18:04:00	11.217	END OF TEST											

AGAT Laboratories

WATER ANALYSIS

Container Identification	Laboratory Number
PB1A	W037819A

Operator Name
CANADIAN NATURAL RESOURCES LIMITED

Unique Well Identifier	Well Name	Elevation
LAT 66 deg, LONG 126 deg	CNES BEHOZIA	KB m GRD m

Field or Area	Pool or Zone	Sampler's Company
BEHOZIA	NOT AVAILABLE	OPSCO

Test Type	Test No.	Test Recovery	Name of Sampler

Test Interval or Perfs	Sampling Point		Separator	Reservoir	Source	Sampled	Received
	BAILER	Pressure (kPa)					
		Temperature					

Date Sampled	Date Received	Date Reported	Entered By	Certified By
Feb 10, 2003	Feb 19, 2003	Feb 25, 2003	PL	PL

Other Information
LAT 51 min 56.912 sec., DOWN HOLE

Note: Sampling Point, Unique Well Identifier and/or Pool or Zone information was unavailable at time of reporting. This information is integral to AGAT's WebFLUIDs, a comparison, history and trending analysis system.

Cations

ION	mg/L	Mass Fraction	mmol/L
Na	71870.0	0.350	3126.2
K	1640.0	0.008	41.9
Ca	7900.0	0.038	197.1
Mg	1530.0	0.007	63.0
Fe	1.3	TRACE	TRACE
		Total Cations	3688.3

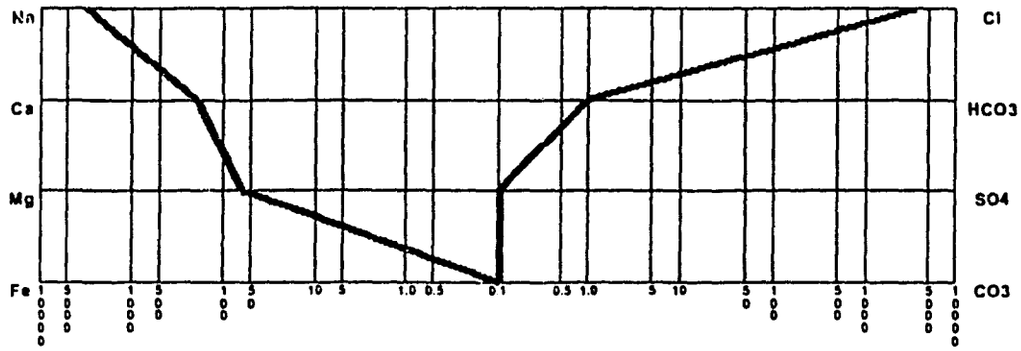
Anions

ION	mg/L	Mass Fraction	mmol/L
Cl	122462.0	0.596	3454.2
HCO3	57.3	TRACE	0.9
SO4	0.7	TRACE	TRACE
CO3	Nil	Nil	Nil
OH	Nil	Nil	Nil
		Total Anions	3455.2

Other Measurements

Measurement	Value
Total Dissolved Solids (Calculated) mg/L	205461
Observed pH	6.57
H2S (25°C) mg/L	0.00
Relative Density (25°C)	1.145
Resistivity/OHM m (25°C)	0.048
Salinity %	19.32

Logarithmic Pattern mmol/L



TOUR SHEETS

1999 | CNRES BEHDZIAH YOUH 8-52

OPERATION: CANADIAN NATURAL RESOURCES LTD.

SURFACE LOCATION: 56:51:56.91 120:30:53.96

DRILLER / TYPE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY

CONTRACTOR: AKITA DRILLING LTD.

UNIQUE ID: 3000626700126300

SIGNATURE OF CONTRACTOR'S REPRESENTATIVE: RICK PARKUR

PASON DATAHUB
Akita 51
Job 1

CDN 3423-3-011304

CHRIS BEHDZIAH YOUH 8-52 | 2000 | 1 | 11

CANADIAN NATURAL RESOURCES LTD. | AKITA DRILLING LTD.

RICK PARKER

D.R.T.

MORNING TOUR

CREW	SOC SEC NO.	NAME	HRS		VOU
DRILLER		BRUCE PRESTON	6.00		DP
DERRICK HAND		CORY MARTEL	6.00		CM
MOTOR HAND		JOHN GRANDJAMBE	6.00		JG
FLOOR HAND		LEON TAUREAU	6.00		LT
FLOOR HAND		CHARLES GULLY	6.00		CG
LEASE HAND		CLARENCE GARDEBOIS	6.00		CG
LEASE HAND		FRANK T'SELENE	6.00		FT

| | | |

1960 | CNRES REHOZIAH YOUH 6-52

OPERATOR: CANADIAN NATURAL RESOURCES LTD.
CONTRACTOR: AKITA DRILLING LTD.
SURFACE LOCATION: 06:01:56.91 120:39:53.96
UNIQUE ID: 300062670012630
SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY
SIGNATURE OF CONTRACTOR'S RIG MANAGER: RICK PARKER

PASON DATAHUB
Akita 51
Job 1

CDN 3422-2-011704

CNRES REHOZIAH YOUH 6-52 | 2000 | 1 | 19
CANADIAN NATURAL RESOURCES LTD. | AKITA DRILLING LTD.
RICK PARKER
RIG T.

MORNING TOUR

CREW	SOC SEC NO.	NAME	HRS		WG
DRILLER		BRUCE PRESTON	6.00		BP
DERRICK HAND		CORY MARTEL	6.00		CM
MOTOR HAND		JOHN GRANDJAMBE	6.00		JG
FLOOR HAND		LEON TAUREAU	6.00		LT
FLOOR HAND		CHARLES GULLY	6.00		CG
LEASE HAND		CLARENCE GARDEBOIS	6.00		CG
LEASE HAND		FRANK T'SELEIE	6.00		FT

RATE SCHEDULE: X | REGULAR | REPAIR | MARKET
CREW SAFETY DAYS: 1475

DAY TOUR

CREW	SOC SEC NO.	NAME	HRS		WG
DRILLER		SHANE MORRIS	12.00		SM
DERRICK HAND		KEVIN LAUCK	12.00		KL
MOTOR HAND		STEVEN KELLY	12.00		SK
FLOOR HAND		ELVIS KELLY	12.00		EK
FLOOR HAND		TERRY EDDIBAR	12.00		TE
LEASE HAND		COLIN PIERROT	12.00		CP
LEASE HAND		FRANCIS LAFFERTY	12.00		FL
W S C		PAUL REYNOLDS	12.00		PR
LOADER OPERATOR		MELVIN BLONDEN	12.00		MB

RATE SCHEDULE: X | REGULAR | REPAIR | MARKET
CREW SAFETY DAYS: 11

EVENING TOUR

CREW	SOC SEC NO.	NAME	HRS		WG
DRILLER		BRUCE PRESTON	6.00		BP
DERRICK HAND		CORY MARTEL	6.00		CM
MOTOR HAND		JOHN GRANDJAMBE	6.00		JG
FLOOR HAND		LEON TAUREAU	6.00		LT
FLOOR HAND		CHARLES GULLY	6.00		CG
LEASE HAND		CLARENCE GARDEBOIS	6.00		CG
LEASE HAND		FRANK T'SELEIE	6.00		FT

RATE SCHEDULE: X | REGULAR | REPAIR | MARKET
CREW SAFETY DAYS:

1989 | CNRES BEHDZIAH YOUH 0-62

OPERATION: CANADIAN NATURAL RESOURCES LTD.

CONTRACTOR: AKITA DRILLING LTD.

SURFACE LOCATION: 60:51:06.91 126:37:53.96

SIGNATURE OF OPERATOR'S REP ON RIG: CRAIG SKUBLESY

UNIQUE ID: 3060626769126360

SIGNATURE OF CONTRACTOR'S REP ON RIG: RICK PARKER

BHA no.	01																		
					330.7	315.3	181.30	Hycalog 6521		H56	15	193.00		193.00
					114		0	99	114	4 1/2 XH				210
					114	24.79	G	99	114	4 1/2 XH	300	5-P-90	NATIONAL	210
					114	62.48		79	104	4.5 XH	91			

PASON DATAHUB
Akita 61
Job 1

CDN 3422-1-911294

CAODC

				3.35	3.75						1.75								0.25
				1.75							0.00								0.25
				3.35							1.85		4.00						0.30
				0.35	3.75						0.75		4.00						0.75

			0.00
			0.00
			0.00
			34.85

TYPE				
	Plate Tank	0	0	0
	Truck Shop	0	0	0

CRNES BEHDZIAH YOUH 0-62 | 2989 | 1 | 9

CANADIAN NATURAL RESOURCES LTD. | AKITA DRILLING LTD.

RICK PARKER

M.W.T. | 0 | X m | m | 999

MORNING TOUR

CREW	DOC SVC. NO.	NAME	HRS		HRS
DRILLER		BRUCE PRESTON	6.00		
DERRICK HAND		CORY MARTEL	6.00		
MOTOR HAND		JOHN GRANDJAMBE	6.00		
FLOOR HAND		LEON TAUREAU	6.00		
FLOOR HAND		CHARLES GULLY	6.00		
LEASE HAND		CLARENCE GARDEBOIS	6.00		
LEASE HAND		FRANK T'SELIE	6.00		

1	SPT REAMER	311	2.71	Bit no.	4														
	AIR HAMMER	320		Size	311.0														
	SCREEN SUB			IADC code															
2	D.C.	232	18.39	Manufacturer	HUGHES														
3	X.O.	210	0.64	Type	GT-1														
4	D.C.	201	9.01	Serial no.	R15JP														
5	H.W.D.P.	114	95.39	Jets															
				Depth out															
				Depth in	198.00														
				Total footage drilled															
				Total hours run															

Cutting structure: No. | To | Dull | Loc | Bear | Gage | Other | Reason pulled | Total hours on bit

5	D.P.	STANDS	165.20																
	D.P.	SINGLES	0.30																
	KELLY DOWN		0.51																
	TOTAL		198.00																
	WT. OF D.C.	9																	
	FILL ON BOTTOM (m)	17																	

Hole condition: Hole stable | Torque at bottom | Fill on bottom (m)

Mud type: | Water based | Oil based | Hole: ___ mm @ ___ m | Last casing: ___ mm @ ___ m | Kick tol.: ___ | Test: ___

Time | Density (kg/m³) | Funnel viscosity | Fluid loss (cm³) | pH

Mud materials added	Product	Amount	Unit
	CAUSTIC	1	SK

Solids control: Desilter | Hours run | Avg density (kg/m³) | Overflow density | Underflow density

Centrifuge | Hours run | Avg density (kg/m³) | Overflow density | Underflow density

Circulation pressure kPa	Pump #1		Pump #2	
	Liner size	SPM	Liner size	SPM
	152.0		152.0	90

Reduced pump speed: ___ / ___

Deviation surveys	Depth (m)	Deviation	Direction

Driller signature: BRUCE PRESTON

From	To	Hours	Code	Operation
0	130	1.00	5	circ & clean hole
130	300	1.00	4	TRIPS wiper trip survey/ pos on tripping
300	345	0.75	5	circ hole clean
345	600	2.25	4	TRIPS hoist to run csg blow hydy IN manner
600	700	1.00	12	rig to run csg
700	715	0.25	21	SAFETY MTG. on run csg
715	800	0.75	12	RUN CSG
800				

Notes: check crownsaver; derailer; inclinometer; Jackson & Schlumb
fill boiler & tks; Woodcock boilers dumbfill fuel
change out pipe; slip; slips

From	To	Hours	Code	Operation
0.00	10.5	360		run csg

DAY TOUR

CREW	DOC SVC. NO.	NAME	HRS		HRS
			800	1600	
DRILLER		SHANE MORRIS	12.00		
DERRICK HAND		KEVIN LAUCK	12.00		
MOTOR HAND		STEVEN KELLY	12.00		
FLOOR HAND		ELVIS KELLY	12.00		
FLOOR HAND		TERRY EDOBAR	12.00		
LEASE HAND		COLIN PIERROT	12.00		
LEASE HAND		FRANCIS LAFFERTY	12.00		
W.S.C.		PAUL REYNOLDS	12.00		
LOADER OPERATOR		MELVIN BLONDEN	12.00		

1	SPT REAMER	311	2.71	Bit no.	4														
	AIR HAMMER	320		Size	311.0														
	SCREEN SUB			IADC code															
2	D.C.	232	18.39	Manufacturer	HUGHES														
3	X.O.	210	0.64	Type	GT-1														
4	D.C.	201	9.01	Serial no.	R15JP														
5	H.W.D.P.	114	95.39	Jets															
				Depth out															
				Depth in	198.00														
				Total footage drilled															
				Total hours run															

Cutting structure: No. | To | Dull | Loc | Bear | Gage | Other | Reason pulled | Total hours on bit

5	D.P.	STANDS	165.20																
	D.P.	SINGLES	0.30																
	KELLY DOWN		0.51																
	TOTAL		198.00																
	WT. OF D.C.	9																	
	FILL ON BOTTOM (m)	17																	

Hole condition: Hole stable | Torque at bottom | Fill on bottom (m)

Mud type: | Water based | Oil based | Hole: ___ mm @ ___ m | Last casing: ___ mm @ ___ m | Kick tol.: ___ | Test: ___

Time | Density (kg/m³) | Funnel viscosity | Fluid loss (cm³) | pH

Mud materials added	Product	Amount	Unit
	CAUSTIC	1	SK
	LIGNITE	1	SK

Solids control: Desilter | Hours run | Avg density (kg/m³) | Overflow density | Underflow density

Centrifuge | Hours run | Avg density (kg/m³) | Overflow density | Underflow density

Circulation pressure kPa	Pump #1		Pump #2	
	Liner size	SPM	Liner size	SPM
	152.0		152.0	

Reduced pump speed: ___ / ___

Deviation surveys	Depth (m)	Deviation	Direction

Driller signature:

From	To	Hours	Code	Operation
800	815	0.25	21	safety meeting with long hand
815	1415	6.00	12	RUN CASE, very slow going due to cold weather
1415	1600	1.75	5	Rig in circ head for casing and circ
1600				

Notes: Check crown saver; brakes and linkage; dead line anchors
#2 boiler hours 0 bottom blown down no sand fuel tanks
Review J S A on running casing

From	To	Hours	Code	Operation
0.00	10.5	360		running casing

EVENING TOUR

CREW	DOC SVC. NO.	NAME	HRS		HRS
			1600	2400	
DRILLER		BRUCE PRESTON	4.00		
DERRICK HAND		CORY MARTEL	4.00		
MOTOR HAND		JOHN GRANDJAMBE	4.00		
FLOOR HAND		LEON TAUREAU	4.00		
FLOOR HAND		CHARLES GULLY	4.00		
LEASE HAND		CLARENCE GARDEBOIS	4.00		
LEASE HAND		FRANK T'SELIE	4.00		

1	SPT REAMER	311	2.71	Bit no.	4														
	AIR HAMMER	320		Size	311.0														
	SCREEN SUB			IADC code															
2	D.C.	232	18.39	Manufacturer	HUGHES														
3	X.O.	210	0.64	Type	GT-1														
4	D.C.	201	9.01	Serial no.	R15JP														
5	H.W.D.P.	114	95.39	Jets															
				Depth out															
				Depth in	198.00														
				Total footage drilled															
				Total hours run															

Cutting structure: No. | To | Dull | Loc | Bear | Gage | Other | Reason pulled | Total hours on bit

5	D.P.	STANDS	165.20																
	D.P.	SINGLES	0.30																
	KELLY DOWN		0.51																
	TOTAL		198.00																
	WT. OF D.C.	9																	
	FILL ON BOTTOM (m)	17																	

Hole condition: Hole stable | Torque at bottom | Fill on bottom (m)

Mud type: | Water based | Oil based | Hole: ___ mm @ ___ m | Last casing: ___ mm @ ___ m | Kick tol.: ___ | Test: ___

Time | Density (kg/m³) | Funnel viscosity | Fluid loss (cm³) | pH

Mud materials added	Product	Amount	Unit
	CAUSTIC	1	SK
	LIGNITE	1	SK

Solids control: Desilter | Hours run | Avg density (kg/m³) | Overflow density | Underflow density

Centrifuge | Hours run | Avg density (kg/m³) | Overflow density | Underflow density

Circulation pressure kPa	Pump #1		Pump #2	
	Liner size	SPM	Liner size	SPM
	152.0		152.0	

Reduced pump speed: ___ / ___

Deviation surveys	Depth (m)	Deviation	Direction

Driller signature:

From	To	Hours	Code	Operation
1600	1615	0.25	5	CIRC CASING THAW / LIT CEMENTERS AIR LINES
1615	1630	0.25	21	SAFETY MTG
1630	1930	1.00	12	CEMENT CASING — Plug down @ 19:30 HRS
1930	2400	4.50	14	NIPPLE down — 1m3 OF CEMENT SLURRY FOR RETURNS
2400				cut csg — Shoe set @ 193mMD
				Ran 14 joints of Hydril 521 CTS K-55 101.10 kg/m csg + one shoe
				joint of the same type of csg w/ a float shoe on bottom to a total
				depth of 193m. Cemented string w/ w/ 2m3 preflush followed by 24t of
				Arctic set cement yielding 16m3 followed byp 15.2m3 of water to displ csg
				csg bumped plug w/ 3.5 mpa over float shoe held 1m3 of cement slurry
				to surface for returns

Notes: Check crown saver; brakes and linkage; DEADLINE ANCHORS
#2 BOILER hours 0 blowdown bottom ok + tank fuel
review job; signing up driver

From	To	Hours	Code	Operation

RATE SCHEDULE: X | REGULAR | REPAIR | DAYWORK

CREW SAFETY WAYS

1474

RATE SCHEDULE: X | REGULAR | REPAIR | DAYWORK

CREW SAFETY WAYS

10

1960 | CNRES BEHOZIAH YOUH 6-52

OPERATOR: CANADIAN NATURAL RESOURCES LTD.
CONTRACTOR: AKITA DRILLING LTD.
SURFACE LOCATION: 06:01:06.91 120:39:03.96
GRID/UTM ID: 3006626790126300
SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY
SIGNATURE OF CONTRACTOR'S RIG SUPERVISOR: RICK PARKER

PASON DATAHUB
Akita 01
Job 1
CDN 3422-3-011304

CANADIAN NATURAL RESOURCES LTD. | AKITA DRILLING LTD.
RICK PARKER
N.W.T.

MORNING TOUR

CREW	DOC SIG. SEL	NAME	HRS	VOL	SIG
DRILLER		MIKE GISH	5.00		MG
DERRICK HAND		GARY JESSOP	5.00		GJ
MOTOR HAND		ALLEN KELLY	5.00		AK
FLOOR HAND		DUANE NORWEGION	5.00		DN
FLOOR HAND		ANTHONY DOCTOR	4.00		AD
LEASE HAND		FLOYD CAMPBELL	5.00		FL
W.S.C		PAUL REYNOLDS	5.00		PR

DAY TOUR

CREW	DOC SIG. SEL	NAME	HRS	VOL	SIG
DRILLER		BRUCE PRESTON	5.00		BP
DERRICK HAND		CORY MARTEL	5.00		CM
MOTOR HAND		JOHN GRANDJAMBE	5.00		JG
FLOOR HAND		LEON TAUREAU	5.00		LT
FLOOR HAND		CHARLES GULLY	5.00		CG
LEASE HAND		CLARENCE GARDEBOIS	5.00		CG
LEASE HAND		FRANK T'SELEIE	5.00		FT
LOADER OPERATOR		MELVIN BLONDEN	12.00		MB

EVENING TOUR

CREW	DOC SIG. SEL	NAME	HRS	VOL	SIG
DRILLER		SHANE MORRIS	5.00		SM
DERRICK HAND		KEVIN LAUCK	5.00		KL
FLOOR HAND		STEVEN KELLY	5.00		SK
FLOOR HAND		ELVIS KELLY	5.00		EK
FLOOR HAND		TERRY EDDIBAR	5.00		TE
LEASE HAND		COLIN PIERROT	5.00		CP
LEASE HAND		FRANCIS LAFFERTY	5.00		FL
LOADER OPERATOR		MELVIN BLONDEN			MB

MORNING TOUR

0	130	1.50	10	LAYDOWN CSG.	
130	140	0.25	7	RIG SERVICE	
140	345	1.00	4	PICKUP AIR HAMMER and R.I.H	
345	515	0.50	20	STAB INTO ELEMENT and INSTALL INTO GRANT HEAD	
515	600	0.75	6	RUN IN TO 197m TAGGED FILL	
600	515	1.25	5	PICKUP KELLY and ATTEMPT TO CIRC HAMR, NO RETURNS, PRESSURES UP	
515				DUMP METHANOL DOWN PIPE TWICE and ATTEMPT TO CIRC TWICE W AIR	
515	645	0.50	4	P.O.O.H	
645	600	0.25	20	PULL OUT ELEMENT	
600	730	1.50	20	HANDLE AIR HAMMER, PULLOU / FLOAT, BREAK OFF BIT and UNPLUG	
730				BIT and HAMMER	
730	600	0.50	4	R.I.H	
600					

NOTES: CHICSED CROWNSAVER, DEADLINE ANCHORS, BRAKES and LUBAGE
02 BOILER RAN 6HRS BLOWDOWN =10BL of FLUID
MJ 748 AMJ 700

8.00	16.0	375	

DAY TOUR

600	630	0.50	22	REPAIR HAMMER	
630	900	0.50	6	R.I.H	
900	915	0.25	20	INSTALL HEAD	
915	930	0.25	5	CIRC	
930	1030	1.00	6	TRIPS R.I.H BREAK DOWN 4 SINGLES	
1030	1145	1.25	5	WASH TO BOTTOM	
1145	1215	0.50	6	TRIPS P.O.O.H	
1215	1515	3.00	22	HANDLE TOOLS LID HAMMER PICK UP REAMER & BIT & MAKE UP	
1515	1600	0.75	20	REMOVE RUBBER FROM HHOP	
1600					

NOTES: CHECK CROWNSAVER,BRAKE / ALINAGE DEADLINE ANCHORS
02 BOILER 8 HRS BLEWDOWN BOILERS 4/4= BBLT FLUID
REVIEW JSA TRIPPING IN HOLE

8.00	11.0	300	

EVENING TOUR

1600	1700	1.00	20	Remove rubber from H.W.D.P Hook up kicker hose and circ. line for baby	
1700	1845	1.75	6	TRIPS R.I.H. Lay down 4 singles	
1845	2100	2.25	5	CIRC Displace hole over to mud, build viscos condition mud	
2100	2330	2.50	3	wash and ream to bottom	
2330	0	0.50	3	COND MUD & CIRC	

NOTES: Check crown saver is okay and linkage. Dowel line anchors
02 BOILER 5 HOURS BLOW DOWN BOILERS 4/4 BBLT of fluid
Remove J 33 A ON R I H

1160

CNRES DEHDZIAH YOUH 6-52

OPERATOR
CANADIAN NATURAL RESOURCES LTD.

CONTRACTOR
AKITA DRILLING LTD.

SURVEY LOCATION
06:5 :06.91 126:39:53.06

UNIQUE ID
3000626700126300

SIGNATURE OF OPERATOR'S REP. / OBSERVATIVE
CRAIG SKUBLENY

SIGNATURE OF CONTRACTOR'S RIG MANAGER
RICK PARKER

PASON DATAHUB
Area 51
Job 1

CDN 3423-3-011264

CNRES DEHDZIAH YOUH 6-52 | 3000 | 1 | 7

OPERATOR: CANADIAN NATURAL RESOURCES LTD. | CONTRACTOR: AKITA DRILLING LTD.

RIG MANAGER: RICK PARKER | RIG NO.: 51

OBSERVATIVE: G.W.T. | COMP: X YES | TOUR SHEET NUMBER: 427

| | | |

1998 | CHRES BEHDZIAH YOUH 8-52

OPERATOR: CANADIAN NATURAL RESOURCES LTD.

CONTRACTOR: AKITA DRILLING LTD.

SURFACE LOCATION: 06:51:06.91 126:39:53.95

UNIQUE ID: 300062670001263000

SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY

SIGNATURE OF CONTRACTOR'S RIG MANAGER: RICK PARKER

PASON DATAHUB
Akita 51
Job 1

CDN 3422-3-911394

CHRES BEHDZIAH YOUH 8-52 | 2001 | 1 | 0

OPERATOR: CANADIAN NATURAL RESOURCES LTD. | CONTRACTOR: AKITA DRILLING LTD.

RIG MANAGER: RICK PARKER | RIG NO: 51

R.W.T. | MAP | X | TVD | DRILL FLOOR TO GROUND LEVEL | ASD

MORNING TOUR

CREW	SOC SEC NO.	NAME	HRS		VOL	$
DRILLER		MIKE OISH	8.00			1000
DERRICK HAND		GARY JESSOP	8.00			$/
MOTOR HAND		ALLEN KELLY	8.00			/H
LEASE HAND		DUANE NORWEGION	8.00			BB
FLOOR HAND		ANTHONY DOCTOR	8.00			AD
FLOOR HAND		STEVEN KELLY	8.00			SK
LEASE HAND		FLOYD CAMPBELL	8.00			FC
W.S.C		PAUL REYNOLDS	8.00			PWR

RATE SCHEDULE: X | REMARKS | HSE MTG

1471

DAY TOUR

CREW	SOC SEC NO.	NAME	HRS		VOL	$
DRILLER		BRUCE PRESTON	12.00			BP
DERRICK HAND		CORY MARTEL	12.00			CM
MOTOR HAND		JOHN GRANDJAMBE	12.00			JG
FLOOR HAND		LEON TAUREAU	12.00			LT
FLOOR HAND		CHARLES GULLY	12.00			CG
LEASE HAND		CLARENCE GARDEBOIS	12.00			CG
LEASE HAND		FRANK T'SELEIE	12.00			FT
LOADER OPERATOR		MELVIN BLONDEN	12.00			MB

RATE SCHEDULE: X | REMARKS | HSE MTG

7

EVENING TOUR

CREW	SOC SEC NO.	NAME	HRS		VOL	$
DRILLER		MIKE OISH	4.00			1000
DERRICK HAND		GARY JESSOP	4.00			$/
MOTOR HAND		ALLEN KELLY	4.00			/H
LEASE HAND		DUANE NORWEGION	4.00			BB
FLOOR HAND		ANTHONY DOCTOR	4.00			AD
FLOOR HAND		STEVEN KELLY	4.00			SK
LEASE HAND		FLOYD CAMPBELL	4.00			FC
W.S.C		PAUL REYNOLDS	4.00			PWR
LOADER OPERATOR		MELVIN BLONDEN	3.00			MB

RATE SCHEDULE: X | REMARKS | HSE MTG

| | | |

1969 | CNRES BEHOZIAH YOUH 0-52

OPERATION: CANADIAN NATURAL RESOURCES LTD.

CONTRACTOR: AKITA DRILLING LTD.

SURFACE LOCATION: 06:01:06.01 120:39:03.96

UNIQUE ID: 3000630700126300

SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY

SIGNATURE OF CONTRACTOR'S RIG MANAGER: RICK PARKER

PASON DATAHUB
Akita 01
Jim 1

CDN 3423 2-011294

CAODC

| | | |

1998 | CNRES BEHDZIAH YOUH 0-52

OPERATOR: CANADIAN NATURAL RESOURCES LTD.

CONTRACTOR: AKITA DRILLING LTD.

SURFACE LOCATION: 06:01:06.01 126:39:53.06

UNIQUE ID: 3998526706126306

SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY

SIGNATURE OF CONTRACTOR'S RIG MANAGER: RICK PARKER

PASON DATAHUB
Akita 51
Job 1

CDN 3422-3-51 1304

CNRL) BEHDZIAH YOUH 0-52 | 1998 | 1 | 4

CANADIAN NATURAL RESOURCES LTD. | AKITA DRILLING LTD.

RICK PARKER | 51

N.W.T. | 4304

MORNING TOUR

CREW	DOC SVC. NO.	NAME	HRS	VOU	SIG
DRILLER		MIKE GISH	8.00		MG
DERRICK HAND		GARY JESSOP	8.00		GJ
MOTOR HAND		ALLEN KELLY	8.00		AK
FLOOR HAND		ANTHONY DOCTOR	8.00		AD
FLOOR HAND		STEVEN KELLY	8.00		SK
LEASE HAND		FLOYD CAMPBELL	8.00		FC
W.S.C		PAUL REYNOLDS	8.00		PR
LOADER OPERATOR		WILLIAM TAUREAU	8.00		WT

RATE SCHEDULE: X | REGULAR | REPAIR | STANDBY

CREW SAFETY DAYS: 0

0 | 800

FROM	TO	HRS	CODE	DESCRIPTION
0	500	5.00	10	MODIFY BLOOIE LINE to RUN off of TEE and RUN BLOOIE LINE
				SPOT TANKS FOR BLOOIE LINE
500	700	2.00	22	PICKUP AIR HAMMER and SCREEN SUB to FLOOR. PICKUP KELLY
				INSTALL DRIVE BUSHING and STAB THRU'IGH RUBBER
				MAKEUP 3/2Cs and AIR HAMMER onto KELLY
				CHANGE AIR HAMMER BIT TO 16.39"
700	800	1.00	23	CUT OUT cond. drain NIPPLE DUE TO BIT INTERFERENCE. remove & install

DEPTH (M)	DEVIATION	DIRECTION

MIKE GISH	8.00	10.5	375	GRANT HEAD

DAY TOUR

CREW	DOC SVC. NO.	NAME	HRS	VOU	SIG
DRILLER		BRUCE PRESTON	12.00		BP
DERRICK HAND		CORY MARTELL	12.00		CM
MOTOR HAND		JOHN GRANDJAMBE	12.00		JG
FLOOR HAND		LEON TAUREAU	12.00		LT
FLOOR HAND		CHARLES GULLY	12.00		CG
LEASE HAND		CLARENCE GARDEBOIS	12.00		CG
LEASE HAND		FRANK T'SELEIE	12.00		FT
LOADER OPERATOR		WILLIAM TAUREAU	12.00		WT

RATE SCHEDULE: X | REGULAR | REPAIR | STANDBY

CREW SAFETY DAYS: 0

800 | 1600

FROM	TO	HRS	CODE	DESCRIPTION
800	1000	2.00	23	Trouble with getting bha down in hole had to take apart bha so it ca
1000				bushings would go in blob cement down only 7m tool tumb
1000	1400	4.00	14	CHANGE BLOOIE LINE and REMANUFACTURE and press to fit in bha
1400	1430	0.50	21	SAFETY MTG. JSA ON AIR DRILLING
1430	1600	1.50	7	DRILL OUT CEMENT
1600				

DRILLER SIGNATURE	BRUCE PRESTON	8.00	10.5	399	AIR DRILLING	0

EVENING TOUR

CREW	DOC SVC. NO.	NAME	HRS	VOU	SIG
DRILLER		MIKE GISH	4.75		MG
DERRICK HAND		GARY JESSOP	4.50		GJ
MOTOR HAND		ALLEN KELLY	4.00		AK
FLOOR HAND		ANTHONY DOCTOR	4.00		AD
FLOOR HAND		STEVEN KELLY	4.00		SK
LEASE HAND		FLOYD CAMPBELL	4.00		FC
LEASE HAND		DUANE NORWEGION	4.00		DN
W S C		PAUL REYNOLDS	4.00		PR

RATE SCHEDULE: X | REGULAR | REPAIR | STANDBY

CREW SAFETY DAYS:

1600 | 2400

FROM	TO	HRS	CODE	DESCRIPTION
1600	1715	1.25	7	DRILL OUT CEMENT
1715	1745	0.50	4	PICK UP 9 DC
1745	1915	0.50	7	DRILL F/19-27 3000cfm of air and 25Lmin of MIST
1915	1915	1.00	25	WORK STUCK PIPE FREE increased AIR to 4000cfm
1915	2130	2.25	7	DRILL F/27-41 3000cfm of air and 25Lmin of MIST
2130	2315	1.75	20	ACCUMULATED TIME FOR HANDLING ELEMENT for CONNECTIONS
2315	2400	0.75	20	ACCUMULATED TIME FOR CONNECTIONS and WORKING STRING

DRILLER SIGNATURE						

1960 | CNRES BEHDZIAH YOUH 6-52

OPERATOR: CANADIAN NATURAL RESOURCES LTD.
CONTRACTOR: AKITA DRILLING LTD.
SURFACE LOCATION: 66:51:56.91 126:39:53.95
LEASE ID: 3000526780126300
SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY
SIGNATURE OF CONTRACTOR'S RIG MANAGER: ROCK PARKER

PASON DATAHUB
Akita 51
Job 1

CDN 3422-3-611304

| | | |

1960 | CNRES BEHOZIAH YOUH 8-62

OPERATOR: CANADIAN NATURAL RESOURCES LTD.

CONTRACTOR: AKITA DRILLING LTD.

SURFACE LOCATION: 08:51:06.91 126:39:53.96

LICENCE NO: 3800626700126300

SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY

SIGNATURE OF CONTRACTOR'S REPRESENTATIVE: RICK PARKER

PASON DATAHUB
Akita 51
Job 1

CDN 3423-3-51 1284

CASDC

	TOUR	DRILL ACTUAL	REAMING	CIRCUL	WIPER TRIPS	SURVEYS	RIG SERVICE	REPAIR RIG	OUT OF HOLE (TRIPS)	CUT OFF DRILLING	SLIP & CUT DRILL LINE	WAIT ON WEATHER	RIG RELEASED	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DIRECTIONAL WORK	FISHING	CORING	SAFETY MEETING	DRILL 0 - 0 HOLE	
MORN																						
DAY	0.00																					
EVE	2.00							0.75												0.25	0.00	
24HRS	16.00							0.75												0.25	0.00	

	TOUR	DRILL ACTUAL	REAMING	CIRCUL	WIPER TRIPS	SURVEYS	RIG SERVICE	REPAIR RIG	OUT OF HOLE (TRIPS)	CUT OFF DRILLING	SLIP & CUT DRILL LINE	WAIT ON WEATHER	RIG RELEASED	WAIT ON CEMENT	NIPPLE UP B.O.P.	TEST B.O.P.	DIRECTIONAL WORK	FISHING	CORING	SAFETY MEETING	DRILL 0 - 0 HOLE	
MORN																						
DAY	0.00																					
EVE	2.00							0.75												0.25	0.00	
24HRS	16.00							0.75												0.25	0.00	

MORNING TOUR

MUD TYPE | WATER BASED

TIME	
DENSITY (KG/M3)	
FUNNEL VISCOSITY	
FLUID LOSS (cm3)	
pH	

PRODUCT	AMOUNT	UNIT

SOLIDS CONTROL

DESILTER: HOURS RUN | AVG DENSITY (KG/M3) | CHOKE FLOW DENSITY | UNDER FLOW DENSITY

CENTRIFUGE: HOURS RUN | AVG DENSITY (KG/M3) | CHOKE FLOW DENSITY | UNDER FLOW DENSITY

	LINER SIZE	SPM	LINER SIZE	SPM
CIRCULATING PRESSURE kPa				
PUMP NO. 1				
PUMP NO. 2				

REDUCED PUMP SPEED

DEVIATION SURVEYS

DEPTH (M)	DEVIATION	DIRECTION

0	800	8.00	1	RIG UP & TEAR DOWN SPOT CENT. WELD ON SHALE SLIDES TO PIT SHALE BOX
800	1000	0.00	1	RIG UP TRASH PUMP AND FLOW LINE TO DRILL MOUSE AND RAT HOLE
				MIX GEL

NOTES: 02 BOILER 2 FIRED UP AT 1400 HRS 02 BOILER 2 HRS

DRILLER SIGNATURE: MIKE GISH

MIN BAR	BOILER PT	STEAM TEMP	MINIMUM DIFFERENCE FROM LOW	SAFETY PIPE	MAOP

CREW	DOC ENG. NO.	NAME	HRS	VOS	DO
DRILLER		MIKE GISH	4.00		MG
DERRICK HAND		GARY JESSOP	4.00		GJ
MOTOR HAND		ALLEN KELLY	4.00		AK
FLOOR HAND		ANTHONY DOCTOR	4.00		AD
FLOOR HAND		STEVEN KELLY	4.00		SK
LEASE HAND		FLOYD CAMPBELL	4.00		FC
W.S.C		PAUL REYNOLDS	0.00		PR
LOADER OPERATOR		WILLIAM TAUREAU	4.00		WT

RATE SCHEDULE: X | REGULAR | REPAIR | STANDBY

CREW SAFETY DAYS: 3

DAY TOUR

MUD TYPE | WATER BASED

TIME	
DENSITY (KG/M3)	
FUNNEL VISCOSITY	
FLUID LOSS (cm3)	
pH	

PRODUCT	AMOUNT	UNIT
CAUSTIC	1	SX
GEL	30	SX

SOLIDS CONTROL

DESILTER: HOURS RUN | AVG DENSITY (KG/M3) | CHOKE FLOW DENSITY | UNDER FLOW DENSITY

CENTRIFUGE: HOURS RUN | AVG DENSITY (KG/M3) | CHOKE FLOW DENSITY | UNDER FLOW DENSITY

	LINER SIZE	SPM	LINER SIZE	SPM
CIRCULATING PRESSURE kPa				
PUMP NO. 1				
PUMP NO. 2				

REDUCED PUMP SPEED

DEVIATION SURVEYS

DEPTH (M)	DEVIATION	DIRECTION

800	1000	0.00	1	RIG UP & TEAR DOWN SPOT CENT. WELD ON SHALE SLIDES TO PIT SHALE BOX
800	1000	0.00	1	RIG UP TRASH PUMP AND FLOW LINE TO DRILL MOUSE AND RAT HOLE
				MIX GEL

NOTES: 02 BOILER 2 FIRED UP AT 1400 HRS 02 BOILER 2 HRS

DRILLER SIGNATURE: BRUCE PRESTON

MIN BAR	BOILER PT	STEAM TEMP	MINIMUM DIFFERENCE FROM LOW	SAFETY PIPE	MAOP

CREW	DOC ENG. NO.	NAME	HRS	VOS	DO
DRILLER		BRUCE PRESTON	12.00		BP
DERRICK HAND		CORY MARTEL	12.00		CM
MOTOR HAND		JOHN GRANDJAMBE	12.00		JG
FLOOR HAND		LEON TAUREAU	12.00		LT
FLOOR HAND		CHARLES GULLY	12.00		CG
LEASE HAND		CLARENCE GARDEBOIS	12.00		CG
LEASE HAND		FRANK T'SELEIE	12.00		FT
LOADER OPERATOR		CYRIL CARDINAL	12.00		CC

RATE SCHEDULE: X | REGULAR | REPAIR | STANDBY

CREW SAFETY DAYS: 3

EVENING TOUR

MUD TYPE | WATER BASED

TIME	2030
DENSITY (KG/M3)	1063
FUNNEL VISCOSITY	75
FLUID LOSS (cm3)	
pH	10.5
PVT	7.10

MUD MATERIALS ADDED		
PRODUCT	AMOUNT	UNIT
CAUSTIC	1	SX

SOLIDS CONTROL

DESILTER: HOURS RUN | AVG DENSITY (KG/M3) | CHOKE FLOW DENSITY | UNDER FLOW DENSITY

CENTRIFUGE: HOURS RUN | AVG DENSITY (KG/M3) | CHOKE FLOW DENSITY | UNDER FLOW DENSITY

	LINER SIZE	SPM	LINER SIZE	SPM
CIRCULATING PRESSURE kPa				
PUMP NO. 1				
PUMP NO. 2				

REDUCED PUMP SPEED

DEVIATION SURVEYS

DEPTH (M)	DEVIATION	DIRECTION

1600	1800	2.00	1	RIG UP & TEAR DOWNPEG UP STEAM TO MANIFOLD
1800	2300	5.00	22	DRILL MOUSE AND RAT HOLE
2300	2345	0.75	4	REPAIR RIG UNTHAW WATER RETURN LINES
2345	2400	0.25	21	PRE SPUD SAFETY MTG. WICREW
2400				

NOTES: 02 BOILER 6 HRS
HS in GROUND 6 hrs

DRILLER SIGNATURE

MIN BAR	BOILER PT	STEAM TEMP	MINIMUM DIFFERENCE FROM LOW	SAFETY PIPE	MAOP

CREW	DOC ENG. NO.	NAME	HRS	VOS	DO
DRILLER		MIKE GISH	4.00		MG
DERRICK HAND		GARY JESSOP	4.00		GJ
MOTOR HAND		ALLEN KELLY	4.00		AK
FLOOR HAND		ANTHONY DOCTOR	4.00		AD
FLOOR HAND		STEVEN KELLY	4.00		SK
LEASE HAND		FLOYD CAMPBELL	4.00		FC
W.S.C		PAUL REYNOLDS	0.00		PR
LOADER OPERATOR		WILLIAM TAUREAU	4.00		WT

RATE SCHEDULE: X | REGULAR | REPAIR | STANDBY

CREW SAFETY DAYS

1999 | CNRES BEHOZIA YOUH-02

OPERATOR: CANADIAN NATURAL RESOURCES LTD.

CONTRACTOR: AKITA DRILLING LTD.

WELL LOCATION: 06:51:06.01 126:39:53.06

UNIQUE ID: 3000626790126399

SIGNATURE OF OPERATIONS REPRESENTATIVE: CRAIG SKUBLENY

SIGNATURE OF CONTRACTOR'S RIG MANAGER: RICK PARKER

PASON DATAHUB
Akita 51
Job 1

CON 3423-3-911304

CNRES BEHOZIA YOUH-02 | 1999 | 1 | 1

CANADIAN NATURAL RESOURCES LTD. | AKITA DRILLING LTD.

RICK PARKER | 51

K.B.E.T. | 0 | 999

MORNING TOUR

TIME
DENSITY (ppg)
FUNNEL VISCOSITY
FLUID LOSS (cm3)
pH

MUD MATERIALS ADDED: PRODUCT | AMOUNT | UNIT

SOLIDS CONTROL
DESILTER: HOURS RUN | SAND DENSITY (kg/m3) | OVER FLOW DENSITY | UNDER FLOW DENSITY
CENTRIFUGE: HOURS RUN | SAND DENSITY (kg/m3) | OVER FLOW DENSITY | UNDER FLOW DENSITY

CIRCULATION PRESSURE kPa | PUMP NO. 1 LINER SIZE | PUMP NO. 2 LINER SIZE
REDUCED PUMP SPEED

DEVIATION SURVEYS: DEPTH (M) | DEVIATION | DIRECTION

DRILLER SIGNATURE: BRUCE PRESTON

FROM	TO	HOURS	CODE	DETAILS OF OPERATIONS & REMARKS
0000	1600	8.00	1	RIG UP & TEAR DOWN RIG UP INSTALL V-DOOR AND CAT WALK
				ALL PIPE TUBES SPOT ALL AIR EQU.

RATE SCHEDULE	X	REGULAR		REPAIR		STAND BY
						2

DAY TOUR		999	1999			
CREW	DOC SEL NO.	NAME	HRS		YRS	RG
DRILLER		BRUCE PRESTON	14.00			BP
DERRICK HAND		CORY MARTEL	14.00			CM
MOTOR HAND		JOHN GRANDJAMBE	14.00			JG
FLOOR HAND		LEON TAUREAU	14.00			LT
FLOOR HAND		CHARLES GULLY	14.00			CG
LEASE HAND		CLARENCE GARDEBOIS	14.00			CG
LEASE HAND		FRANK T'SELEIE	14.00			FT
LOADER OPERATOR		CYRIL CARDINAL	14.00			CC

DAY TOUR

TIME
DENSITY (ppg)
FUNNEL VISCOSITY
FLUID LOSS (cm3)
pH

MUD MATERIALS ADDED: PRODUCT | AMOUNT | UNIT

SOLIDS CONTROL
DESILTER: HOURS RUN | SAND DENSITY (kg/m3) | OVER FLOW DENSITY | UNDER FLOW DENSITY
CENTRIFUGE: HOURS RUN | SAND DENSITY (kg/m3) | OVER FLOW DENSITY | UNDER FLOW DENSITY

CIRCULATION PRESSURE kPa | PUMP NO. 1 LINER SIZE | PUMP NO. 2 LINER SIZE
REDUCED PUMP SPEED

DEVIATION SURVEYS: DEPTH (M) | DEVIATION | DIRECTION

DRILLER SIGNATURE: BRUCE PRESTON

FROM	TO	HOURS	CODE	DETAILS OF OPERATIONS & REMARKS
1600	2400	8.00	1	RIG UP & TEAR DOWN RIG UP FEUL TANK FARM INSTALL DOORS AND
				PREFABS ON TRUCK BARN DOORS

RATE SCHEDULE	X	REGULAR		REPAIR		STAND BY
						2

DAY TOUR		1999	2400			
CREW	DOC SEL NO.	NAME	HRS		YRS	RG
DRILLER		MIKE GISH	14.00			MG
DERRICK HAND		GARY JESSOP	14.00			GJ
MOTOR HAND		ALLEN KELLY	14.00			AK
FLOOR HAND		ANTHONY DOCTOR	14.00			AD
FLOOR HAND		STEVEN KELLY	14.00			SK
LEASE HAND		FLOYD CAMPBELL	14.00			FC
W S C		PAUL REYNOLDS	14.00			PR
LOADER OPERATOR		WILLIAM TAUREAU				WT

RATE SCHEDULE	X	REGULAR		REPAIR		STAND BY
						7

EVENING TOUR

TIME
DENSITY (ppg)
FUNNEL VISCOSITY
FLUID LOSS (cm3)
pH

MUD MATERIALS ADDED: PRODUCT | AMOUNT | UNIT

SOLIDS CONTROL
DESILTER: HOURS RUN | SAND DENSITY (kg/m3) | OVER FLOW DENSITY | UNDER FLOW DENSITY
CENTRIFUGE: HOURS RUN | SAND DENSITY (kg/m3) | OVER FLOW DENSITY | UNDER FLOW DENSITY

CIRCULATION PRESSURE kPa | PUMP NO. 1 LINER SIZE | PUMP NO. 2 LINER SIZE
REDUCED PUMP SPEED

DEVIATION SURVEYS: DEPTH (M) | DEVIATION | DIRECTION

DRILLER SIGNATURE

1999 | CNRES BEHOZIAH YOUH 8-62

OPERATOR: CANADIAN NATURAL RESOURCES LTD.

CONTRACTOR: AKITA DRILLING LTD.

SURFACE LOCATION: 08:51:06.51 126:39:01.04

UNIQUE ID: 3999526790126300

SIGNATURE OF OPERATOR'S REP.: CRAIG SKUPLENY

SIGNATURE OF CONTRACTOR'S REP.: RICK PARKER

| | | |

1990 | CNRES BEHDZIAH YOUH 8-62

OPERATION: CANADIAN NATURAL RESOURCES LTD.

CONTRACTOR: AKITA DRILLING LTD.

SURFACE LOCATION: 00:01:06.91 126:39:03.96

UNIQUE ID: 3000628780126300

SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY

SIGNATURE OF CONTRACTOR'S RIG MANAGER: RICK PARKER

PASON DATAHUB
Akita 51
Job 1

CDN 3429-2-611394

CNRES BEHDZIAH YOUH 8-62 | 1990 | 2 | 10

CANADIAN NATURAL RESOURCES LTD. | AKITA DRILLING LTD.

RICK PARKER

N.M.T. | 491

MORNING TOUR

CREW	DOC SIG. NO.	NAME	HRS	YES	SIG
DRILLER		RYAN LISOWAY	6.00		RL
DERRICK HAND		RODRICK KAKFWI	6.00		RK
MOTOR HAND		STEVEN KELLY	6.00		SK
FLOOR HAND		DERRICK SHAE	6.00		DS
FLOOR HAND		CHESTER KAKFWI	6.00		CK
U ASE HAND		SIMON HOULE	6.00		SH
L'ASE HAND		JACK WALKER	6.00		JW

0	330	3.50	14	RIPPLEDOWN BOP STACK	
330	530	2.50	14	RIPPLE UP WELL HEAD,INSTALL GAUGES ON WELL HEAD.	
530	730	1.50	15	RIG UP TESTERS & P.T. WELLHEAD EXTENDED NECK SEALS	
730	845	0.25	31	SAFETY MTG. ON DROPPING BAR	
845	700	0.25	32	DROP BAR READ & RECORD PRESSURES	
700	800	1.00	30	FLOW WELL	
800					

RYAN LISOWAY | 6.00 | 110 | 380 | NIPPLE DOWN

DAY TOUR

CREW	DOC SIG. NO.	NAME	HRS	YES	SIG
DRILLER		MIKE GISH	12.00		MG
DERRICK HAND		TERRY RANESTAD	12.00		TR
MOTOR HAND		ALLEN KELLY	12.00		AK
FLOOR HAND		FLOYD CAMPBELL	12.00		FC
FLOOR HAND		JAMES McPHERSON	12.00		JM
LEASE HAND		LAWRENCE CAMPBELL	12.00		LC
LEASE HAND		MODEST EDDIBAR	12.00		ME
WSC		KELLY DOUD	12.00		KD
LOADER OPERATOR		MELVIN BLONDEN	12.00		MB

RATE SCHEDULE: X | REGULAR | REPAIR | STANDBY

CREW SAFETY DAYS: 2670

800	845	0.75	11	Rig up stick line	
845	915	0.50	11	Run in hole to tag fluid no fluid	
915	1000	0.75	11	Fish out drop bar NO RECOVERY	
1000	1030	0.50	11	FISH FOR DROP BAR	
1030	1300	1.50	11	FLH and Drop all Guns and Tag TCP assembly @1466m	
1300				Run in Wireliner and Recover Bhsd Water sample	
1300	1300	1.00	11	Run Dirt and R Ripple rig to run recorders	
1300	1400	1.00	11	Run in W/ Electric Recorders on Bottom @1330Hrs P.O.O.H and Rig out	
1400	1800	2.00	22	Open Well to Testers and Monitor	
1800					

02 BOILER RAH Shrs
BLOWDOWNS =160L of FLUID

HRS RUN	BOILER HT	BOILER WATER LEVEL	MANAGER/SUPERVISOR HSE/LOSS	SAFETY TOPIC	SHCP
6.00	110	380			0

EVENING TOUR

CREW	DOC SIG. NO.	NAME	HRS	YES	SIG
DRILLER		RYAN LISOWAY	4.00		RL
DERRICK HAND		RODRICK KAKFWI	4.00		RK
MOTOR HAND		STEVEN KELLY	4.00		SK
FLOOR HAND		DERRICK SHAE	4.00		DS
FLOOR HAND		CHESTER KAKFWI	4.00		CK
LEASE HAND		SIMON HOULE	4.00		SH
LEASE HAND		JACK WALKER	4.00		JW

RATE SCHEDULE: X | REGULAR | REPAIR | STANDBY

CREW SAFETY DAYS

1800	1900	2.00	22	Monitor Well W/Testers	
1900	2400	5.00	1	Shut Well in and Tear Out Rig	
				Livrock Over @19:00Hrs	
				Rig Released F/ Completions @7:00Hrs	

02 Boiler ran 6hrs
Blowdowns =160L of Fluid

1998 | CNRES BEHOZIAH YOUH 6-62

OPERATOR: CANADIAN NATURAL RESOURCES LTD.

CONTRACTOR: AKITA DRILLING LTD.

SURFACE LOCATION: 06:01:06.91 120:39:03.96

UNIQUE ID: 300062670012E300

SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY

SIGNATURE OF CONTRACTOR'S RIG MANAGER: RICK PARKER

PASON DATAHUB
Akita 01
Job 1
CDN 3422-3-91 1264

CANADIAN NATURAL RESOURCES LTD. | AKITA DRILLING LTD. | RICK PARKER | R.W.T.

MORNING TOUR

CREW	SOC SEC NO.	NAME	HRS		HRS
DRILLER		RYAN LISOWAY	8.00		PL
DERRICK HAND		RODRICK KAKFWI	8.00		RH
MOTOR HAND		STEVEN KELLY	8.00		SK
FLOOR HAND		DERRICK SHAE	8.00		DS
FLOOR HAND		CHESTER KAKFWI	8.00		CK
LEASE HAND		SIMON HOULE	8.00		SH
LEASE HAND		JACK WALKER	8.00		JW

		0	215	2.25	0	PU 5 extra up TOP reamer assembly - stand of joints & gut hot	
						before running in hole double check all measurements and correlate to	
						depth needed to be run	
		215	530	3.25	0	PU tubing 6 stands w/ guns, assuming all tubulars before have 6 jts. into	
						existing room that no tbs built up on pry tubulars, rbg collars on first	
						20-30 joints.	
		530	600	2.50	0	RUN TUBING	

RYAN LISOWAY	8.00	11.0	300	10	RUN TUBING

DAY TOUR

CREW	SOC SEC NO.	NAME	HRS		HRS
DRILLER		MIKE GISH	12.00		MG
DERRICK HAND		TERRY RANESTAD	12.00		TR
MOTOR HAND		ALLEN KELLY	12.00		AK
FLOOR HAND		FLOYD CAMPBELL	12.00		FC
FLOOR HAND		JAMES McPHERSON	12.00		JM
LEASE HAND		LAWRENCE CAMPBELL	12.00		LC
LEASE HAND		MODEST EDDIBAR	12.00		ME
WSC		KELLY DOUD	12.00		KD
LOADER OPERATOR		MELVIN BLONDEN	12.00		MB

		600	630	0.50	0	Continue w/ RIH w/ tubing	
		630	1030	2.00	22	3rd party repair power tongs (pump on power tong blow up seal)	
		1030	1230	2.00	0	CONTINUE W/ TRIP IN	
		1230	1315	0.75	0	MU LANDING JOINT & LAND TUBING HANGER	
		1315	1500	1.75	22	RIG UP AIR TO BLOW DOWN WELL	
		1500	1600	1.00	0	BLOWDOWN HOLE W/ AIR	

MIKE GISH	8.00	11.0	300		RUNNING TUBING

EVENING TOUR

CREW	SOC SEC NO.	NAME	HRS		HRS
DRILLER		RYAN LISOWAY	4.00		PL
DERRICK HAND		RODRICK KAKFWI	4.00		RH
MOTOR HAND		STEVEN KELLY	4.00		SK
FLOOR HAND		DERRICK SHAE	4.00		DS
FLOOR HAND		CHESTER KAKFWI	4.00		CK
LEASE HAND		SIMON HOULE	4.00		SH
LEASE HAND		JACK WALKER	4.00		JW
LOADER OPERATOR		MELVIN BLONDEN	4.00		MB

		1600	1630	0.50	0	BLOW HOLE DRY W/ AIR	
		1630	2045	4.25	11	RIG IN LOGGERS and run correlation pass	
		2045	2100	0.25	11	Lay down wireline tools	
		2100	2215	1.25	0	Reposition tubing string & land hanger	
		2215	2315	1.00	11	RIG IN LOGGERS AND RUN CORALATION PASS	
		2315	2330	0.25	11	WIRE LINE LOGGING OUT LOGGERS	
		2330	2400	0.50	22	TEAR DOWN STABING VALVE,PULL UP DUG HUT.	
						INSTALL STABING VALVE,HANG TUBING,TIGHTEN LAG BOLTS	

1900 | CNRES BEHOZIAH YOUH 8-62

OPERATOR: CANADIAN NATIONAL RESOURCES LTD.
CONTRACTOR: AKITA DRILLING LTD.
SURFACE LOCATION: 06:01:06.91 120:30:53.96
RIG/SLOT: 3000626700126300
SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY
SIGNATURE OF CONTRACTOR'S RIG SUPERVISOR: RICK PARKER

| | | |

1999 | CNRL IS BEHDZIAH YOUH 8-62

OPERATOR: CANADIAN NATURAL RESOURCES LTD.
CONTRACTOR: AKITA DRILLING LTD.
SURFACE LOCATION: 08-01-96.91 120-30-03.16
RIG #: 3999828799126399
REPRESENTATIVE OF OPERATOR RESPONSIBLE FOR: CRAIG SKUBLENY
REPRESENTATIVE OF CONTRACTOR FOR THIS TOUR: RICK PARKER

PASON DATAHUB
Akita 91
Job 1
CDN 3400 3-91 1204

CASED

| | | |

1999 | CNRES BEHDZIAH \ OUH 6-52

OPERATOR: CANADIAN NATURAL RESOURCES LTD.

CONTRACTOR: AKITA DRILLING LTD.

SURFACE LOCATION: 06:51:06.91 126:39:53.95

LAHEE ID: 300652070012630O

SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY

SIGNATURE OF CONTRACTOR'S TIME KEEPER: RICK PARKER

PASON DATAHUB
Akita 51
Job 1

CDN 3422-3-011204

CANADIAN NATIONAL RESOURCES LTD. | AKITA DRILLING LTD.
RICK PARKER
H.R.T.

MORNING TOUR

CREW	DOG BRK. MIN.	NAME	HRS		VOU	BID
DRILLER		RYAN LISOWAY	5.00			RL
DERRICK HAND		RODRICK KAKFWI	5.00			RK
MOTOR HAND		STEVEN KELLY	5.00			SK
FLOOR HAND		DERRICK SHAE	5.00			DS
FLOOR HAND		TYLER CHAPLIN	5.00			TC
LEASE HAND		NELSON GARDEBOIS	5.00			NG

RATE SCHEDULE: X REGULAR | | REPAIR | | DIVERT

CREW SAFETY DAYS

DAY TOUR

CREW	DOG BRK. MIN.	NAME	HRS		VOU	BID
DRILLER		MIKE GISH	12.00			MG
DERRICK HAND		TERRY RANESTAD	12.00			TR
MOTOR HAND		ALLEN KELLY	12.00			AK
FLOOR HAND		ANTHONY DOCTOR	8.00			AD
FLOOR HAND		FLOYD CAMPBELL	12.75			FC
FLOOR HAND		JAMES McPHERSON	12.00			JM
LEASE HAND		LAWRENCE CAMPBELL	8.00			LC
LOADER OPERATOR		MELVIN BLONDEEN	12.00			MB

RATE SCHEDULE: X REGULAR | | REPAIR | | DIVERT

CREW SAFETY DAYS

EVENING TOUR

CREW	DOG BRK. MIN.	NAME	HRS		VOU	BID
DRILLER		RYAN LISOWAY	4.50			RL
DERRICK HAND		RODRICK KAKFWI	4.50			RK
MOTOR HAND		STEVEN KELLY	4.50			SK
FLOOR HAND		DERRICK SHAE	4.50			DS
FLOOR HAND		CHESTER KAKFWI	4.00			CK
LEASE HAND		NELSON GARDEBOIS	4.00			NG

RATE SCHEDULE: X REGULAR | | REPAIR | | DIVERT

CREW SAFETY DAYS

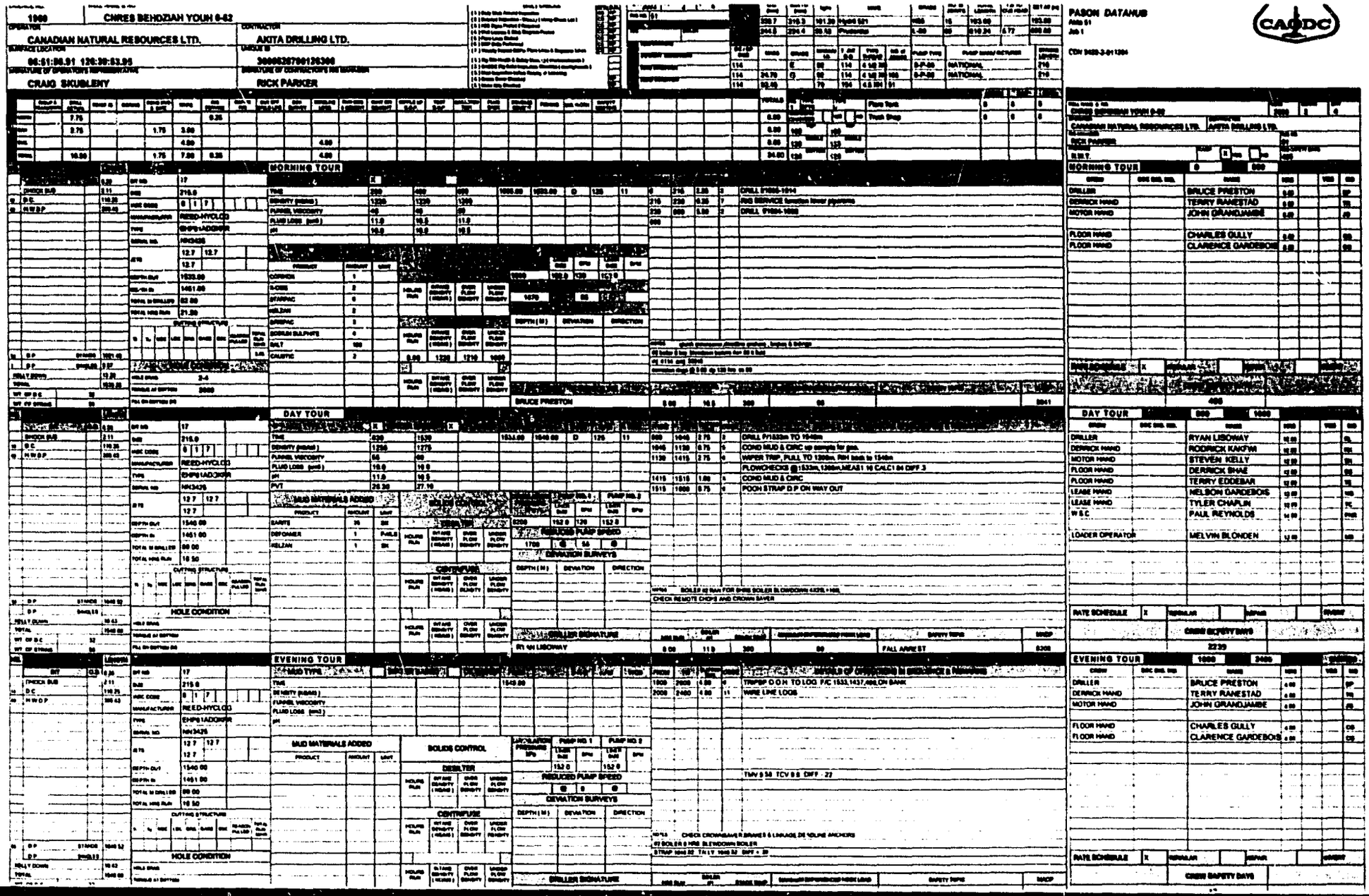
1999 | CNRES BENOZIAH YOUH 8-52

OPERATOR: CANADIAN NATURAL RESOURCES LTD.
CONTRACTOR: AKITA DRILLING LTD.
SURFACE LOCATION: 08:01:08.91 120:30:53.98
SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY
SIGNATURE OF CONTRACTOR'S RIG MANAGER: RICK PARKER

PASON DATAHUB
Akita 81
Job 1

CDN 3422-3-81 L304

| | | |



1998 | CHRIS BENDZIAH YOUH 9-62

OPERATOR: CANADIAN NATURAL RESOURCES LTD.
CONTRACTOR: AKITA DRILLING LTD.
SURFACE LOCATION: 00:01:00.01 120:30:03.00
UNIQUE ID: 3000030700120300
REPRESENTATIVE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUPLINY
SIGNATURE OF CONTRACTOR'S REPRESENTATIVE: RICK PARKER

PASON DATAHUB
Akita 51
Job 1
CDN 3423-2-911284

CANADIAN NATIONAL RESOURCES LTD. | AKITA DRILLING LTD.
RICK PARKER

MORNING TOUR

| | | |

1999

CNRES BEHDZIAH YOUH 8-53

OPERATOR: CANADIAN NATURAL RESOURCES LTD.

CONTRACTOR: AKITA DRILLING LTD.

SURFACE LOCATION: 60:01:06.91 120:39:03.96

UNIQUE ID: 300052678061263600

SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY

SIGNATURE OF CONTRACTOR'S RIG MANAGER: RICK PARKER

| | | |

1960 | CNRES BEHDZIAH YOUH 0-62

OPERATOR: CANADIAN NATURAL RESOURCES LTD.

CONTRACTOR: AKITA DRILLING LTD.

SURFACE LOCATION: 00:01:00.01 120:30:03.00

UNIQUE ID: 300052670012030O

SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY

SIGNATURE OF CONTRACTOR'S RIG MANAGER: RICK PARKER

PASON DATAHUB
Akita 51
Job 1

CDN 3422-2-911204

CNRES BEHDZIAH YOUH 0-62 | 2000 | 2 | 1

CANADIAN NATURAL RESOURCES LTD. | AKITA DRILLING LTD.

RICK PARKER

B.M.T.

MORNING TOUR

| | | |

1998 | CNRES BEHOZIAH YOUH 8-52

OPERATOR: CANADIAN NATURAL RESOURCES LTD.
CONTRACTOR: AKITA DRILLING LTD.
SURFACE LOCATION: 08:51:06.91 126:39:53.96
UNIQUE ID: 3000628700126300
SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY
SIGNATURE OF CONTRACTOR'S RIG MANAGER: RICK PARKER

PASON DATAHUB
Akita 61
Job 1
CDN 3423-3-011304

CASDC

| | | |

1968 | CHRES BEHOZIAH YOUH 8-62

OPERATOR: CANADIAN NATURAL RESOURCES LTD.

CONTRACTOR: AKITA DRILLING LTD.

SURFACE LOCATION: 60:01:06.91 126:39:53.96

UNIQUE ID: 3000626790126300

SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUDLENY

SIGNATURE OF CONTRACTOR'S REPRESENTATIVE: RICK PARKER

PASON DATAHUB
Akita 81
Job 1

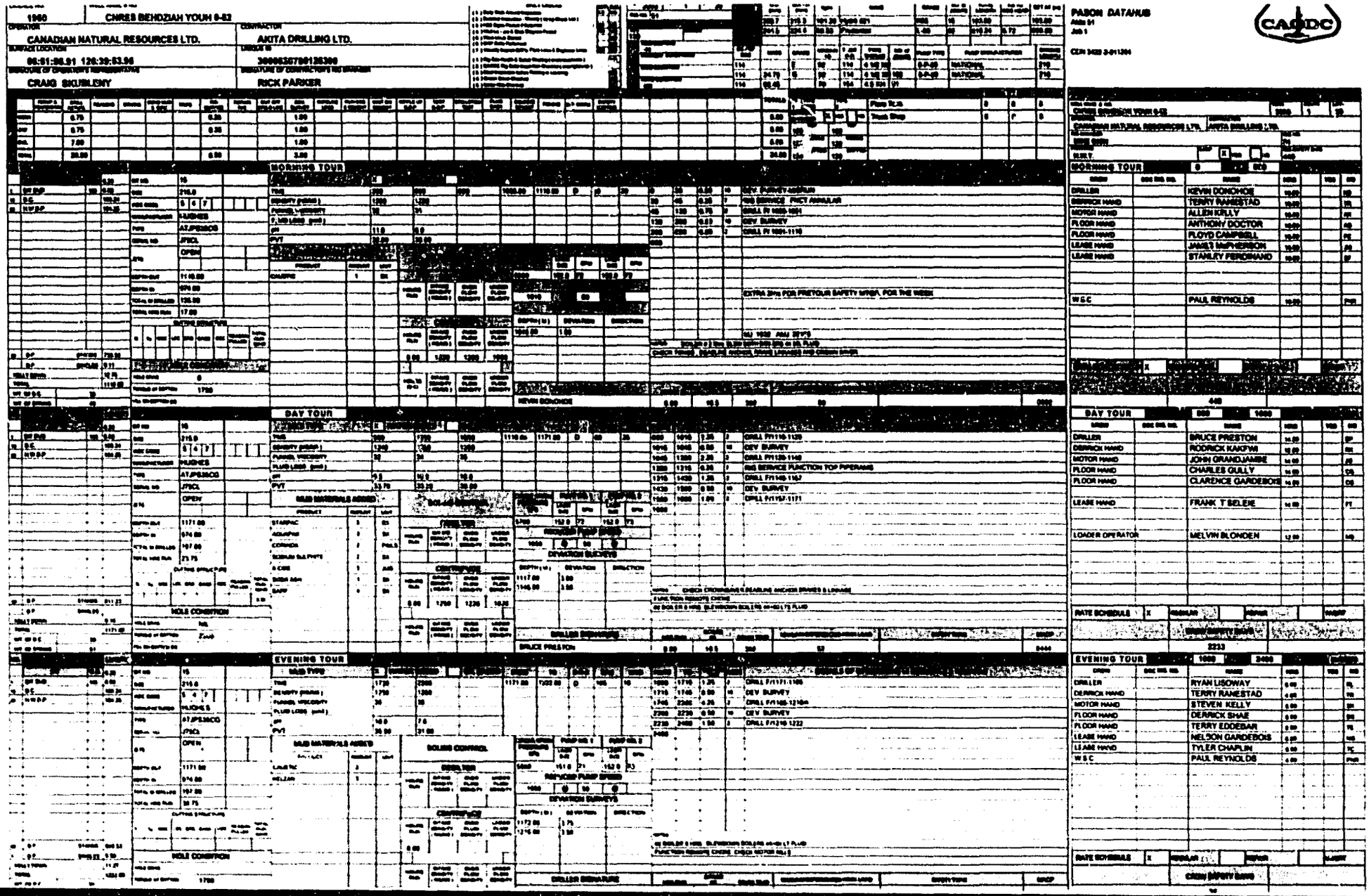
CDN 3422-3-911304

	GROUP 3 Hydraulics	WELL #1 (TDR)	TOWARD	OTHERS	REMAINING (TDR)	TOWARD	RIG MOVE	RIG UP/ACCEPT	RIG SERVICE	DRILL ACTUAL	REAMING (TDR)	CIRCULATE (TDR)	TRIPS (TDR)	DRILL (TDR)	SURVEY	WIRELINE LOGS	CASING / CEMENT	WAIT ON CEMENT	NPT	SUSPEND	OTHER
MORN		0.00			1.00	6.23	0.25														
DAY		2.75			0.25	4.75	0.25														
EVE		7.75					0.25														
TOTAL		11.00			1.25	11.00	0.75														

	SIZE	MFG	TYPE	IN	OUT	FTG	HRS	WOB	RPM	GPM	PRESS	HRS	FT/HR
1	311.2	HUGHES	ATJP53SCG	1223.00		948.00	31.25	20	60	1000	3000	31.25	30.34
2	311.2	REED	EHP61	1223.00	1243.00	20.00	2.75	20	60	1000	3000	2.75	7.27
3	311.2	REED	EHP61	1243.00	1296.00	73.00	10.50	20	60	1000	3000	10.50	6.95

MORNING TOUR

| | | | | | | | | | | | | | |



1999 | CNRES BEHOZIAH YOUH 6-52

OPERATOR: CANADIAN NATURAL RESOURCES LTD.
CONTRACTOR: AKITA DRILLING LTD.
SURFACE LOCATION: 06:51:56.91 120:39:53.96
UNIQUE ID: 300062679012630O
SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY
SIGNATURE OF CONTRACTOR'S RIG MANAGER: MIKE GISH

PASON DATAHUB
Akita 51
Job 1
CDN 3423-3-011294

CAODC

	GROUP & DESCRIPTION	SERIAL NUMBER	REMARKS	OUTSIDE DIAMETER	LENGTH	ID	CONNECTION TYPE	CONNECTION GRADE	BOX STRETCH	PIN STRETCH	REMAINING LIFE	PIN STRETCH	TOOL JOINT WEAR	WEIGHT AT TOOL JOINT	WEIGHT UP	TORQUE	INSPECTION TEST	PLANT	ENGINEER REVIEW	FISHING	DRL TIMING	SAFETY INSPECTION
					7.75																	
					7.88			0.00	4.75	0.38												
					7.75					0.38												
	TOTAL				16.00			0.00	4.75	0.75												

| | | | | | | | | | | | | | | | | |

1988 | CNRES BEHDZIAH YOUH 6-52

OPERATOR: CANADIAN NATURAL RESOURCES LTD.
CONTRACTOR: AKITA DRILLING LTD.
SURFACE LOCATION: 66:51:06.91 126:39:53.96
UNIQUE ID: 3900626790126300
SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY
SIGNATURE OF CONTRACTOR'S RIG MANAGER: MIKE GISH

| | | |

1900 | CNRES BEHOZIAH YOUH 0-52

OPERATOR: CANADIAN NATURAL RESOURCES LTD.
SURFACE LOCATION: 60:51:06.91 120:39:53.95
SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY

CONTRACTOR: AKITA DRILLING LTD.
UNIQUE ID: 3000626700126300
SIGNATURE OF CONTRACTOR'S RIG MANAGER: MIKE GISH

| | | |

1966 | CNRES BEHDZIAH YOUH 8-52

OPERATOR: CANADIAN NATURAL RESOURCES LTD.

CONTRACTOR: AKITA DRILLING LTD.

SURFACE LOCATION: 60:51:06.91 126:39:53.96

UNIQUE ID: 3000526706126300

SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY

SIGNATURE OF CONTRACTOR'S RIG MANAGER: MIKE GISH

PASON DATAHUB
Akita 51
Job 1

CON 3422-2-011204

CNRES BEHDZIAH YOUH 8-52 | 2000 | 1 | 20

CANADIAN NATURAL RESOURCES LTD. | AKITA DRILLING LTD.

MIKE GISH

ELEV'T.

MORNING TOUR

0 — 700

CREW	SRVC EMP. NO.	NAME	HRS	TRVL	HR
DRILLER		KEVIN DONOHOE	8.00		40
DERRICK HAND		TERRY RAMESTAD	8.00		32
MOTOR HAND		ALLEN KELLY	8.00		40
FLOOR HAND		ANTHONY DOCTOR	8.00		40
FLOOR HAND		FLOYD CAMPBELL	8.00		32
LEASE HAND		JAMES McPHERSON	8.00		24
LEASE HAND		STANLEY FERDINAND	8.00		32
W S C		PAUL REYNOLDS	8.00		720

RATE SCHEDULE | 1 | REGULAR | | REPAIR | | WEEKEND

CREW SAFETY BANK: 440

DAY TOUR

800 — 1900

CREW	SRVC EMP. NO.	NAME	HRS	TRVL	HR
DRILLER		BRUCE PRESTON	12.00		84
DERRICK HAND		CORY MARTEL	12.00		72
MOTOR HAND		JOHN GRANDJAMBE	12.00		72
FLOOR HAND		LEON TAUREAU	12.00		72
FLOOR HAND		CHARLES GULLY	12.00		72
LEASE HAND		CLARENCE GARDEBON	12.00		72
LEASE HAND		FRANK T SELEIE	12.00		72
LOADER OPERATOR		MELVIN BLONDEN	12.00		48

RATE SCHEDULE | 1 | REGULAR | | REPAIR | | WEEKEND

CREW SAFETY BANK: 2229

EVENING TOUR

1900 — 2400

CREW	SRVC EMP. NO.	NAME	HRS	TRVL	HR
DRILLER		KEVIN DONOHOE	4.00		40
DERRICK HAND		TERRY RAMESTAD	4.00		32
MOTOR HAND		ALLEN KELLY	4.00		40
FLOOR HAND		ANTHONY DOCTOR	4.00		40
FLOOR HAND		FLOYD CAMPBELL	4.00		32
LEASE HAND		JAMES McPHERSON	4.00		24
LEASE HAND		STANLEY FERDINAND	4.00		32
W S C		PAUL REYNOLDS	4.00		720

RATE SCHEDULE | 1 | REGULAR | | REPAIR | | WEEKEND

CREW SAFETY BANK:

1998 | CNRES BEHOZIAH YOUH 8-52

OPERATION: CANADIAN NATURAL RESOURCES LTD.

CONTRACTOR: AKITA DRILLING LTD.

SURFACE LOCATION: 06:51:06.01 120:39:53.95

RIG #: 3000626700126300

SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY

SIGNATURE OF CONTRACTOR'S RIG MANAGER: MIKE GISH

PASON DATAHUB
Akita 51
Job 1

CDN 3422-3-011264

CNRES BEHOZIAH YOUH 8-52 | 2000 | 1 | 24

CANADIAN NATURAL RESOURCES LTD. | AKITA DRILLING LTD.

MIKE GISH | 51

N.S.L.T. | 444

MORNING TOUR

0 | 600

CREW	DOC SIG. NO.	NAME	HRS	YDS	DS
DRILLER		KEVIN DONOHOE	6.00		
DERRICK HAND		TERRY RANESTAD	6.00		
MOTOR HAND		ALLEN KELLY	6.00		
FLOOR HAND		ANTHONY DOCTOR	6.00		
FLOOR HAND		FLOYD CAMPBELL	6.00		
LEASE HAND		JAMES McPHERSON	6.00		
LEASE HAND		STANLEY FERDINAND	6.00		
W.S.C		PAUL REYNOLDS	6.00		

444

DAY TOUR

600 | 1600

CREW	DOC SIG. NO.	NAME	HRS	YDS	DS
DRILLER		BRUCE PRESTON	10.00		
DERRICK HAND		CORY MARTEL	10.00		
MOTOR HAND		JOHN GRANDJAMBE	10.00		
FLOOR HAND		LEON TAUREAU	10.00		
FLOOR HAND		CHARLES GULLY	10.00		
LEASE HAND		CLARENCE GARDEBOIS	10.00		
LEASE HAND		FRANK T SELEIE	10.00		
LOADER OPERATOR		MELVIN BLONDEEN	12.00		

RATE SCHEDULE: X REGULAR

CREW SAFETY BANS

2226

EVENING TOUR

1600 | 2400

CREW	DOC SIG. NO.	NAME	HRS	YDS	DS
DRILLER		KEVIN DONOHOE	4.00		
DERRICK HAND		TERRY RANESTAD	4.00		
MOTOR HAND		ALLEN KELLY	4.00		
FLOOR HAND		ANTHONY DOCTOR	4.00		
FLOOR HAND		FLOYD CAMPBELL	4.00		
LEASE HAND		JAMES McPHERSON	4.00		
LEASE HAND		STANLEY FERDINAND	4.00		
W.S.C		PAUL REYNOLDS	4.00		

BASE SCHEDULE: X REGULAR

CREW SAFETY BANS

1990 | CNRES BEHDZIAH YOUH 9-52

OPERATION: CANADIAN NATURAL RESOURCES LTD.

CONTRACTOR: AKITA DRILLING LTD.

SURFACE LOCATION: 06:51:06.91 126:39:53.96

UP/JOB ID: 3000628700126300

SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY

SIGNATURE OF CONTRACTOR'S RIG MANAGER: MIKE GISH

PASON DATAHUB
Akita 51
Job 1

CDN 3422-3-811284

CAODC

| | | |

1960 | CNRES BEHDZIAH YOUH 6-62

OPERATOR: CANADIAN NATURAL RESOURCES LTD.
CONTRACTOR: AKITA DRILLING LTD.
SURFACE LOCATION: 06:51:56.91 126:39:53.55
LAHEE ID: 3000626700126300
SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY
SIGNATURE OF CONTRACTOR'S RIG MANAGER: MIKE GISH

| | | |

1960 | CNRES BEHDZIAH YOUH 8-82

OPERATOR: CANADIAN NATURAL RESOURCES LTD.

CONTRACTOR: AKITA DRILLING LTD.

SURFACE LOCATION: 66:51:56.91 126:39:53.96

UNIQUE ID: 3000526780126300

SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY

SIGNATURE OF CONTRACTOR'S RIG MANAGER: RICK PARKER

PASON *CATAHUB*
Akita 51
Job 1

CDN 3432-2-011264

CASDC

| | | |

1909 | CNRES BEHDZIAH YOUH 8-52

OPERATOR: CANADIAN NATURAL RESOURCES LTD.

CONTRACTOR: AKITA DRILLING LTD.

SURFACE LOCATION: 06:01:06.91 126:39:53.96

DRILLER ID: 3000636790126300

SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY

SIGNATURE OF CONTRACTOR'S REPRESENTATIVE: RICK PARKER

PASON DATAHUB
Akita 61
Job 1

CDN 3422-3-011294

CASDC

| | | |

1988 | CNRES BEHDZIAH YOUH 0-82

OPERATOR: CANADIAN NATURAL RESOURCES LTD.

CONTRACTOR: AKITA DRILLING LTD.

SURFACE LOCATION: 06:51:06.91 126:39:03.96

UNIQUE ID: 3000526780126300

SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY

SIGNATURE OF CONTRACTOR'S RIG MANAGER: RICK PARKER

PASON DATAHUB
Akita 51
Job 1

CDN 3422-3-811384

| | | |

1960 | CNRES BEHOZIAH YOUH 8-52

OPERATOR: CANADIAN NATURAL RESOURCES LTD.
SURFACE LOCATION: 56:51:56.91 126:39:53.95
SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY

CONTRACTOR: AKITA DRILLING LTD.
UNIQUE ID: 3000526700126300
SIGNATURE OF CONTRACTOR'S RIG MANAGER: RICK PARKER

| | | |

1960

CNRES BEHDZIAH YOUH 8-52

OPERATOR: CANADIAN NATURAL RESOURCES LTD.

CONTRACTOR: AKITA DRILLING LTD.

SURFACE LOCATION: 66:51:56.91 126:39:53.95

UNIQUE ID: 3000526700126300

SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY

SIGNATURE OF CONTRACTOR'S RIG MANAGER: RICK PARKER

PASON *DATAHUB*
Rig 51
Job 1

CDN 3423-3-911204

CAODC

	BHA RUN #	SERIAL NUMBER	REMARKS	DEPTH	HYDR NOZ # SIZE	TYPE	NO. SERVICED	REPAIR NO.	BUT SPP WHILE LOG	SPP	NOZZLE VEL	Rate GAS & WEIGHT	Rate OIL & WEIGHT	WOB	RPM	DP/HWDP	DRILLING HRS	FLUID PACK	BHA/BIT WEIGHT	PERIOD	DIR. WORK	SAFETY MEETING
1				4.75																		
2				3.75	0.50	2.25	0.25	1.00														
3				5.75	0.25	1.25	0.25	0.25														
TOTAL				14.25	1.25	6.00	0.50	1.25														

1960 | CNRES BEHDZIAH YOUH 8-52

OPERATOR: CANADIAN NATURAL RESOURCES LTD.
CONTRACTOR: AKITA DRILLING LTD.
SURFACE LOCATION: 66:01:56.81 126:39:53.95
UNIQUE ID: 3000626700126300
SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY
SIGNATURE OF CONTRACTOR'S RIG MANAGER: RICK PARKER

PASON DATAHUB
Akita 51
Job 1
CDN 3422-2-011264

| | | |

1960 | CHIEFS BEHDZIAH YOUH 0-52

OPERATOR: CANADIAN NATURAL RESOURCES LTD.

CONTRACTOR: AKITA DRILLING LTD.

SURFACE LOCATION: 06:51:86.91 126:39:53.95

UNIQUE ID: 3000526706126308

SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY

SIGNATURE OF CONTRACTOR'S RIG MANAGER: RICK PARKER

PASON DATAHUB
Akita 51
Job 1

CON 3422-2-911204

CANADA DRILLING DATA CENTRE

| | | |

1960 | CNRES BEHDZIAH YOUH 0-52

OPERATOR: CANADIAN NATURAL RESOURCES LTD.

CONTRACTOR: AKITA DRILLING LTD.

SURFACE LOCATION: 60:51:56.91 126:39:53.95

UNIQUE ID: 3600626700128300

SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY

SIGNATURE OF CONTRACTOR'S RIG MANAGER: RICK PARKER

PASON DATAHUB
Akita 51
Job 1

CDN 3422-2-611204

	GROUP & Description	SERIAL NUMBER	REMARKS	CENTRE	CENTRE WEAR & CUTS	TAPER	RIG SERVICE	REAMER SIZE	OUT OF GAUGE	SER & LENGTH	GAUGE LOOSE	BAR EDGE & DEPTH	BENT OR CRACKED	NOZZLE SIZ & QTY	PORT SIZE	DRILLING HRS	FLUID USED	COMMENTS	PERSON	BOX / PIN	SAFETY CHECKED
1		7.75					0.25														
2		7.25				0.25	0.25			0.25											
3		7.75					0.25														
TOTAL		22.75				0.25	0.75			0.25											

TOTALS	1	Flare Tank	0 0 0
	0.00	Trucks Shop	0 0 0
	0.00		
	0.00		
	24.00		

| | | | | | | | | | | | | | |

1990 | CNRES BEHOZIAH YOUH 0-52

OPERATION: CANADIAN NATURAL RESOURCES LTD.

CONTRACTOR: AKITA DRILLING LTD.

SURFACE LOCATION: 66:11:56.91 126:39:53.95

UNIQUE ID: 3000526790126300

SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY

SIGNATURE OF CONTRACTOR'S RIG MANAGER: RICK PARKER

PASON DATAHUB
Akita 51
Job 1

CDN 3422-3-811284

CAODC

| | | |

1960	CNRES BEHDZIAH YOUH 0-52
OPERATOR: CANADIAN NATURAL RESOURCES LTD.	CONTRACTOR: AKITA DRILLING LTD.
SURFACE LOCATION: 06:51:06.91 126:39:53.95	UNIQUE ID: 3000526700126300
SIGNATURE OF OPERATOR'S REPRESENTATIVE: CRAIG SKUBLENY	SIGNATURE OF CONTRACTOR'S RIG MANAGER: RICK PARKER

PASON *DATAHUB*
Akita 61
Job 1

CDN 3422-3-011304

| | | |

RESISTIVITY/ CONDUCTIVITY

COMPANY: CANNAT RESOURCES INC.

WELL: CNRES BEHDZIAH YOUH 0-52

FIELD: UNDEFINED

Province: NORTHWEST TERRITORIES

Province: NORTHWEST TERRITORIES
Field: UNDEFINED
Location: LATITUDE: 66 DEG 51'
Well: CNRES BEHDZIAH YOUH 0-52
Company: CANNAT RESOURCES INC.

Schlumberger

PLATFORM EXPRESS
HALS LATEROLOG

LOCATION

LATITUDE: 66 DEG 51'	Elev.:	K.B.	265 m
LONGITUDE: 126 DEG 39'		G.L.	258.9 m
UWID: 300/O-52-67.00-126.300		D.F.	264.7 m
Permanent Datum: GROUND LEVEL	Elev.: 258.9 m		
Log Measured From: KELLY BUSHING	6.1 m above Perm. Datum		
Drilling Measured From: KELLY BUSHING			

API Serial No.	LATITUDE:	LONGITUDE:
1960	66 DEG 51' N	126 DEG 39' W

Logging Date	4-Feb-2003			
Run Number	TWO			
Depth Driller	1540 m			
Schlumberger Depth	1533 m			
Bottom Log Interval	1530 m			
Top Log Interval	809 m			
Casing Driller Size @ Depth	244.500 mm	@ 809 m	@	
Casing Schlumberger	809 m			
Bit Size	215.000 mm			
Type Fluid In Hole	SALT MUD			
MUD Density / Viscosity	1260 kg/m3	60 s		
Fluid Loss / PH	10.5 cm3	10		
Source Of Sample	FLOWLINE			
RM @ Measured Temperature	0.045 ohm.m	@ 20 degC	@	
RMF @ Measured Temperature	0.038 ohm.m	@ 20 degC	@	
RMC @ Measured Temperature	0.118 ohm.m	@ 17 degC	@	
Source RMF / RMC	PRESS	PRESS		
RM @ MRT / RMF @ MRT	0.044 @ 21	0.037 @ 21	@	@
Maximum Recorded Temperatures	21 degC			
Circulation Stopped / Time	4-Feb-2003	16:30		
Logger On Bottom / Time	5-Feb-2003	22:00		
Unit Number / Location	8416	NORMAN WELLS		
Recorded By	DEVIN BEAN			
Witnessed By	CRAIG SKUBLENY			

NEB COPY

	Run 1	Run 2	Run 3	Run 4
Logging Date				
Run Number				
Depth Driller				
Schlumberger Depth				
Bottom Log Interval				
Top Log Interval				
Casing Driller Size @ Depth	@		@	
Casing Schlumberger				
Bit Size				
Type Fluid In Hole				
MUD Density / Viscosity				
Fluid Loss / PH				
Source Of Sample				
RM @ Measured Temperature	@		@	
RMF @ Measured Temperature	@		@	
RMC @ Measured Temperature	@		@	
Source RMF / RMC				
RM @ MRT / RMF @ MRT	@	@	@	@
Maximum Recorded Temperatures				
Circulation Stopped / Time				
Logger On Bottom / Time				
Unit Number / Location				
Recorded By				
Witnessed By				

DISCLAIMER
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OTHER SERVICES1
OS1: BHC SONIC
OS2: LITHO-DENSITY
OS3: COMP. NEUTRON
OS4: HALS
OS5:

REMARKS: RUN NUMBER 1
DEPTH MATCHED TO FIRST RUN BY SCHLUMBERGER ON JAN. 19, 2003

DRILLER TD OF 1540 NOT REACHED.
BRIDGED AT 1350 ON FIRST ATTEMPT.

BELOW 1350 LOG HAS MERGED GAMMA RAY, CALIPER
AND RXOZ FROM THIRD RUN. ON THIRD RUN TOOL STUCK
AT APPROX. 1350, THIS MADE IT DIFFICULT TO GET MERGED
DATA EXACTLY ON DEPTH FOR THE ENTIRE INTERVAL.

RIG AKITA/SAHTU 51
CREW: PETER ROOS/KALVIN ELIAS

OTHER SERVICES2
OS1:
OS2:
OS3:
OS4:
OS5:

REMARKS: RUN NUMBER 2

RUN 1
SERVICE ORDER #: 9193782
PROGRAM VERSION: 9C2-303
FLUID LEVEL:

LOGGED INTERVAL	START	STOP

RUN 2
SERVICE ORDER #:
PROGRAM VERSION:
FLUID LEVEL:

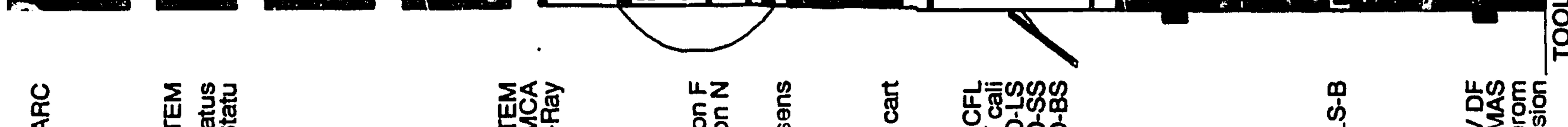
LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

RUN 1

SURFACE EQUIPMENT
GSR-U/Y 1984, NCT-B, CNB-AB, NCS-VB
LCM-AA, WITM (DTS)-A

DOWNHOLE EQUIPMENT



MAXIMUM STRING DIAMETER 168 MM
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN METERS

RUN 2

SURFACE EQUIPMENT
GSR-U/Y 1984, NCT-B, CNB-AB, NCS-VB
LCM-AA, WITM (DTS)-A

DOWNHOLE EQUIPMENT

MAXIMUM STRING DIAMETER 168 MM
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN METERS

Input DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_015PUP	FN:22	PRODUCER	04-Feb-2003 23:18	1347.5 M	690.7 M

Output DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_007PUP	FN:6	PRODUCER	06-Feb-2003 08:31	1347.5 M	774.5 M

OP System Version: 9C2-303
MCM

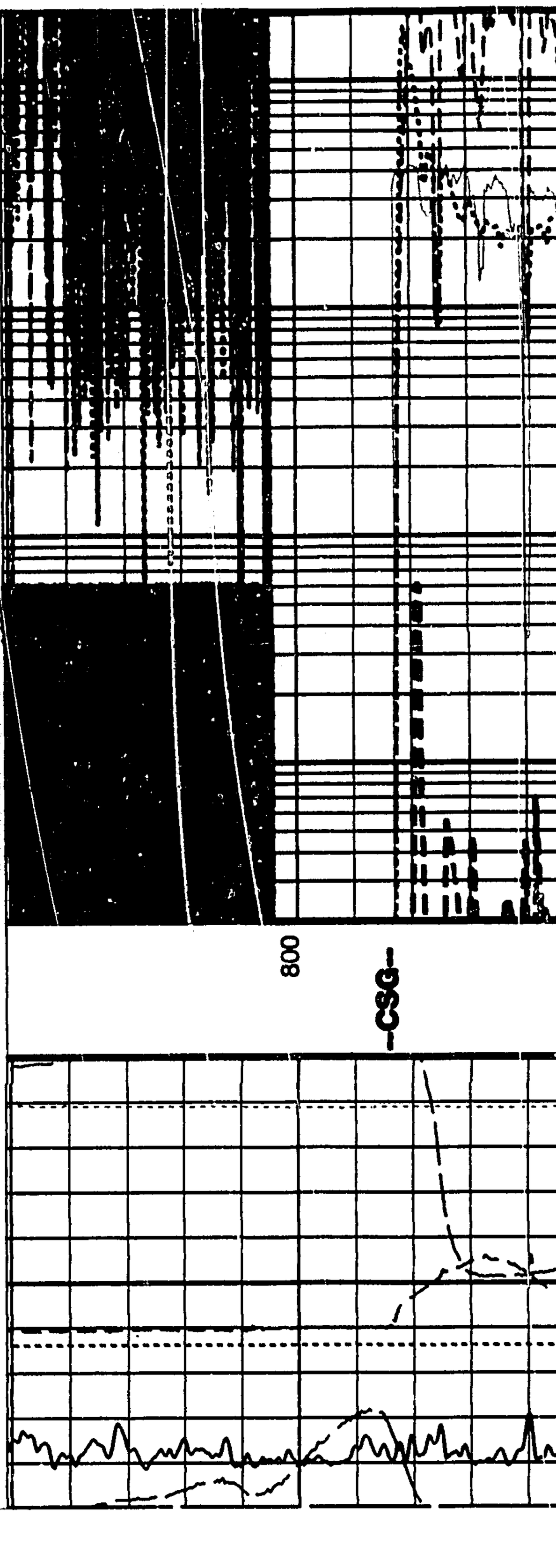
HILTB-FTB	OP92-KP2	GPIT-C	SRPC-2149-OBMT
DTC-H	9C2-303	BSP	9C2-303

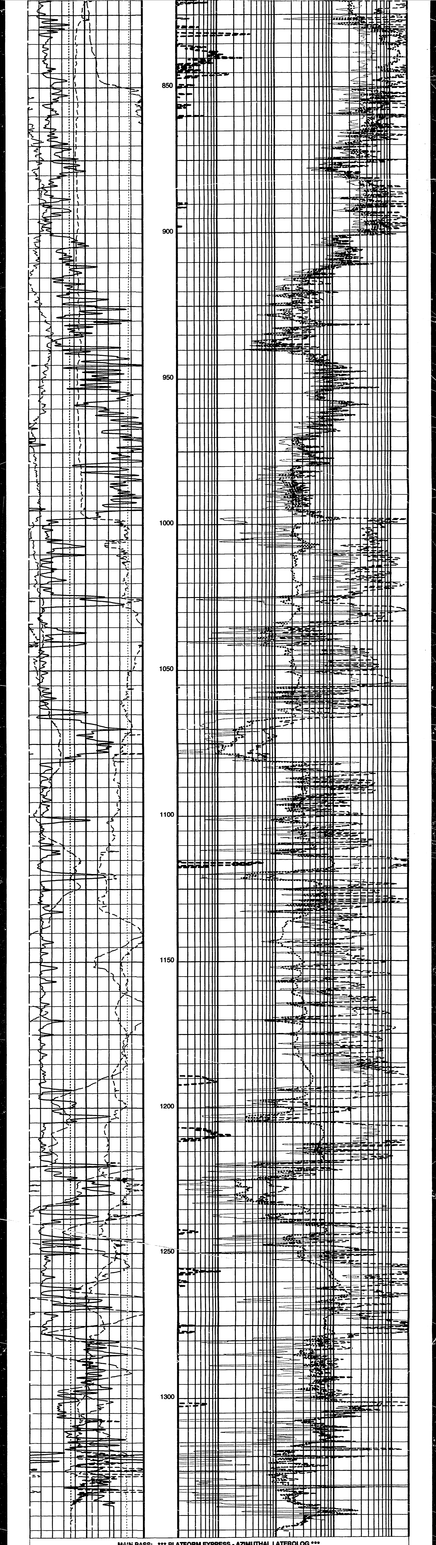
PIP SUMMARY

Time Mark Every 60 S

Tension (TENS) (N)	25000		0
Caliper (HCAL) (MM)	125		375
Gamma Ray (GR) (GAPI)	0		150
Bit Size (BS) (MM)	125		375
SP [-15+ mV] (SP) (MV)	-120		30
Std. Res. Invaded Zone Resistivity (RXOZ) (OHMM)	0.2		2000
Laterolog Deep Resistivity (HLLD) (OHMM)	2000		200000
Laterolog Shallow Resistivity (HLLS) (OHMM)	2000		200000
Laterolog Deep Resistivity (HLLD) (OHMM)	0.2		2000
Laterolog Shallow Resistivity (HLLS) (OHMM)	0.2		2000

MAIN PASS: *** PLATFORM EXPRESS - AZIMUTHAL LATEROLOG ***





Parameters

DLIS Name	Description	Value	
ARIP_LTE	HALS Long Tool String Correction	OFF	
ARIP_SHOULDER	HALS Shoulder Correction	OFF	
BHCC	HALS Borehole Correction	On	
BHT	Bottom Hole Temperature (used in calculations)	22	DEGC
BIT	Bit Size	215.000	MM
DHOP	Diameter & Eccentering used in HALS Borehole Corrections	BitSize_Eccentered	
DO	Depth Offset for Playback	0.0	M
HBGC	HALS Geometry Correction	OFF	
HMSO	HALS Mechanical Standoff	38.1	MM
LBFR	Trigger for MAXIS Field Reading Label	TDL	
MPCM	MCPL Processing Operation Mode	ON	
MST	Mud Sample Temperature	20.00	DEGC
SHIV	Shop Invert Processing	NORMAL	
SPHV	SP Reid Vshale	0	MV
SPVD	TVD of Starting Point	0	M
TCOR	HALS TLD Correction	OFF	
TDD	Total Depth - Driller	1540.00	M
TDL	Total Depth - Logger	1536.7	M
TIWD	Airborne Wireline Log Tie-In Point	609	M
TVD	TVD of Log Point	609	M
UNSPK	HALS Despiking Filter Option	OFF	
UNSPK_THOLD	HALS Despiking Filter Threshold (in %)	20	%
UNSPK_WINDOW	HALS Despiking Filter Window (Inches)	152.4	MM

Format: HALS_S2 Vertical Scale: 1:600 Graphics File Created: 06-Feb-2003 08:31

OP System Version: 9C2-303

MCM

HILTB-FTB	OP92-KP2	GPIT-C	SRPC-2149-OBMT
DTC-H	9C2-303	BSP	9C2-303

Input DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_015PUP	FN:32	PRODUCER	04-Feb-2003 23:18	1347.5 M	690.7 M

Output DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_007PUP	FN:5	PRODUCER	06-Feb-2003 08:31		

Input DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_005PUP	FN:3	PRODUCER	06-Feb-2003 05:18	1535.7 M	721.3 M

Output DLIS Files

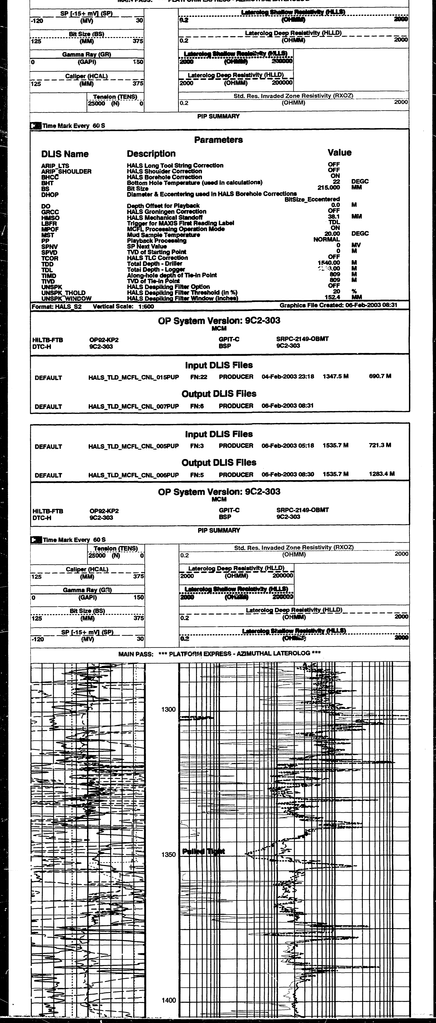
DEFAULT	HALS_TLD_MCFL_CNL_006PUP	FN:5	PRODUCER	06-Feb-2003 08:30	1535.7 M	1283.4 M

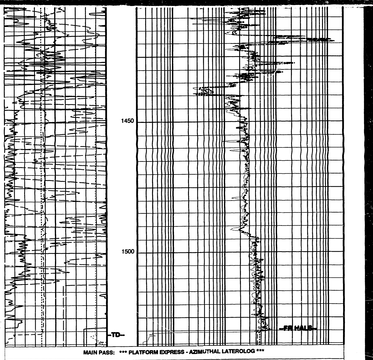
OP System Version: 9C2-303

MCM

HILTB-FTB	OP92-KP2	GPIT-C	SRPC-2149-OBMT
DTC-H	9C2-303	BSP	9C2-303

PIP SUMMARY





MAIN PASS: *** PLATFORM EXPRESS - AZIMUTHAL LATEROLOG ***

SP (-15 + mV) (SP)	Laterolog Shallow Resistivity (HLLS)	
-120 (MV) 30	0.2 (OHMM) 2000	
Bit Size (BS)	Laterolog Deep Resistivity (HLLD)	
125 (MM) 375	0.2 (OHMM) 2000	
Gamma Ray (GR)	Laterolog Shallow Resistivity (HLLS)	
0 (GAPI) 150	2000 (OHMM) 200000	
Caliper (HCAL)	Laterolog Deep Resistivity (HLLD)	
125 (MM) 375	2000 (OHMM) 200000	
Tension (TENS)	Std. Res. Invaded Zone Resistivity (RXO2)	
20000 (N) 0	0.2 (OHMM) 2000	

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
ARIP_LTS	HALS Long Tool String Correction	OFF
ARIP_SHOULDER	HALS Shoulder Correction	OFF
BHCS	Borehole Correction	DEC
BHT	Cutting Hole Temperature (used in calculations)	215.000 DEGC
BS	Bit Size	8 1/2 MM
DHCP	Diameter & Eccentering used in HALS Borehole Corrections	BitSize_Eccentered
DO	Depth Offset for Playback	0.0 M
GBCC	HALS Gravigage Correction	OFF
HSSO	HALS Mechanical Standoff	0.000 MM
MDEC	HALS Mud Sample Acquisition Mode	ON
MST	Mud Sample Temperature	20.00 DEGC
PP	Playback Processing	NORMAL
SPHV	SP Hole Value	-80 MV
SPSO	THD of Starting Point	0 M
TCOR	HALS TLC Correction	OFF
TMD	Alonghole depth of Tie-In Point	800 M
TVD	TVD of Tie-In Point	800 M
UNSPK	HALS Despiking Filter Option	OFF
UNSPK_THOLD	HALS Despiking Filter Threshold (in %)	20 %
UNSPK_WINDOW	HALS Despiking Filter Window (inches)	152.4 MM

Format: HALS_52 Vertical Scale: 1:200 Graphics File Created: 06-Feb-2003 08:30

OP System Version: 9C2-303

MCM

HILTB-FTB	OP92-KP2		SPIT-C	SRPC-2149-OBMT	
OTC-H	9C2-303		BSP	9C2-303	

Input DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_005PUP	FN:3	PRODUCER	06-Feb-2003 00:18	1535.7 M	721.3 M

Output DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_006PUP	FN:5	PRODUCER	06-Feb-2003 08:30		

Input DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_010PUP	FN:22	PRODUCER	04-Feb-2003 23:18	1347.5 M	690.7 M

Output DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_007PUP	FN:6	PRODUCER	06-Feb-2003 06:31	1347.5 M	774.5 M

OP System Version: 9C2-303

MCM

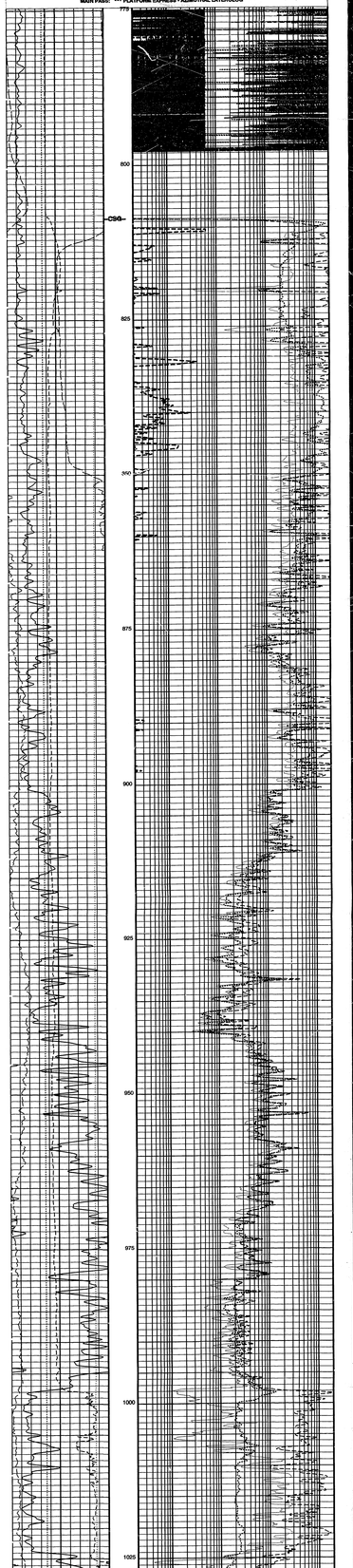
HILTB-FTB	OP92-KP2		SPIT-C	SRPC-2149-OBMT	
OTC-H	9C2-303		BSP	9C2-303	

PIP SUMMARY

Time Mark Every 60 S

Tension (TENS)	Std. Res. Invaded Zone Resistivity (RXO2)	
20000 (N) 0	0.2 (OHMM) 2000	
Caliper (HCAL)	Laterolog Deep Resistivity (HLLD)	
125 (MM) 375	2000 (OHMM) 200000	
Gamma Ray (GR)	Laterolog Shallow Resistivity (HLLS)	
0 (GAPI) 150	2000 (OHMM) 200000	
Bit Size (BS)	Laterolog Deep Resistivity (HLLD)	
125 (MM) 375	0.2 (OHMM) 2000	
SP (-15 + mV) (SP)	Laterolog Shallow Resistivity (HLLS)	
-120 (MV) 30	0.2 (OHMM) 2000	

MAIN PASS: *** PLATFORM EXPRESS - AZIMUTHAL LATEROLOG ***



MAIN PASS: *** PLATFORM EXPRESS + AZIMUTHAL LATEROLOG ***

SP (-) 0 + mV (SP)	-120 30	Laterolog Shallow Resistivity (HLLS) (OHMM)	0.2 2000
Bit Size (BS) (MM)	125 375	Laterolog Deep Resistivity (HLLD) (OHMM)	0.2 2000
Gamma Ray (GR) (GAPI)	0 150	Laterolog Shallow Resistivity (HLLS) (OHMM)	2000 200000
Caliper (HCAL) (MM)	125 375	Laterolog Deep Resistivity (HLLD) (OHMM)	2000 200000
Tension (TENS) (LBF)	20000 0	Std. Res. Invaded Zone Resistivity (RXO2) (OHMM)	0.2 2000

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
ARIP_LTS	HALS Long Tool String Correction	OFF
ARIP_SHOULDER	HALS Shoulder Correction	ON
BHCT	Bottom Hole Circulating Temperature	22 DEGC
BHT	Bottom Hole Temperature (used in calculations)	22 DEGC
BS	Bit Size	215.000 MM
DHCP	Diameter & Eccentering used in HALS Borehole Corrections	8IN|ze_Eccentered
DO	Depth Offset for Playback	0.0 M
GRCC	HALS Gunningen Correction	OFF
HBSO	HALS Mechanical Bit Size	381 MM
HMRO	HALS Mandrel Pipe Reading Label	TDL
MPOP	MCM, Processing Operation Mode	2.00
MST	Mud Sample Temperature	22 DEGC
MTEM	Mud Temperature Measured	NORMAL
SPAV	SP Start Value	0 MV
SPID	TVD of Starting Point	0 M
TCON	HALS Tool Connect	OFF
TDD	Total Depth - Driller	1540.00 M
TDL	Total Depth - Logger	1533.00 M
TIED	Along-hole Depth of Tie-In Point	800 M
TVD	TVD of Tie-In Point	800 M
UNSPK	HALS Despiking Filter Option	OFF
UNSPK_THOLD	HALS Despiking Filter Threshold (in %)	10 %
UNSPK_WINDOW	HALS Despiking Filter Window (inches)	0.152 M

Format: HALS_SS Vertical Scale: 1:240 Graphics File Created: 08-Feb-2003 08:31

OP System Version: 9C2-303
MCM

HLTB-FTB	OP92-KP2	GRIT-C	SRPC-2149-OBMT
DTC-H	9C2-303	BSP	9C2-303

Input DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_015PUP	FN:22	PRODUCER	04-Feb-2003 23:18	1347.5 M	660.7 M

Output DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_007PUP	FN:6	PRODUCER	06-Feb-2003 08:31

Input DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_009PUP	FN:3	PRODUCER	06-Feb-2003 06:18	1535.7 M	721.3 M

Output DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_006PUP	FN:5	PRODUCER	06-Feb-2003 08:30	1535.7 M	1283.4 M

OP System Version: 9C2-303
MCM

HLTB-FTB	OP92-KP2	GRIT-C	SRPC-2149-OBMT
DTC-H	9C2-303	BSP	9C2-303

PIP SUMMARY

Time Mark Every 60 S

Tension (TENS) 25000 (lb) 0

Caliper (HCAL) (MM) 125 375

Gamma Ray (GR) (GAPI) 0 150

Bit Size (BS) (MM) 125 375

SP 1:15 = mV (SP) (MV) -120 30

Std. Res. Invaded Zone Resistivity (RXO7) 0.2 (OHMM) 2000

Laterolog Deep Resistivity (HLLD) 2000 (OHMM) 200000

Laterolog Shallow Resistivity (HLLS) 2000 (OHMM) 200000

Laterolog Deep Resistivity (HLLD) 0.2 (OHMM) 2000

Laterolog Shallow Resistivity (HLLS) 0.2 (OHMM) 2000

MAIN PASS: *** PLATFORM EXPRESS - AZIMUTHAL LATEROLOG ***

1300

Pulled Tight

1325

1350

1375

1400

1425

1450

1475

1500

1525

~TD~

~PR HALS~

MAIN PASS: *** PLATFORM EXPRESS - AZIMUTHAL LATEROLOG ***

SP 1:15 = mV (SP) (MV) -120 30

Bit Size (BS) (MM) 125 375

Gamma Ray (GR) (GAPI) 0 150

Caliper (HCAL) (MM) 125 375

Tension (TENS) 25000 (lb) 0

Laterolog Shallow Resistivity (HLLS) 0.2 (OHMM) 2000

Laterolog Deep Resistivity (HLLD) 0.2 (OHMM) 2000

Laterolog Shallow Resistivity (HLLS) 2000 (OHMM) 200000

Laterolog Deep Resistivity (HLLD) 2000 (OHMM) 200000

Std. Res. Invaded Zone Resistivity (RXO2) 0.2 (OHMM) 2000

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
ARSP_LTS	HALS Long Tool String Correction	OFF	
ARSP_SHOULDER	HALS Shoulder Correction	OFF	
BHCC	HALS Borehole Correction	32	DEGC
BHT	Bottom Hole Temperature (used in calculations)	216.000	MM
BS	Bit Size	8	
DHOP	Diameter & Eccentering used in HALS Borehole Corrections	8in|0in_Eccentered	
DO	Depth Offset for Playback	0.0	M
GEOC	HALS Groningen Correction	OFF	
MDEP	Measured Depth Logged	0	MM
MPRO	MCML Processing Operation Mode	5	
MST	Mud Sample Temperature	20.00	DEGC
PP	Playback Processing	NORMAL	
SPVO	SP Next Value	0	MV
SPVP	SP Previous Point	2	M
TCOR	HALS TLD Correction	OFF	
TIMD	Along-hole depth of Tie-In Point	809	M
TIND	HALS Tie-In Flag	OFF	
TMPE	HALS Thermal Filter Option	OFF	
VMDPE_THOLD	HALS Despiking Filter Threshold (in %)	20	%
VMDPE_WINDOW	HALS Despiking Filter Window (Inches)	152.4	MM

Format: HALS_5S Vertical Scale: 1:240 Graphics File Created: 08-Feb-2003 08:30

OP System Version: 9C2-303

MCM

HILTB-FTB	OP60-KP2	GPIT-C	SRPC-2149-OBMT
DTCH	9C2-303	SSP	9C2-303

Input DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_005PUP	FN:3	PRODUCER	06-Feb-2003 06:18	1535.7 M	721.3 M

Output DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_006PUP	FN:5	PRODUCER	06-Feb-2003 05:30		

Input DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_015PUP	FN:22	PRODUCER	04-Feb-2003 23:18	1347.5 M	690.7 M

Output DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_007PUP	FN:6	PRODUCER	06-Feb-2003 08:31	1347.5 M	774.5 M

OP System Version: 9C2-303

MCM

HILTB-FTB	OP60-KP2	GPIT-C	SJPC-2149-OBMT
DTCH	9C2-303	SSP	9C2-303

PIP SUMMARY

Time Mark Every 60 S

Tension (TENS) 25000 (lb) 0

Gamma Ray (EHGR) (GAPI) 0 150

Caliper (HCAL) (MM) 125 375

Bit Size (BS) (MM) 125 375

SP 1:15 = mV (SP) (MV) -120 30

H. Res. Invaded Zone Resistivity (RXO8) 0.2 (OHMM) 2000

High Resolution Deep Resistivity (HRLD) 2000 (OHMM) 200000

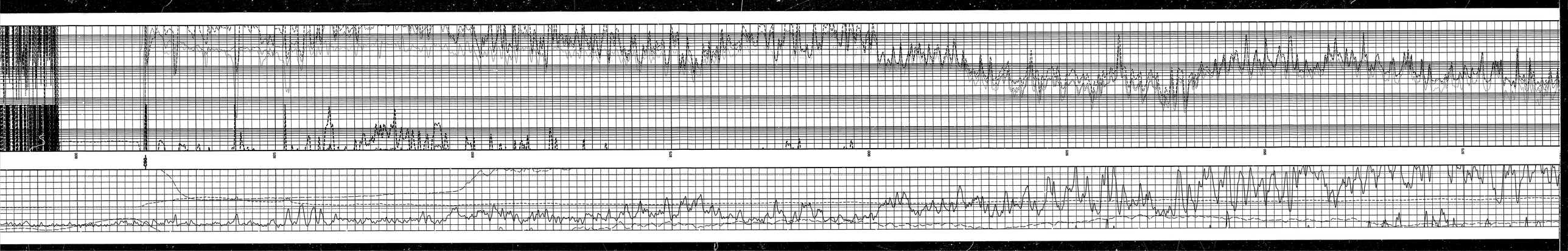
High Resolution Shallow Resistivity (HRLS) 2000 (OHMM) 200000

High Resolution Deep Resistivity (HRLD) 0.2 (OHMM) 2000

High Resolution Shallow Resistivity (HRLS) 0.2 (OHMM) 2000

HIRES SECTION: *** PLATFORM EXPRESS - AZIMUTHAL LATEROLOG ***

775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950
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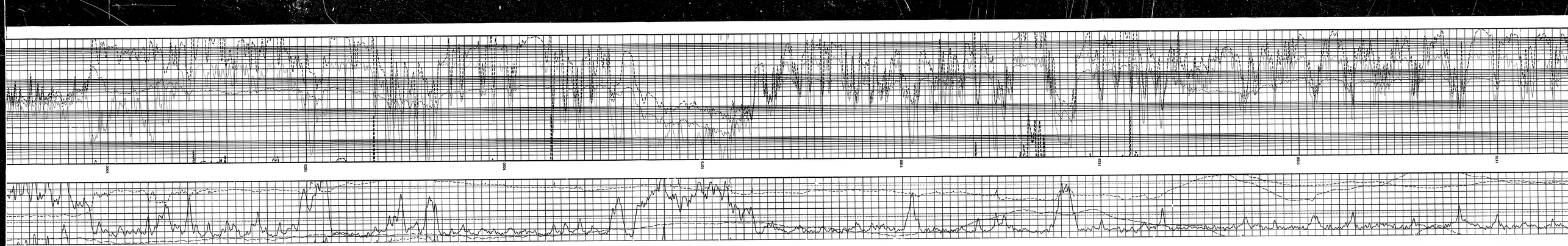
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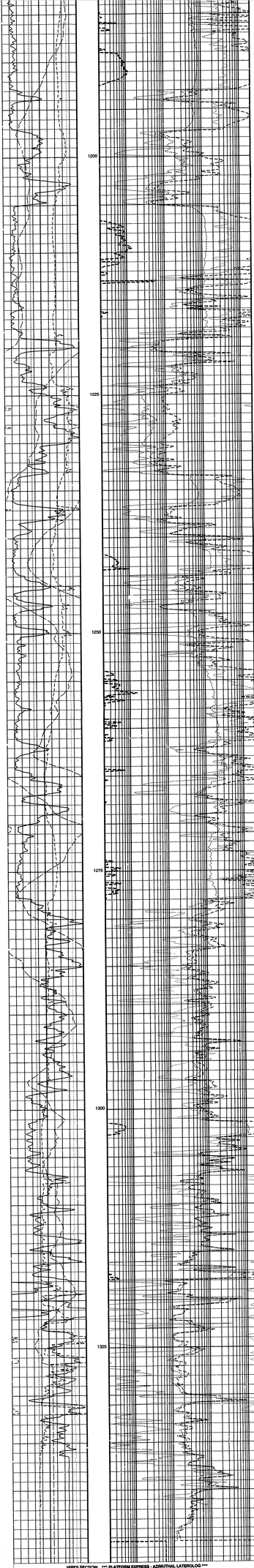
1175



HIRES SECTION: *** PLATFORM EXPRESS - AZIMUTHAL LATEROLOG ***

SP (-15+ mV) (SP)
-120 (MV) 30

Bit Size (BS)
125 (MM) 375

Caliper (HCAL)
120 (MM) 370

Gamma Ray (EHGR)
0 (GAPI) 150

Tension (TENS)
25000 (N) 0

High Resolution Shallow Resistivity (HRLS)
0.2 (OHMM) 2000

High Resolution Deep Resistivity (HRLD)
0.2 (OHMM) 2000

High Resolution Shallow Resistivity (HRLS)
2000 (OHMM) 2000000

High Resolution Deep Resistivity (HRLD)
2000 (OHMM) 2000000

HL Res. Invaded Zone Resistivity (RXOI)
0.2 (OHMM) 2000

Format: HIRES_HALS Vertical Scale: 1:120

Graphics File Created: 06-Feb-2003 08:31

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
ARIP_LTS	HALS Long Tool Sting Correction	OFF
ARIP_SHOULDER	HALS Shoulder Correction	OFF
BHCC	HALS Borehole Correction	10 DEGC
BHT	Bottom Hole Temperature (used in calculations)	122 DEGF
BS	Bit Size	215.000 MM
DFD	Drilling Fluid Density	1260.00 K/M3
DHDF	Diameter & Eccentering used in HALS Borehole Corrections	
		BitSize, Eccentered
DO	Depth Offset for Playback	0.0 M
GEOC	HALS Geologian Correction	29.1 MM
HMSO	HALS Mud Standoff	0.000 MM
HRLF	HRLT Measured Raw Reading Label	TOL
HPCF	HRLT_Processing Operation Mode	ON
MDT	Mud Sample Temperature	20.00 DEGC
MFT	Mud Filtrate Sample Type	NORMAL
PRP	Playback Processing	NORMAL
SOCN	Standoff Distance	3.175 MM
SOCO	Standoff Correction Option	YES
SPOV	SP Vertical Shift	0 MV
TCDB	TVD at Tie-In Point	0 M
TCOB	HALS TLD Collection	OFF
TDD	Total Depth - Driller	1840.00 M
TDL	Total Depth - Logger	1833.00 M
TIMD	Measured Depth of Tie-In Point	830 M
TIVD	TVD at Tie-In Point	829 M
UMSPK	HALS Despiking Filter Option	OFF
UMSPK_THOLD	HALS Despiking Filter Threshold (in %)	10 %
UMSPK_WINDOW	HALS Despiking Filter Window (inches)	152.4 MM

Graphics File Created: 06-Feb-2003 08:31

OP System Version: 9C2-303

HLTB-FTB	OP92-KP2	MCM: GRT-C	SRPC-2149-OBMT
DTC-H	9C2-303	BSP	9C2-303

Input DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_01SPUP	FN:22	PRODUCER	04-Feb-2003 23:18	1347.5 M	890.7 M

Output DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_007PUP	FN:5	PRODUCER	06-Feb-2003 08:31		

Input DLIS Files

DEFAULT HALS_TLD_MCFL_CNL_009UP FN:3 PRODUCER 05-Feb-2003 05:18 1536.7 M 721.5 SF

Output DLIS Files

DEFAULT HALS_TLD_MCFL_CNL_009UP FN:5 PRODUCER 06-Feb-2003 06:30 1536.7 M 1212.4 M

OP System Version: 9C2-303

MCM

HILTS-FTB OPS2-KF2 GPIT-C SRP-CF48-OBMT
DTC-H XC2-303 BSP XC2-303

PIP SUMMARY

Time Mark Every 60 S

Tension (TENS) 25000 (N) 0

Gamma Ray (EHGR) (GAPI) 0 150

Caliper (HCAL) (MM) 125 375

Bit Size (BS) (MM) 125 375

SP 1:5[+.mV] (SP) (MV) -120 30

H. Res. Invaded Zone Resistivity (RXOH) (OHMM) 0.2 2000

High Resolution Deep Resistivity (HDLD) (OHMM) 0.2 2000

High Resolution Shallow Resistivity (HSLD) (OHMM) 0.2 2000

High Resolution Deep Resistivity (HDLD) (Variable) 0.2 2000

High Resolution Shallow Resistivity (HSLD) (OHMM) 0.2 2000

HIRES SECTION: *** PLATFORM EXPRESS - AZIMUTHAL LATEROLOG ***

1300

1325

1350

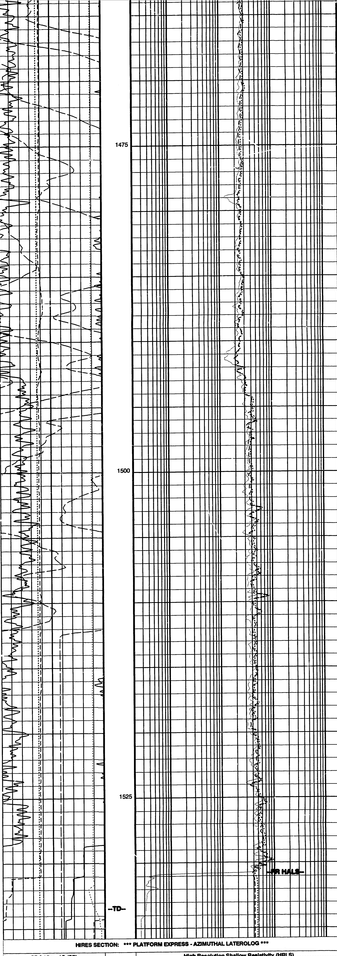
Pulled Tight

1375

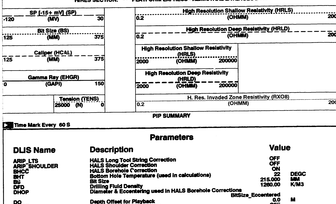
1400

1425

1450



HIRES SECTION: *** PLATFORM EXPRESS - AZIMUTHAL LATEROLOG ***



P/P SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
ARIP_LTS	HALS Long Tool String Correction	OFF	
ARIP_SHOULDER	HALS Shoulder Correction	OFF	
BHCO	HALS Borehole Correction	0	
BHT	Bottom Hole Temperature (used in calculations)	215.600	DEGC
BS	Bit Size	1280.00	MM
CHDO	Drilling Fluid Density	1.200	K/M3
CHOP	Diameter & Eccentering used in HALS Borehole Corrections		
		8tt5ice_Eccentered	
DDO	Depth Offset for Playback	0.0	M
GROC	HALS Gronigen Correction	OFF	
HBHO	HALS Borehole Correction	0.0	MM
MEMO	Log Acquisition Mode	ON	
MFOP	Mud Sample Temperature	20.00	DEGC
MFT	HLT Hucher Mud Type	NORDIC(1)	
MFT	Playback Processing	NORDIC(1)	
SOCH	Standoff Value	8.173	MM
SOCN	Standoff Correction Option	YES	
SPMV	SP Null Value	-9	MV
SPOP	SP Reading Point	0	M
SPSO	HALS Tool Correction	OFF	
TIMD	Along-hole depth of Tie-In Point	809	M
TIME	TVD of Tie-In Point	809	M
UNWRAP	HALS Deepdrag Filter Option	OFF	
UNWRL_THOLD	HALS Deepdrag Filter Threshold (in %)	20	%
UNWRL_WINDOW	HALS Deepdrag Filter Window (inches)	182.4	MM

Format: HIRES_HALS Vertical Scale: 1:120 Graphics File Created: 06-Feb-2003 08:30

OP System Version: 9C2-303

		MCM	
HLLTB-FTB	OP92-KP2	GPIT-C	SRFC-2149-OEMT
DTC-H	9C2-303	BSF	9C2-303

Input DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_006PUP	FN:3	PRODUCER	06-Feb-2003 06:18	1635.7 M	721.3 M

Output DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_006PUP	FN:5	PRODUCER	06-Feb-2003 08:30		

Input DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_014LUP	FN:25	PRODUCER	05-Feb-2003 00:33	1338.2 M	970.9 M
DEFAULT	HALS_TLD_MCFL_CNL_015PUP	FN:32	PRODUCER	04-Feb-2003 23:18	1347.5 M	890.7 M

Output DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_017PUP	FN:28	PRODUCER	05-Feb-2003 01:11	1338.2 M	1175.2 M
RSDUCED	HALS_TLD_MCFL_CNL_017PUP	FN:29	PRODUCER	05-Feb-2003 01:11	1338.2 M	1175.2 M

OP System Version: 9C2-303

		MCM	
HLLTB-FTB	OP92-KP2	GPIT-C	SRFC-2149-OEMT
DTC-H	9C2-303	BSF	9C2-303

P/P SUMMARY

Time Mark Every 60 S

TENS_REP Curve (TENS_REP)
25000 (lb) 0

SP 1:6mV_REP Curve (SP_REP)
-120 (MV) 30

HCAL_REP Curve (HCAL_REP)
125 (MM) 375

GR_REP Curve (GR_REP)
0 (GAPI) 150

RS_REP Curve (RS_REP)
135 (MM) 375

RXOZ_REP Curve (RXOZ_REP)
0.2 (OHMM) 2000

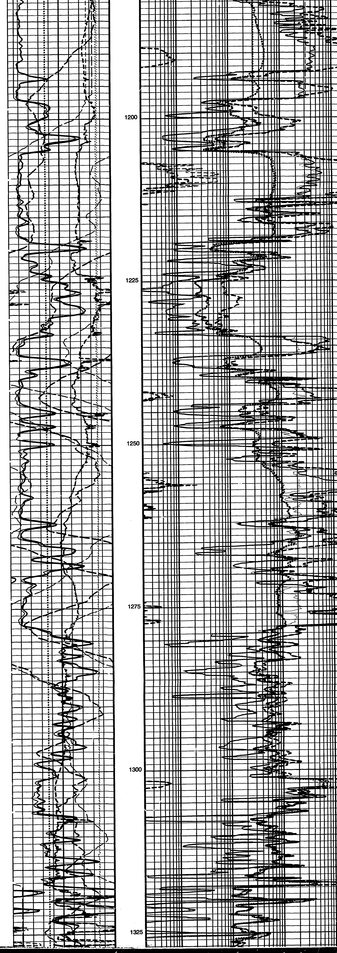
HLLD 1_REP Curve (HLLD_REP)
2000 (OHMM) 200000

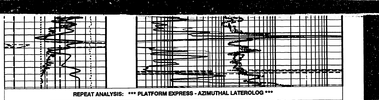
HLLS 1_REP Curve (HLLS_REP)
20000 (OHMM) 200000

HLLD_REP Curve (HLLD_REP)
0.2 (OHMM) 2000

HLLS_REP Curve (HLLS_REP)
0.2 (OHMM) 2000

REPEAT ANALYSIS: *** PLATFORM EXPRESS - AZIMUTHAL LATEROLOG ***





REPEAT ANALYSIS: *** PLATFORM EXPRESS - AZIMUTHAL LATEROLOG ***

BS_REP Curve (BS_REP) (MM): 125 – 375

HALS_REP Curve (HALS_REP) (OHMM): 0.2 – 2000

GR_REP Curve (GR_REP) (GAPI): 0 – 150

HLLD_REP Curve (HSLD_REP) (OHMM): 0.2 – 2000

HCAL_REP Curve (6CAL_REP) (MM): 125 – 375

HLLS_REP Curve (HALS_REP) (OHMM): 2000 – 200000

SP_10mV_REP Curve (SP_REP) (MV): -120 – 30

HLLD_L_REP Curve (HSLD_REP) (OHMM): 2000 – 200000

TENS_REP Curve (TENS_REP) (LB): 25000 – 0

RXOZ_REP Curve (RXOZ_REP) (OHMM): 0.2 – 2000

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
ARM_LTS	HALS Long Tool String Correction	OFF	
ARM_SHOULDER	HALS Shoulder Correction	ON	
BHCS	HALS Borehole Correction	32	
BHT	Bottom Hole Temperature (used in calculations)	0.0	DEGC
BS	Bit Size	215.000	MM
CHOP	Diameter & Eccentering used in HALS Borehole Corrections	Caliper_Eccentered	
DO	Depth Offset for Playback	0.0	M
DOBL	Depth Offset for Repeat Analysis	0.0	M
GMOD	HALS Gronigen Correction	OFF	
HBOC	HALS Borehole Correction	38.1	MM
MPOP	MCFL Processing Operation Mode	ON	
MST	Mud Sample Temperature	20.00	DEGC
MTEM	Mud Type for Processing	NORMAL	
SPHV	SP Hard Value	0	MV
SPVO	TVD of Starting Point	0	M
TCOR	HALS TLD Correction	OFF	
TIME	Along-hole depth of Tie-in Point	0	M
TVDO	TVD Offset	0	M
UNSPK	HALS Despiking Filter Option	OFF	
UNSPK_THOLD	HALS Despiking Filter Threshold (in %)	10	
UNSPK_WINDOW	HALS Despiking Filter Window (inches)	152.4	MM

Format: HALS_BS_REP Vertical Scale: 1:240 Graphics File Created: 05-Feb-2003 01:11

OP System Version: 9C2-303

MCM

HLTB-FTB	OP92-KP2	GPIT-C	SRPC-2149-OBMT
DTC-H	9C2-303	BSP	9C2-303

Input DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_016UP	FN:25	PRODUCER	05-Feb-2003 00:33	1338.2 M	970.9 M
DEFAULT	HALS_TLD_MCFL_CNL_015PUP	FN:22	PRODUCER	04-Feb-2003 23:18	1347.5 M	690.7 M

Output DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_017PUP	FN:28	PRODUCER	05-Feb-2003 01:11		
REDUCED	HALS_TLD_MCFL_CNL_017PUP	FN:29	PRODUCER	05-Feb-2003 01:11		

Input DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_014UP	FN:19	PRODUCER	04-Feb-2003 22:17	1345.2 M	706.5 M

Output DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_015PUP	FN:22	PRODUCER	04-Feb-2003 23:18	1347.5 M	690.7 M
REDUCED	HALS_TLD_MCFL_CNL_015PUP	FN:23	PRODUCER	04-Feb-2003 23:18	1347.5 M	690.7 M

HRDD Processing Flags Statistical Analysis:

Percentages computed on interval 4378.2 to 2664.3 ft (1334.5 to 812.1 m)

Pef Flags Up	0.9 %
Density Flags Up	0.1 %

	Window 1	Window 2	Window 3	Window 4
BS Average Reconstruction Error	1.23 %	0.27 %	0.06 %	
SS Average Reconstruction Error	-0.11 %	0.09 %	-0.07 %	0.58 %
LS Average Reconstruction Error	0.88 %	-0.06 %	0.27 %	0.75 %

OP System Version: 9C2-303

MCM

HLTB-FTB	OP92-KP2	GPIT-C	SRPC-2149-OBMT
DTC-H	9C2-303	BSP	9C2-303

PIP SUMMARY

Time Mark Every 60 S

Filtered Mud Resistivity from Deep Meas. (HRM) (OHMM): 0 – 1

Std. Res. Resistivity Standoff (RSOZ) (MM): 60 – 0

HALT Caliper (6CAL) (MM): 125 – 375

HGNS Deviation (GDEV) (DEG): -6 – 45

Gamma Ray (ECGR) (GAPI): 0 – 150

Std. Res. Density Standoff (DSOZ) (MM): 60 – 0

Stuck Stretch (STIT) (IN): 20 – 20

Bit Size (BS) (MM): 125 – 375

Tension (TENS) (LB): 25000 – 0

HMIN (HDRD) (---): 0.5 – 1.5

CCHIxo (CCHRLS) (---): 0.5 – 1.5

CCHIsd (CCHRLD) (---): 0.5 – 1.5

CCHIin (CCHLLR) (---): 0.5 – 1.2

CCHIid (CCHLLD) (---): 0.5 – 1.5

Pe Correction (HPRA) (---): -3 – 3

BS Delta Rho (HDRB) (G/C3): -0.5 – 0.5

Density Correction (HDRA) (G/C3): -0.25 – 0.25

Delta Neutron Porosity (HNPA) (V/V): -0.1 – 0.1

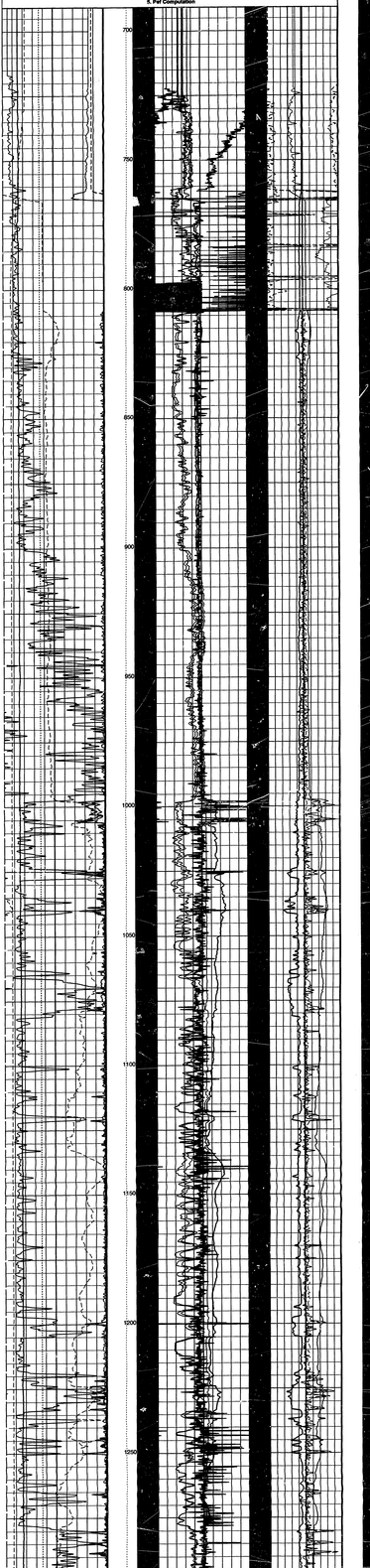
GR Borehole Correction Factor (CFGR) (---): 0.5 – 1.5

LOG QUALITY: *** PLATFORM EXPRESS ***

*** Flag Tracks ***
White = Absent Green = Good Yellow = Warn Red/Black = Bad

RESISTIVITY TRACK :
1. MCFL Hardware
2. RXO Processing
3. HALS Hardware
4. HALS Processing (HLLD)
5. HALS Processing (HLLS)

NUCLEAR TRACK :
1. Accelerometer
2. Density Detector
3. Neutron Porosity
4. Density Computation
5. Pef Computation



13000
FR_CDEVFR_CS
FR_CDEVFR_CS
FR_CDEVFR_CS

High resolution Integrated Logging Tool-DTS Waitsite Calibration

Primary Equipment:
HILT Azimuthal Laterolog Sonde B — HALS - B
HILT High Resolution Mechanical Sonde — HRMS - B — 1719
HILT Hi-Gamma-ray Device — HRGD - — 916
HILT Nuclear Back-Scatter Detector — HILT -
HILT Nuclear Short-Spacing Detector — HILT -
HILT Nuclear Long-Spacing Detector — HILT -
Micro Cylindrically Focused Log Device — MCFL -
GR Logging Source — GLS - VJ — 1984

Auxiliary Equipment:
Laterolog Control Module — LCM - AA

High resolution Integrated Logging Tool-DTS Waitsite Calibration
HALS8 Total current mode 1

Itot 1 Gain MA		Value	Itot 1 Phase DEG		Value
		0.999			0.000
0.926 (Minimum)	1.000 (Nominal)	1.081 (Maximum)	-0.100 (Minimum)	0.000 (Nominal)	0.100 (Maximum)

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Waitsite Calibration
HALS8 Aux current mode 1

Iaux 1 Gain MA		Value	Iaux 1 Phase DEG		Value
		0.995			-0.041
0.854 (Minimum)	1.000 (Nominal)	1.180 (Maximum)	-4.600 (Minimum)	0.000 (Nominal)	4.600 (Maximum)

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Waitsite Calibration
HALS8 Aux current mode 2

Iaux 2 Gain MA		Value	Iaux 2 Phase DEG		Value
		0.982			-0.000
0.818 (Minimum)	1.000 (Nominal)	1.232 (Maximum)	-1.000 (Minimum)	0.000 (Nominal)	0.100 (Maximum)

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Waitsite Calibration
HALS8 A0 current mode 3A

I0 3A Gain UA		Value	I0 3A Phase DEG		Value
		0.997			0.000
0.893 (Minimum)	1.000 (Nominal)	1.114 (Maximum)	-1.000 (Minimum)	0.000 (Nominal)	0.100 (Maximum)

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Waitsite Calibration
HALS8 A0 current mode 3B

I0 3B Gain UA		Value	I0 3B Phase DEG		Value
		0.979			0.000
0.893 (Minimum)	1.000 (Nominal)	1.114 (Maximum)	-1.000 (Minimum)	0.000 (Nominal)	0.100 (Maximum)

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Waitsite Calibration
HALS8 Torpedo Voltage gains

Zvt 1 Gain MV		Value	Zvt 2 Gain MV		Value	Zvt 3 Gain MV		Value
		0.999			0.994			0.991
0.925 (Minimum)	1.000 (Nominal)	1.078 (Maximum)	0.865 (Minimum)	1.000 (Nominal)	1.153 (Maximum)	0.865 (Minimum)	1.000 (Nominal)	1.153 (Maximum)

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Waitsite Calibration
HALS8 Torpedo Voltage Phases

Zvt 1 Phase DEG		Value	Zvt 2 Phase DEG		Value	Zvt 3 Phase DEG		Value
		-0.195			-0.370			-0.275
-4.400 (Minimum)	0.000 (Nominal)	4.400 (Maximum)	-2.800 (Minimum)	0.000 (Nominal)	2.800 (Maximum)	-1.400 (Minimum)	0.000 (Nominal)	1.400 (Maximum)

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Waitsite Calibration
HALS8 Upper Sonde Voltage mode 1

Zvb 1 Gain MV		Value	Zvb 1 Phase DEG		Value
		0.998			-0.069
0.925 (Minimum)	1.000 (Nominal)	1.078 (Maximum)	-4.400 (Minimum)	0.000 (Nominal)	4.400 (Maximum)

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Waitsite Calibration
HALS8 M1-M2 Voltage gains

ZVM 1 Gain UV		Value	ZVM 2 Gain UV		Value	ZVM 3 Gain UV		Value
		0.999			0.995			0.994
0.895 (Minimum)	1.000 (Nominal)	1.117 (Maximum)	0.843 (Minimum)	1.000 (Nominal)	1.056 (Maximum)	0.843 (Minimum)	1.000 (Nominal)	1.056 (Maximum)

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Waitsite Calibration
HALS8 M1-M2 Voltage Phases

ZVM 1 Phase DEG		Value	ZVM 2 Phase DEG		Value	ZVM 3 Phase DEG		Value
		0.666			1.484			0.998
-6.000 (Minimum)	0.000 (Nominal)	6.000 (Maximum)	-3.300 (Minimum)	0.000 (Nominal)	3.300 (Maximum)	-2.000 (Minimum)	0.000 (Nominal)	2.000 (Maximum)

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Waitsite Calibration
HALS8 M1-A0* Voltage gains

ZVH 1 Gain UV		Value	ZVH 2 Gain UV		Value	ZVH 3 Gain UV		Value
		0.997			0.995			0.992
0.962 (Minimum)	1.000 (Nominal)	1.039 (Maximum)	0.864 (Minimum)	1.000 (Nominal)	1.154 (Maximum)	0.864 (Minimum)	1.000 (Nominal)	1.154 (Maximum)

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Waitsite Calibration
HALS8 M1-A0* Voltage Phases

ZVH 1 Phase DEG		Value	ZVH 2 Phase DEG		Value	ZVH 3 Phase DEG		Value
		0.773			1.970			1.290
-6.000 (Minimum)	0.000 (Nominal)	6.000 (Maximum)	-3.300 (Minimum)	0.000 (Nominal)	3.300 (Maximum)	-2.000 (Minimum)	0.000 (Nominal)	2.000 (Maximum)

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Waitsite Calibration
HALS8 Aux Voltage gains

ZVA 1 Gain MV		Value	ZVA 2 Gain MV		Value	ZVA 3 Gain MV		Value
		1.057			1.040			1.014
0.905 (Minimum)	1.000 (Nominal)	1.103 (Maximum)	0.866 (Minimum)	1.000 (Nominal)	1.151 (Maximum)	0.866 (Minimum)	1.000 (Nominal)	1.151 (Maximum)

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Waitsite Calibration
HALS8 Aux Voltage Phases

ZVA 1 Phase DEG		Value	ZVA 2 Phase DEG		Value	ZVA 3 Phase DEG		Value
		-0.307			-0.010			0.098
-4.100 (Minimum)	0.000 (Nominal)	4.100 (Maximum)	-2.300 (Minimum)	0.000 (Nominal)	2.300 (Maximum)	-1.000 (Minimum)	0.000 (Nominal)	1.000 (Maximum)

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Waitsite Calibration
HALS8 AP-AO* Diff. Voltage mode 1

ZVD 1 Gain UV		Value	ZVD 1 Phase DEG		Value
		0.996			-0.001
0.874 (Minimum)	1.000 (Nominal)	1.147 (Maximum)	-6.300 (Minimum)	0.000 (Nominal)	6.300 (Maximum)

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Waitsite Calibration
HALS8 AP-AO* Diff. Voltage mode 2

ZVD 2 Gain UV		Value	ZVD 2 Phase DEG		Value
		0.983			1.108
0.842 (Minimum)	1.000 (Nominal)	1.187 (Maximum)	-3.300 (Minimum)	0.000 (Nominal)	3.300 (Maximum)

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Waitsite Calibration
HALS8 AP-AO* Diff. Voltage mode 3A

ZVD 3A Gain UV		Value	ZVD 3A Phase DEG		Value
		0.985			0.828
0.842 (Minimum)	1.000 (Nominal)	1.187 (Maximum)	-2.000 (Minimum)	0.000 (Nominal)	2.000 (Maximum)

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Waitsite Calibration
HALS8 AP-AO* Diff. Voltage mode 3B

ZVD 3B Gain UV		Value	ZVD 3B Phase DEG		Value
		1.001			0.270
0.845 (Minimum)	1.000 (Nominal)	1.183 (Maximum)	-2.000 (Minimum)	0.000 (Nominal)	2.000 (Maximum)

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Waitsite Calibration
HALS8 vertical Voltage mode 1

ZVV 1 Gain UV		Value	ZVV 1 Phase DEG		Value
		1.000			0.196
0.936 (Minimum)	1.000 (Nominal)	1.065 (Maximum)	-4.600 (Minimum)	0.000 (Nominal)	4.600 (Maximum)

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Waitsite Calibration
HALS8 vertical Voltage mode 2

ZVV 2 Gain UV		Value	ZVV 2 Phase DEG		Value
		0.988			2.391
0.895 (Minimum)	1.000 (Nominal)	1.112 (Maximum)	2.800 (Minimum)	2.800 (Nominal)	2.800 (Maximum)

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Waitsite Calibration
HALS8 Azimuthal Voltages mode 3A

Idx	Az 1 Gain UV	Value	Idx	Az 1 Phase DEG	Value
0		1.002	0		0.477
1		0.995	1		0.531
2		0.997	2		0.550
3		0.997	3		0.509
4		1.000	4		0.509
5		0.997	5		0.255
6		0.997	6		0.537
7		1.001	7		0.445
8		0.998	8		0.485
9		0.997	9		0.527
10		0.995	10		0.490
11		0.998	11		0.473

0.874 (Minimum) 1.000 (Nominal) 1.147 (Maximum) -6.300 (Minimum) 0.000 (Nominal) 6.300 (Maximum)

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Waitsite Calibration
HALS8 Azimuthal Voltages mode 3B

Idx	Az 2 Gain UV	Value	Idx	Az 2 Phase DEG	Value
0		0.969	0		1.155
1		0.981	1		1.069
2		0.984	2		1.107
3		0.984	3		1.062
4		0.987	4		1.016
5		0.983	5		1.036
6		0.984	6		1.117
7		0.968	7		1.096
8		0.963	8		1.116
9		0.984	9		1.075
10		0.963	10		1.161
11		0.966	11		1.157

0.842 (Minimum) 1.000 (Nominal) 1.187 (Maximum) -3.300 (Minimum) 0.000 (Nominal) 3.300 (Maximum)

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Waitsite Calibration
HALS8 Azimuthal Voltages mode 3A

Idx	Az 3A Gain UV	Value	Idx	Az 3A Phase DEG	Value
0		0.992	0		0.693
1		0.995	1		0.659
2		0.997	2		0.679
3		0.997	3		0.667
4		0.990	4		0.738
5		0.997	5		0.601
6		0.997	6		0.691
7		0.991	7		0.667
8		0.998	8		0.694
9		0.998	9		0.673
10		0.995	10		0.718
11		0.999	11		0.714

0.842 (Minimum) 1.000 (Nominal) 1.187 (Maximum) -2.000 (Minimum) 0.000 (Nominal) 2.000 (Maximum)

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Waitsite Calibration
HALS8 Azimuthal Voltages mode 3B

Idx	Az 3B Gain UV	Value	Idx	Az 3B Phase DEG	Value
0		1.006	0		0.125
1		0.994	1		0.048
2		0.998	2		-0.015
3		0.996	3		0.045
4		1.006	4		0.303
5		0.995	5		0.002
6		1.000	6		0.074
7		1.003	7		0.142
8		1.000	8		0.107
9		0.998	9		0.068
10		1.002	10		0.201
11		1.003	11		0.262

0.845 (Minimum) 1.000 (Nominal) 1.183 (Maximum) -2.000 (Minimum) 0.000 (Nominal) 2.000 (Maximum)

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Waitsite Calibration
Step Measurement Summary

Phase	BS Window Ratio	Value	Phase	SS Window Ratio	Value	Phase	LS Window Ratio	Value
Before		0.6827	Before		0.4915	Before		0.2987
0.6455 (Minimum)	0.6795 (Nominal)	0.7135 (Maximum)	0.4670 (Minimum)	0.4918 (Nominal)	0.5166 (Maximum)	0.2835 (Minimum)	0.2974 (Nominal)	0.3125 (Maximum)

Phase	BS Window Sum CPS	Value	Phase	SS Window Sum CPS	Value	Phase	LS Window Sum CPS	Value
Before		9563	Before		10010	Before		11581
8818 (Minimum)	9288 (Nominal)	9663 (Maximum)	9515 (Minimum)	10020 (Nominal)	10630 (Maximum)	1101 (Minimum)	1158 (Nominal)	1218 (Maximum)

Before: 30-Jan-2003 12:56

High resolution Integrated Logging Tool-DTS Waitsite Calibration
Pseudo-multiple High Voltage Calibrations

Phase	BS PM High Voltage (Command) V	Value	Phase	SS PM High Voltage (Command) V	Value	Phase	LS PM High Voltage (Command) V	Value
Before		1672	Before		1824	Before		1691
1570 (Minimum)	1670 (Nominal)	1770 (Maximum)	1713 (Minimum)	1813 (Nominal)	1913 (Maximum)	1578 (Minimum)	1678 (Nominal)	1778 (Maximum)

Before: 30-Jan-2003 12:56

High resolution Integrated Logging Tool-DTS Waitsite Calibration
Crystal Quality Resolutions Calibrations

Phase	BS Crystal Resolution %	Value	Phase	SS Crystal Resolution %	Value	Phase	LS Crystal Resolution %	Value
Before		11.54	Before		10.40	Before		9.611
10.64 (Minimum)	11.64 (Nominal)	12.64 (Maximum)	9.208 (Minimum)	10.21 (Nominal)	11.21 (Maximum)	8.709 (Minimum)	9.709 (Nominal)	10.71 (Maximum)

Before: 30-Jan-2003 12:56

High resolution Integrated Logging Tool-DTS Waitsite Calibration
HILT Calibration

Phase	Raw B0 Resistivity OHMM	Value	Phase	Raw B1 Resistivity OHMM	Value	Phase	Raw B2 Resistivity OHMM	Value
Before		3853	Before		3920	Before		3836
3566 (Minimum)	3870 (Nominal)	4180 (Maximum)	3624 (Minimum)	3920 (Nominal)	4136 (Maximum)	3624 (Minimum)	3920 (Nominal)	4136 (Maximum)

Before: 30-Jan-2003 13:06

High resolution Integrated Logging Tool-DTS Waitsite Calibration
HILT Caliper Zero Measurement MM

Phase	HILT Caliper Zero Measurement MM	Value	Phase	HILT Caliper Plus Measurement MM	Value
Before		249.2	Before		301.9
152.4 (Minimum)	203.2 (Nominal)	254.0 (Maximum)	299.6 (Minimum)	304.8 (Nominal)	381.0 (Maximum)

Before: 30-Jan-2003 13:06

High resolution Integrated Logging Tool-DTS Waitsite Calibration
Detector Calibration

Phase	Gamma Ray Background GAPI	Value	Phase	Gamma Ray (Ag - Bkg) GAPI	Value	Phase	Gamma Ray (Calibrated) GAPI	Value
Before		25.13	Before		177.4	Before		165.0
0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)	161.2 (Minimum)	177.4 (Nominal)	193.6 (Maximum)	150.0 (Minimum)	165.0 (Nominal)	180.0 (Maximum)

Before: 30-Jan-2003 12:54

High resolution Integrated Logging Tool-DTS Waitsite Calibration
Zero Measurement

Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value
Master	[redacted]	[redacted]	Master	[redacted]	27.65
Before	[redacted]	28.58	Before	[redacted]	31.72
5.000 (Minimum)	25.34 (Nominal)	40.00 (Maximum)	5.000 (Minimum)	27.65 (Nominal)	40.00 (Maximum)

Master: 19-Dec-2002 10:44 — Before: 30-Jan-2003 13:26

High resolution Integrated Logging Tool-DTS Waitsite Calibration
Accelerometer Calibration

Phase	Z-Axis Acceleration MSS2	Value
Before		9.832
9.810 (Minimum)	9.810 (Nominal)	10.01 (Maximum)

Before: 4-Feb-2003 21:18

High resolution Integrated Logging Tool-DTS Master Calibration
Inversion results

Phase	Rho Aluminum KM3	Value	Phase	Rho Magnesium KM3	Value
Master	[redacted]	2601	Master	[redacted]	1695
2596 (Minimum)	2596 (Nominal)	2606 (Maximum)	1678 (Minimum)	1696 (Nominal)	1696 (Maximum)

Phase	Pe Aluminum	Value	Phase	Pe Magnesium	Value
Master	[redacted]	2.581	Master	[redacted]	2.630
2.470 (Minimum)	2.570 (Nominal)	2.670 (Maximum)	2.550 (Minimum)	2.650 (Nominal)	2.750 (Maximum)

Master: 14-Jan-2003 17:01

High resolution Integrated Logging Tool-DTS Master Calibration
Deviation Summary

Phase	BS Average Deviation %	Value	Phase	SS Average Deviation %	Value	Phase	LS Average Deviation %	Value
Master	[redacted]	0.2702	Master	[redacted]	0.2225	Master	[redacted]	0.6927
-0.6000 (Minimum)	0.000 (Nominal)	0.6000 (Maximum)	-1.000 (Minimum)	0 (Nominal)	1.000 (Maximum)	-1.500 (Minimum)	0 (Nominal)	1.500 (Maximum)

Phase	BS Max Deviation %	Value	Phase	SS Max Deviation %	Value	Phase	LS Max Deviation %	Value
Master	[redacted]	1.263	Master	[redacted]	0.9080	Master	[redacted]	2.331
-1.600 (Minimum)	0 (Nominal)	1.600 (Maximum)	-2.000 (Minimum)	0 (Nominal)	2.000 (Maximum)	-3.500 (Minimum)	0 (Nominal)	3.500 (Maximum)

Master: 14-Jan-2003 17:01

High resolution Integrated Logging Tool-DTS Master Calibration
Tank Measurement

Phase	Thermal Near Corr. (Tank) CPS	Value	Phase	Thermal Far Corr. (Tank) CPS	Value	Phase	CNTC/CFTC (Tank)	Value
Master	[redacted]	9898	Master	[redacted]	3483	Master	[redacted]	2.366
5000 (Minimum)	8031 (Nominal)	7000 (Maximum)	3075 (Minimum)	2795 (Nominal)	3125 (Maximum)	2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)

Master: 19-Dec-2002 10:44

General Purpose Inclinometer / Equipment Identification

Primary Equipment:
GPIT Cartridge - C — GPIC - C

Auxiliary Equipment:
GPIT Housing — GPIH - B

COMPANY	CANNAT RESOURCES INC.
WELL	CNRES BEHDZIAH YOUH 0-52
FIELD	UNDEFINED
Province	NORTHWEST TERRITORIES

BOTTOM LOG INTERVAL	1530 m
SCHLUMBERGER DEPTH	1530 m
DEPTH DRILLER	1540 m
KELLY BUSHING	265 m
DRILL FLOOR	264.7 m
GROUND LEVEL	258.9 m

Schlumberger

PLATFORM EXPRESS
HALS LATEROLOG

LEGIBILITY
OF LOG
COULD VARY
DUE TO
COLOR
CONTENT

N.E.B. COPY *NEB*

Schlumberger

Company: CANNAT RESOURCES INC.

Well: CNRES BEHDZIAH YOUH O-52
Field: UNDEFINED
PROVINCE: NORTHWEST TERRITORIES

PROVINCE: NORTHWEST TERRITORIES
Field: UNDEFINED
Location: LATITUDE: 66 DEG 51'
Well: CNRES BEHDZIAH YOUH O-52
Company: CANNAT RESOURCES INC.

PLATFORM EXPRESS:
ARRAY INDUCTION - RXOZ
SP LOG

LOCATION

LATITUDE: 66 DEG 51'	Elev.:	K.B.	265 m
LONGITUDE: 126 DEG 39'		G.L.	258.9 m
UWID: 300/O-52-67.00-126.300		D.F.	264.7 m

Permanent Datum:	GROUND LEVEL	Elev.:	258.9 m
Log Measured From:	KELLY BUSHING	6.1 m	above Perm. Datum
Drilling Measured From:	KELLY BUSHING		

API Serial No.	LATITUDE:	LONGITUDE:
WID: 1960	66 DEG 51' N	126 DEG 39' W

	Run 1	Run 2	Run 3	Run 4

Logging Date	19-Jan-2003		
Run Number	ONE		
Depth Driller	809 m		
Schlumberger Depth	808 m		
Bottom Log Interval	805.6 m		
Top Log Interval	193 m		
Casing Driller Size @ Depth	339.300 mm @ 193 m	@	
Casing Schlumberger	193 m		
Bit Size	311.000 mm		
Type Fluid In Hole	FRESH WATER		
MUD Density / Viscosity	1060 kg/m3	29 s	
Fluid Loss / PH			
Source Of Sample	FLOWLINE		
RM @ Measured Temperature	4.750 ohm.m @ 15 degC	@	
RMF @ Measured Temperature	@	@	
RMC @ Measured Temperature	@	@	
Source RMF / RMC	NOT AVAILABLE	NOT AVAILABLE	
RM @ MRT / RMF @ MRT	4.235 @ 20	@ 20	@ / @
Maximum Recorded Temperatures	20 degC		
Circulation Stopped / Time	19-Jan-2003	18:00	
Logger On Bottom / Time	230-JAN-2003	00:15	
Unit Number / Location	3025	NORMAN WELLS	
Recorded By	K. RONCIN		
Witnessed By	NANCY SINNOTT		

Logging Date		
Run Number		
Depth Driller		
Schlumberger Depth		
Bottom Log Interval		
Top Log Interval		
Casing Driller Size @ Depth	@	@
Casing Schlumberger		
Bit Size		
Type Fluid In Hole		
MUD Density / Viscosity		
Fluid Loss / PH		
Source Of Sample		
RM @ Measured Temperature	@	@
RMF @ Measured Temperature	@	@
RMC @ Measured Temperature	@	@
Source RMF / RMC		
RM @ MRT / RMF @ MRT	@ / @	@ / @
Maximum Recorded Temperatures		
Circulation Stopped / Time		
Logger On Bottom / Time		
Unit Number / Location		
Recorded By		
Witnessed By		

DEPTH SUMMARY LISTING

Date Created: 20-JAN-2003 1:03:22

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-B	Type:	CMTD-B/A	Type:	7-46P
Serial Number:	3770	Serial Number:	1083	Serial Number:	1009
Calibration Date:	27-NOV-2001	Calibration Date:	10-JAN-2002	Length:	3413.76 M
Calibrator Serial Number:	4	Calibrator Serial Number:	4	Conveyance Method:	Wireline
Calibration Cable Type:	7-46P	Calibration Gain:	0.93	Rig Type:	LAND
Wheel Correction 1:	-7	Calibration Offset:	244.00		
Wheel Correction 2:	-7				

Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	62.50 M
Rig Up Length At Bottom:	62.50 M
Rig Up Length Correction:	0.00 M
Stretch Correction:	0.20 M
Tool Zero Check At Surface:	0.00 M

Depth Control Remarks

1. CALIBREATED IDW WHEELS USED AS PRIMARY DEPTH CONTROL
2. TRUCK WAS SPOTTED ON LOCATION IN FALL - IDW AND CMTD CALS OUT OF DATE
3.
4.
5.
6.

DISCLAIMER
THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANYS USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

RUN 1	RUN 2
OTHER SERVICES1	OTHER SERVICES2
OS1: PEX-AIT-GPIT-BHC	OS1:
OS2: WEB WITNESS	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
AIT RAN ECCENTERED USING 2 50 MM STANDOFFS	
AIT RAN IN COMPUTE STANDOFF MODE WITH 4 FOOT VERTICAL RESOLUTION	
CNL RAN ECCENTERED USING 90 DEGREE OFFSET BOWSPRINGS	
BHC RAN CENTERED USING TWO CMEZ CENTRALIZERS	
CVL COMPUTED USING HILT CALIPER WITH FCD = 244.5 MM	
MUD SYSTEM WAS FRESH WATER - NO FILTRATE OR MUD CAKE AVAILABLE	
SONIC WILL BE RUN AS A SECOND RUN - UNABLE TO CENTRALIZE TOOL	
FORMATION RESISTIVITY OUT OF AIT RANGE FOR MOST OF WELL	
HALS TO BE RUN WITH SONIC ON SECOND RUN	
AIT 10 INCH CURVE HIGHLY AFFECTED BY BOREHOLE SIZE - REMOVED FROM LOG	
PRINTS: 2 FIELD 7 FINAL	
OPERATORS: PETER ROSS / KALVIN ELIAS	
RIG: AKITA / SAHTU 51	
MAX DEVIATION: ~1 DEGREE	
SERVICE ORDER #: 9193780	SERVICE ORDER #:
PROGRAM VERSION: 10C0-306	PROGRAM VERSION:
FLUID LEVEL:	FLUID LEVEL:
LOGGED INTERVAL START / STOP	LOGGED INTERVAL START / STOP

EQUIPMENT DESCRIPTION

RUN 1 / RUN 2

SURFACE EQUIPMENT
WITM (DTS)-A
GSR-U/Y
NCT-B
CNB-AB
NCS-VB

DOWNHOLE EQUIPMENT

Tool	Sensors	Measure point	Length
LEH-QT / LEH-QT			23.23
DTC-H / ECH-KC 9803 / DTCH0-A 8726	CTEM, TelStatus, ToolStatu	22.06, 21.42	22.34
DSLT-FTB / DSLC-B 8230 / ECH-KH 8280 / SLS-EA 1373	USN, UHN, USF UHF, LSF LHF, LHN, LSN	17.62, 17.38, 17.32, 16.48, 16.42, 16.17	21.42
	DSLT Aux.	15.13	
AH-GPIH / AH-GPIH 973			15.13
GPIT-C / GPIC-C 813 / GPIH-B 1963			13.91
AH-GPIH / AH-GPIH 1757			12.69
HILTB-FTB / HGNSD-B 1856 / HMCA / HGNS-H 1877 / NLS-KL / NSR-F 2516 / HACCZ / HCNT / HGR / HRCC-B 924 / HRMS-B 1719 / HRGD 916 / GLS-VJ 1984 / MCFL Device / HILT Nud. LS / HILT Nud. SS / HILT Nud. BS / AIT-H / AHIS-BA 189 / AHRM-A / AHRM-SPR / NPV-N	HGNS HTEM, HMCA, Gamma-Ray	11.48, 11.25	11.48
	Neutron F, Neutron N	9.47, 9.32	
	HGNS sens	8.61	
	HRCC cart	7.39	
	MCFL, HILT Cali, HRDD-LS, HRDD-SS, HRDD-BS	5.73, 5.59, 5.47	
	Induction, Temperatu, Power Sup	2.41	50 MM Standoff
	SP SENSOR, GPIT HV DF, HTEN HMAS, Accelerom, Mud Resis, Tension	0.03, 0.00	50 MM Standoff

TOOL ZERO

MAXIMUM STRING DIAMETER 198 MM
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN METERS

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_012LUP	FN:21	PRODUCER	20-Jan-2003 00:31	810.2 M	144.0 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_017PUP	FN:28	PRODUCER	20-Jan-2003 03:54	810.2 M	145.2 M
CUST	AIT_TLD_MCFL_CNL_017PUP	FN:29	PRODUCER	20-Jan-2003 03:54	810.2 M	145.2 M

OP System Version: 10C0-306

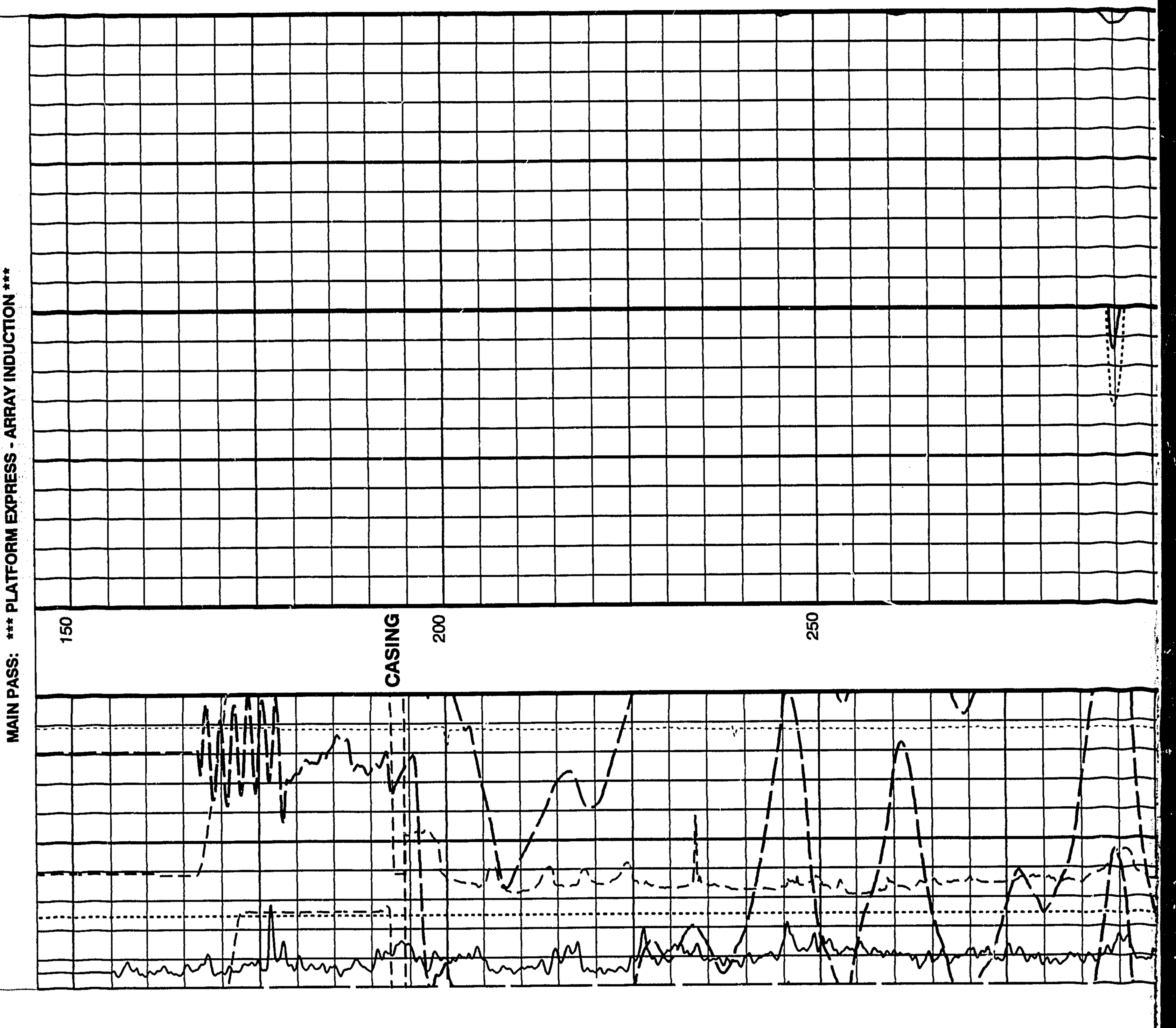
		MCM	
HILTB-FTB	OP10-KP1	GPIT-C	10C0-306
DSLT-FTB	OP10-KP1	DTC-H	10C0-306

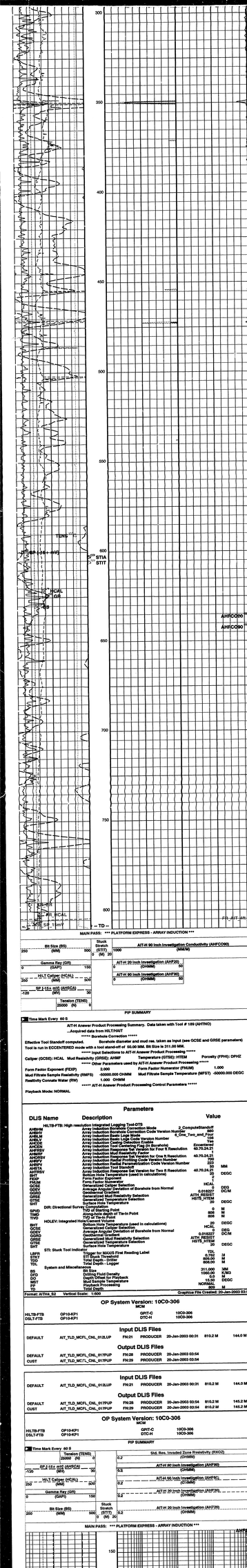
PIP SUMMARY

Time Mark Every 60 S

Tension (TENS) 25000 (N) 0
SP [-15+ mV] (AHSCA) (MV) -120 30
HILT Caliper (HCAL) (MM) 250 500
Gamma Ray (GR) (GAPI) 0 150
Bit Size (BS) (MM) 250 500
Stuck Stretch (STIT) (M) 0 20
AIT-H 90 Inch Investigation (AHF90) (OHMM) 0 50
AIT-H 20 Inch Investigation (AHF20) (OHMM) 0 50
AIT-H 90 Inch Investigation Conductivity (AHFCO90) (MM/M) 1000 0

MAIN PASS: *** PLATFORM EXPRESS - ARRAY INDUCTION ***





MAIN PASS: *** PLATFORM EXPRESS - ARRAY INDUCTION ***

Bit Size (BS) (MM)	250 / 500	Stuck Stretch (STIT)	0 / 20
Gamma Ray (GR) (GAPI)	0 / 150	AIT-H 20 Inch Investigation (AHF20) (OHMM)	0 / 50
HILT Caliper (HCAL) (MM)	250 / 500	AIT-H 90 Inch Investigation (AHF90) (OHMM)	0 / 50
SP (-16A mV) (AHSCA) (MV)	-120 / 30		
Tension (TENS) (N)	25000 / 0		

AIT-H 90 Inch Investigation Conductivity (AHFC090) (MMHM) 1000 / 0

PIP SUMMARY

Time Mark Every 60 S

AIT-H Answer Product Processing Summary. Data taken with Tool # 189 (AHTNO)
...Acquired data from HILT/AIT

***** Borehole Correction *****

Effective Tool Standoff computed. Borehole diameter and mud res. taken as input (see GCSE and GRSE parameters)

Tool is run in ECCENTERED mode with a tool stand-off of 50.00 MM. Bit Size is 311.00 MM.

***** Input Selections to AIT-H Answer Product Processing *****

Caliper (GCSE): HCAL	Mud Resistivity (GRSE): AHMF	Temperature (GTSE): HTEM	Porosity (FPHI): DPHZ

***** Other Parameters used by AIT-H Answer Product Processing *****

Form Factor Exponent (FEXP)	2.000	Form Factor Numerator (FNUM)	1.000
Mud Filtrate Sample Resistivity (RMFS)	-50000.000 OHMM	Mud Filtrate Sample Temperature (MFST)	-50000.000 DEGC
Resistivity Connate Water (RW)	1.000 OHMM		

***** AIT-H Answer Product Processing Control Parameters *****

Playback Mode: NORMAL

Parameters

DLIS Name	Description	Value
	HILTB-PTB: High resolution Integrated Logging Tool-DTS	
AHBHM	Array Induction Borehole Correction Mode	2_ComputeStandoff
AHBLM	Array Induction Borehole Correction Code Version Number	880
AHBLW	Array Induction Basic Logic Mode	6_One_Two_and_Four
AHBLV	Array Induction Basic Logic Code Version Number	196
AHFCM	Array Induction Focusing Mode	Two
AHCEN	Array Induction Tool Centering Flag (In Borehole)	Eccentered
AHFREV	Array Induction Response Ref. Version for Four ft Resolution	40.70.24.21
AHHVF	Array Induction Mud Resistivity Factor	1
AHORSV	Array Induction Response Ref. Version for One ft Resolution	40.70.24.21
AHRPV	Array Induction Radial Profiling Code Version Number	200
AHSPV	Array Induction Radial Parameterization Code Version Number	201
AHSTA	Array Induction Tool Standoff	50 MM
AHTREV	Array Induction Response Ref. Version for Two ft Resolution	40.70.24.21
BHTP	Bottom Hole Temperature (used in calculations)	20 DEGC
FEXP	Form Factor Exponent	2
FNUM	Form Factor Numerator	1
GCSE	Generalized Caliper Selection	HCAL
GDEV	Average Angular Deviation of Borehole from Normal	0 DEG
GDIP	Geothermal Gradient	0.018227 DC/M
GRSE	Generalized Mud Resistivity Selection	AITH_RESET
GTSE	Generalized Temperature Selection	HSTB_HTEM
SHT	Surface Hole Temperature	20 DEGC
	DIR: Directional Survey Calculations	
SPVD	Vertical Depth Point	0 M
TIMD	Measure depth of Tie-In Point	808 M
TIVD	TVD of Tie-In Point	808 M
	HOLEV: Integrated Hole/Cement Volume	
BHT	Bottom Hole Temperature (used in calculations)	20 DEGC
GCSE	Generalized Caliper Selection	HCAL
GDEV	Average Angular Deviation of Borehole from Normal	0 DEG
GDIP	Geothermal Gradient	0.018227 DC/M
GRSE	Generalized Mud Resistivity Selection	AITH_RESET
GTSE	Generalized Temperature Selection	HSTB_HTEM
SHT	Surface Hole Temperature	20 DEGC
	STI: Stuck Tool Indicator	
LTRP	Trigger for MAXIS First Reading Label	TDL
STCT	STT Stuck Threshold	0.702 M
TDD	Total Depth - Driller	808.00 M
TDL	Total Depth - Logger	808.00 M
	System and Miscellaneous	
BS	Bit Size	311.000 MM
DFD	Drilling Fluid Density	1060.00 K/M3
DFV	Drilling Fluid Viscosity	0.00 S
MST	Mud Sample Temperature	15.00 DEGC
PP	Playback Processing	NORMAL
TD	Total Depth	800 M

Format: AITH4_52 Vertical Scale: 1:600 Graphics File Created: 20-Jan-2003 03:54

OP System Version: 10C0-306

		MCM	
HILTB-PTB	OP10-KP1	GPIT-C	10C0-306
DSLT-PTB	OP10-KP1	DTC-H	10C0-306

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_012LUP	FN:21	PRODUCER	20-Jan-2003 00:31	810.2 M	144.0 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_017PUP	FN:28	PRODUCER	20-Jan-2003 03:54		
CUST	AIT_TLD_MCFL_CNL_017PUP	FN:29	PRODUCER	20-Jan-2003 03:54		

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_012LUP	FN:21	PRODUCER	20-Jan-2003 00:31	810.2 M	144.0 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_017PUP	FN:28	PRODUCER	20-Jan-2003 03:54	810.2 M	145.2 M
CUST	AIT_TLD_MCFL_CNL_017PUP	FN:29	PRODUCER	20-Jan-2003 03:54	810.2 M	145.2 M

OP System Version: 10C0-306

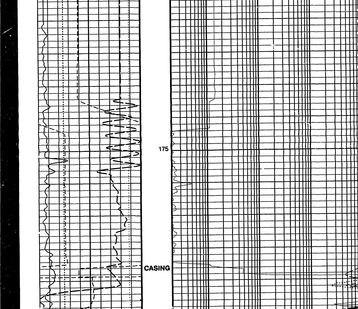
		MCM	
		GPIT-C	10C0-306
HILTB-PTB	OP10-KP1	DTC-H	10C0-306
DSLT-PTB	OP10-KP1		

PIP SUMMARY

Time Mark Every 60 S

Tension (TENS) (N)	25000 / 0	Std. Res. Invaded Zone Resistivity (RXO2) (OHMM)	0.2 / 2000
SP (-16A mV) (AHSCA) (MV)	-120 / 30	AIT-H 90 Inch Investigation (AHF90) (OHMM)	0.2 / 2000
HILT Caliper (HCAL) (MM)	250 / 500	AIT-H 60 Inch Investigation (AHF60) (OHMM)	0.2 / 2000
Gamma Ray (GR) (GAPI)	0 / 150	AIT-H 20 Inch Investigation (AHF20) (OHMM)	0.2 / 2000
Bit Size (BS) (MM)	250 / 500	Stuck Stretch (STIT) 0 / 20	AIT-H 20 Inch Investigation (AHC20) (OHMM) 0.2 / 2000

MAIN PASS: *** PLATFORM EXPRESS - ARRAY INDUCTION ***



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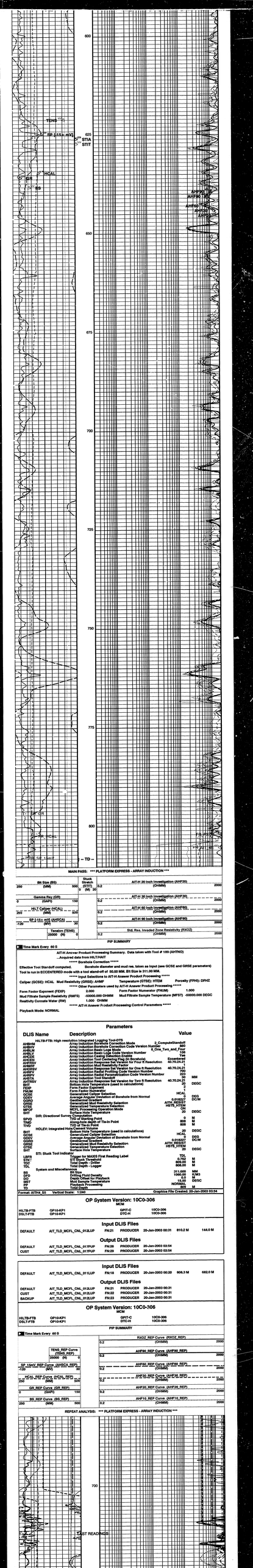


MAIN PASS: *** PLATFORM EXPRESS - ARRAY INDUCTION ***

BS Size (BS)		Stuck Toggle (STIT)	AIT-H 20 Inch Investigation (AHF20)
250	(MM) 500	0 (M) 20	0.2 (OHMM) 2000
Gamma Ray (GR)			AIT-H 30 Inch Investigation (AHF30)
0	(GAPI) 150		0.2 (OHMM) 2000
HILT Caliber (HCAL)			AIT-H 60 Inch Investigation (AHF60)
250	(MM) 500		0.2 (OHMM) 2000
SP (-15s: mV) (AHSCA)			AIT-H 90 Inch Investigation (AHF90)
-120	(MV) 30		0.2 (OHMM) 2000
Tension (TENS)			Std. Res. Invaded Zone Resistivity (RXOZ)
58000	(N) 0		0.2 (OHMM) 2000

PIP SUMMARY

Time Mark Every 60 S

AIT-H Answer Product Processing Summary. Data taken with Tool # 189 (AHTNO)
...Acquired data from HILT/AIT
***** Borehole Correction *****
Effective Tool Standoff computed. Borehole diameter and mud res. taken as input (see GCSE and GRSE parameters)
Tool is run in ECCENTERED mode with a tool stand-off of 65.00 MM. Bh Size is 311.00 MM.
***** Input Selections to AIT-H Answer Product Processing *****

Caliper (GCSE): HCAL	Mud Resistivity (GRSE): AHMF	Temperature (GTSE): HTEM	Porosity (FPHI): DPHZ

***** Other Parameters used by AIT-H Answer Product Processing *****

Form Factor Exponent (FEXP)	2.000	Form Factor Numerator (FNUM)	1.000
Mud Filtrate Sample Resistivity (RMFS)	-0000.000 OHMM	Mud Filtrate Sample Temperature (MFST)	-0000.000 DEGC
Resitivity Connate Water (RW)	1.000 OHMM		

***** AIT-H Answer Product Processing Control Parameters *****

Playback Mode: NORMAL

Parameters

DLIS Name	Description	Value
	HILT/P-TTB: High resolution Integrated Logging Tool-DT3	
AHBHV	Array Induction Borehole Correction Mode	0_ComputeStandoff
AHBHV	Array Induction Borehole Correction Code Version Number	000
AHBLM	Array Induction Basic Logs Mode	6_One_Two_and_Four
AHBLV	Array Induction Basic Logs Code Version Number	000
AHCEN	Array Induction Casing Detection Enable	Yes
AHCEN	Array Induction Tool Centering Flag (In Borehole)	Eccentered
AHFRSV	Array Induction Response Set Version for Four R Resolution	40.70.24.21
AHMPI	Array Induction Mud Resistivity Value	0
AHRFRSV	Array Induction Response Set Version for One R Resolution	40.70.24.21
AHSFV	Array Induction Radial Profiling Enable	Yes
AHSPV	Array Induction Radial Parameterization Code Version Number	222
AHTHV	Array Induction Thin Bed Mode	MM
AHTRSV	Array Induction Response Set Version for Two R Resolution	40.70.24.21
BHT	Bottom Hole Temperature (used in calculations)	20 DEGC
FEXP	Form Factor Exponent	2
FNUM	Form Factor Numerator	1
HCGE	Generalized Caliper Selection	HCAL
GDEV	Average Angular Deviation of Borehole from Normal	0 DEG
GGRD	Geothermal Gradient	0.01527 DC/M
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST
GTSE	Generalized Temperature Selection	HSTB_HTEM
MPOF	MCFL Processing Operation Mode	ON
SHT	Surface Temperature	20 DEGC
	Computed Parameters	
SPYD	TVD of Starting Point	0 M
TMD	Along-hole depth of Tie-In Point	805 M
TVD	TVD of Tie-In Point	805 M
	HOLEV: Integrated Hole Volume	
BHT	Bottom Hole Temperature (used in calculations)	20 DEGC
GCSE	Generalized Caliper Selection	HCAL
GDEV	Average Angular Deviation of Borehole from Normal	0 DEG
GGRD	Geothermal Gradient	0.01527 DC/M
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST
GTSE	Generalized Temperature Selection	HSTB_HTEM
SHT	Surface Temperature	20 DEGC
	STI: Stuck Tool Indicator	
LBPR	Trigger for MAXIS First Reading Label	TDL
STIC	STI Stuck Threshold	0.765 M
TDC	TVD Depth - Computed	805.00 M
TDL	Total Depth - Logger	805.00 M
	System and Miscellaneous	
BS	Bit Size	311.000 MM
DFD	Drilling Fluid Density	1060.00 K/M3
DQ	Depth Offset for Playback	0.0 M
MST	Mud Sample Temperature	20 DEGC
PP	Playback Processing	NORMAL
TD	Total Depth	805 M

Format: AITH4_SS Vertical Scale: 1:240 Graphics File Created: 30-Jan-2003 03:54

OP System Version: 10C0-306
MCM

HILT/P-TTB	OP10-KP1	GPT-C	10C0-306
DSLT-FTB	OP10-KP1	DTC-H	10C0-306

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_012LUP	FN:21	PRODUCER	20-Jan-2003 00:31	810.2 M	144.0 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_017LUP	FN:28	PRODUCER	20-Jan-2003 03:54
CUST	AIT_TLD_MCFL_CNL_017PUP	FN:29	PRODUCER	20-Jan-2003 03:54

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_011LUP	FN:18	PRODUCER	20-Jan-2003 00:20	808.3 M	682.0 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_012LUP	FN:21	PRODUCER	20-Jan-2003 00:31
CUST	AIT_TLD_MCFL_CNL_012LUP	FN:22	PRODUCER	20-Jan-2003 00:31
BACKUP	AIT_TLD_MCFL_CNL_012LUP	FN:23	PRODUCER	20-Jan-2003 00:31

OP System Version: 10C0-306
MCM

HILT/P-TTB	OP10-KP1	GPT-C	10C0-306
DSLT-FTB	OP10-KP1	DTC-H	10C0-306

PIP SUMMARY

Time Mark Every 60 S

TENS_REP Curve (TENS_REP)
0 (N) 20000

RXOZ_REP Curve (RXOZ_REP)
0.2 (OHMM) 2000

SP_10mV_REP Curve (AHSCA_REP)
-120 (MV) 30

AHF90_REP Curve (AHF90_REP)
0.2 (OHMM) 2000

HCAL_REP Curve (HCAL_REP)
250 (MM) 500

AHF60_REP Curve (AHF60_REP)
0.2 (OHMM) 2000

GR_REP Curve (GR_REP)
0 (GAPI) 150

AHF30_REP Curve (AHF30_REP)
0.2 (OHMM) 2000

BS_REP Curve (BS_REP)
250 (MM) 500

AHF20_REP Curve (AHF20_REP)
0.2 (OHMM) 2000

AHF10_REP Curve (AHF10_REP)
0.2 (OHMM) 2000

REPEAT ANALYSIS: *** PLATFORM EXPRESS - ARRAY INDUCTION ***

REPEAT ANALYSIS: *** PLATFORM EXPRESS - ARRAY INDUCTION ***

BS_REP Curve (BS_REP) (IN) 250 500
GR_REP Curve (GR_REP) (GAPI) 0 150
HCAL_REP Curve (HCAL_REP) (IN) 200 -50
SP_15mV_REP Curve (AHSCA_REP) (MV) -120 30
TENS_REP Curve (TENS_REP) (LBF) 10000 (N) 0
AHF10_REP Curve (AHF10_REP) (OHMM) 0.2 2000
AHF20_REP Curve (AHF20_REP) (OHMM) 0.2 2000
AHF30_REP Curve (AHF30_REP) (OHMM) 0.2 2000
AHF60_REP Curve (AHF60_REP) (OHMM) 0.2 2000
AHF90_REP Curve (AHF90_REP) (OHMM) 0.2 2000
RXO2_REP Curve (RXO2_REP) (OHMM) 0.2 2000

PIP SUMMARY

Time Mark Every: 60 S

AIT-H Answer Product Processing Summary. Data taken with Tool # 189 (AHTNO)
...Acquired data from HILTAIT
***** Borehole Correction *****
Effective Tool Standoff computed. Bore hole diameter and mud res. taken as input (see GCSE and GRSE parameters)
Tool is run in ECCENTERED mode with a tool stand-off of 50.00 MM, Bit Size is 311.00 MM.
***** Input Selections to AIT-H Answer Product Processing *****
Caliper (GCSE): HCAL Mud Resistivity (GRSE): AHMF Temperature (GTSE): HTEM Porosity (FPHI): DPHZ
***** Other Parameters used by AIT-H Answer Product Processing *****
Form Factor Exponent (FEXP): 2.000 Form Factor Numerator (FNUM): 1.000
Mud Filtrate Sample Resistivity (RMFS): -00000.000 OHMM Mud Filtrate Sample Temperature (MFST): -00000.000 DEGC
Resistivity Constant Water (RW): 1.000 OHMM
***** AIT-H Answer Product Processing Control Parameters *****
Playback Mode: NORMAL

Parameters

DLIS Name	Description	Value
HILTB-FTB: High resolution Integrated Logging Tool-DTS		
AHBHM	Array Induction Borehole Correction Mode	2_ComputeStandoff
AHBHV	Array Induction Borehole Correction Code Version Number	680
AHBLM	Array Induction Basic Logs Mode	6_One_Two_and_Four
AHBLV	Array Induction Basic Logs Code Version Number	106
AHCBH	Array Induction Additional Logs Mode	Yes
AHCBV	Array Induction Additional Logs Code Version Number	106
AHFRM	Array Induction Focused Log (In Borehole)	Eccentered
AHFRV	Array Induction Response Set Version for Four ft Resolution	40.70.24.21
AHSHM	Array Induction Shallow Log Mode	1
AHSHV	Array Induction Response Set Version for One ft Resolution	40.70.24.21
AHSFV	Array Induction Radial Profiling Code Version Number	700
AHSPV	Array Induction Speed Correction Code Version Number	220
AHSTA	Array Induction Tool Diameter	89 MM
AHTRV	Array Induction Response Set Version for Two ft Resolution	40.70.24.21
BHT	Bottom Hole Temperature (used in calculations)	75 DEGC
FEXP	Form Factor Exponent	2
FNUM	Form Factor Numerator	1
GCSE	Generalized Caliper Selection	HCAL
GDEV	Average Angular Deviation of Borehole from Normal	0 DEG
GMSS	Generalized Mud Selection	0.018227 DC/M
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST
GTSE	Generalized Temperature Selection	HSTS_HTEM
MFOP	MCFL Processing Operation Mode	200
SHT	Surface Hole Temperature	29 DEGC
HOLEV: Integrated Hole Volume		
BHT	Bottom Hole Temperature (used in calculations)	75 DEGC
GCSE	Generalized Caliper Selection	HCAL
GDEV	Average Angular Deviation of Borehole from Normal	0 DEG
GMSS	Generalized Mud Selection	0.018227 DC/M
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST
GTSE	Generalized Temperature Selection	HSTS_HTEM
SHT	Surface Hole Temperature	29 DEGC
System and Miscellaneous		
BS	Bit Size	311.000 MM
DCD	Drilling Fluid Density	1000.000 K/M3
DCNDL	Drilling Fluid Neutron Analysis	0.0 N
MST	Mud Sample Temperature	15.50 DEGC
TD	Total Depth	806 M

Format: AITH4_SS_REP Vertical Scale: 1:240 Graphics File Created: 20-Jan-2003 00:32

OP System Version: 10C0-306

MCM

HILTB-FTB	OP10-KP1	GPIT-C	10C0-306
DSLT-FTB	OP10-KP1	DTC-H	10C0-306

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_911.LUP	FN:18	PRODUCER	20-Jan-2003 00:20	808.3 M	662.0 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_012LUP	FN:21	PRODUCER	20-Jan-2003 00:31		
CUST	AIT_TLD_MCFL_CNL_012LUP	FN:22	PRODUCER	20-Jan-2003 00:31		
BACKUP	AIT_TLD_MCFL_CNL_012LUP	FN:23	PRODUCER	20-Jan-2003 00:31		

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_012LUP	FN:20	PRODUCER	20-Jan-2003 00:31	810.2 M	144.0 M
CUST	AIT_TLD_MCFL_CNL_012LUP	FN:22	PRODUCER	20-Jan-2003 00:31	810.2 M	144.0 M
BACKUP	AIT_TLD_MCFL_CNL_012LUP	FN:23	PRODUCER	20-Jan-2003 00:31	810.2 M	144.0 M

HRDD Processing Flags Statistical Analysis:

Percentages computed on interval 2810.2 to 643.9 ft (797.1 to 196.1 m)

Pef Flags Up	2.1 %
Density Flags Up	1.2 %

	Window 1	Window 2	Window 3	Window 4
BS Average Reconstruction Error	0.82 %	-0.37 %	-0.01 %	
SS Average Reconstruction Error	1.10 %	0.77 %	0.22 %	0.02 %
LS Average Reconstruction Error	-1.68 %	-2.02 %	0.87 %	2.39 %

OP System Version: 10C0-306

MCM

HILTB-FTB	OP10-KP1	GPIT-C	10C0-306
DSLT-FTB	OP10-KP1	DTC-H	10C0-306

PIP SUMMARY

Time Mark Every: 60 S

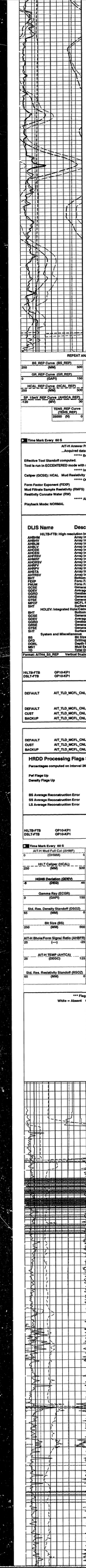
AIT-H Mud Full Cal (AHMF) (OHMM) 0.2 2000
HILT Caliper (HCAL) (IN) 200 -50
HSNR Depletion (SNDEV) -9 45
Gamma Ray (EGR) (GAPI) 0 150
Std. Res. Density Standoff (DSO2) 65 (MM) 0
Bit Size (BS) (IN) 200 500
AIT-H Whole Form Signal Ratio (AHSFR) 20 (---) -20
AIT-H TEMP (AHTCA) 25 (DEGC) 125
Std. Res. Resistivity Standoff (RSO2) 65 (MM) 0
Stuck Sheath (STIT) 0 (M) 20
Tension (TENS) 0 (N) 20000
AIT-H QC Fully Calibrated A8 Signal (AHQA8IN10) 2 (MM/M) 20000
AIT-H QC Fully Calibrated A7 Signal (AHQA8IN10) 2 (MM/M) 20000
AIT-H QC Fully Calibrated A6 Signal (AHQA8IN10) 2 (MM/M) 20000
AIT-H QC Fully Calibrated A5 Signal (AHQA8IN10) 2 (MM/M) 20000
AIT-H QC Fully Calibrated A4 Signal (AHQA8IN10) 2 (MM/M) 20000
AIT-H QC Fully Calibrated A3 Signal (AHQA8IN10) 2 (MM/M) 20000
AIT-H QC Fully Calibrated A2 Signal (AHQA8IN10) 2 (MM/M) 20000
AIT-H QC Fully Calibrated A1 Signal (AHQA8IN10) 2 (MM/M) 20000
Pe Correction (HPSA) (---) -3 3
BS Delta Rho (HDRB) (G/C3) -0.5 0.5
Density Correction (HSRA) (K/M3) 600 -50
Hdx (HDRZ) (---) 0.5 1.5
Delta Neutron Porosity (DNPS) (NV) -0.1 0.1
GR Borehole Correction Factor (CFGR) (---) 0.5 1.5

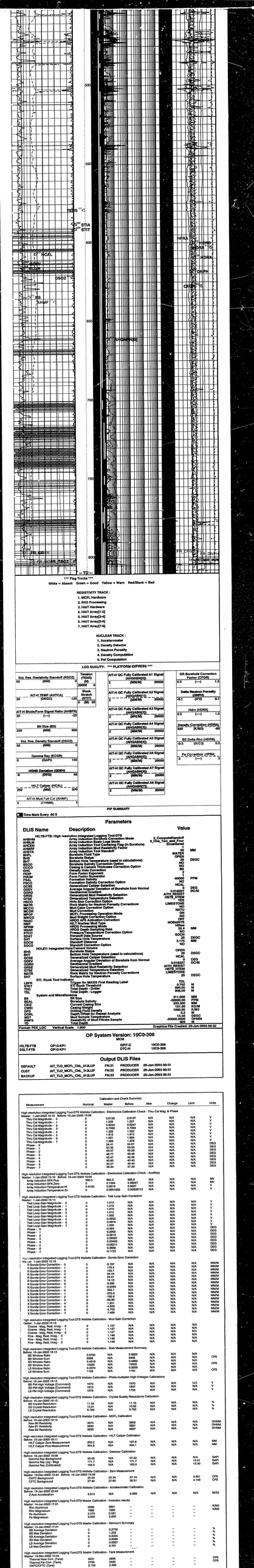
LOG QUALITY: *** PLATFORM EXPRESS ***

*** Flag Tracks ***
White = Absent Green = Good Yellow = Warn Red/Black = Bad

RESISTIVITY TRACK :
1. MCFL Hardware
2. RXO Processing
3. HAIT Hardware
4. HAIT Array[1-3]
5. HAIT Array[3-6]
6. HAIT Array[5-6]
7. HAIT Array[7-8]

NUCLEAR TRACK :
1. Accelerometer
2. Density Detector
3. Neutron Porosity
4. Density Computation
5. Pef Cocupitation





*** Flag Tracks ***

White = Absent Green = Good Yellow = Warn Red/Black = Bad

RESISTIVITY TRACK :

1. MCFL Hardware
2. RSO Processing
3. HAIT Hardware
4. HAIT Array[1-2]
5. HAIT Array[3-4]
6. HAIT Array[5-6]
7. HAIT Array[7-8]

NUCLEAR TRACK :

1. Accelerometer
2. Density Detector
3. Neutron Porosity
4. Density Computation
5. Pef Computation

LOG QUALITY: *** PLATFORM EXPRESS ***

Std. Res. Resistivity Standoff (DSO2) (MM)	Tension (TENS) (LBF)	AIT-H QC Fully Calibrated A1 Signal (AHQA8HR0) (MM/M)
55 0	0 20000	2 20000
AIT-H TEMP (AHTCA) (DEGC)	Stuck Tool Indicator (STIT)	AIT-H QC Fully Calibrated A2 Signal (AHQA9HR0) (MM/M)
25 125	0 20	2 20000
AIT-H Shoto/Form Signal Ratio (AHSFR)	Bit Size (BS) (MM)	AIT-H QC Fully Calibrated A3 Signal (AHQA8HR0) (MM/M)
25 -25	100 300	2 20000
Std. Res. Density Standoff (DSO2) (MM)		AIT-H QC Fully Calibrated A4 Signal (AHQA9HR0) (MM/M)
55 0		2 20000
Gamma Ray (ECGR) (GAPI)		AIT-H QC Fully Calibrated A5 Signal (AHQA8HR0) (MM/M)
0 150		2 20000
HGNS Deviation (GDEV) (DEG)		AIT-H QC Fully Calibrated A6 Signal (AHQA9HR0) (MM/M)
-5 45		2 20000
HILT Caliper (HCAL) (MM)		AIT-H QC Fully Calibrated A7 Signal (AHQA8HR0) (MM/M)
250 500		2 20000
AIT-H Mud Full Cal (AHMF) (C*MM)		
0 2		

GR Borehole Correction Factor (CFGR)	
0.5 (---) 1.5	
Delta Neutron Porosity (DNPA)	
-0.1 (V/V) 0.1	
Hdrx (HDRX)	
0.5 (---) 1.5	
Density Correction (HDRA) (G/CC)	
-.5 (G/C) .5	
BS Delta Rho (HBDR)	
-0.5 (G/C3) 0.5	
Pe Correction (HPEA)	
-1 (---) 1	

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
	HILTB-FTB: High resolution Integrated Logging Tool-DTS	
AHBHC	Array Induction Borehole Correction Mode	3_ConsumedStandoff
AHBLM	Array Induction Basic Logs Mode	6_Gw_Two_and_Four
AHCEN	Array Induction Tool Centering Flag (In Borehole)	Eccentered
AHCFM	Array Induction Tool Config Name	
AHFT	Array Induction Tool Family	82
BHFL	Borehole Fluid Type	WATER
BIS	Borehole Status	OPEN
BMCO	Bottom Hole Temperature (used in calculations)	200 DEGC
CHCO	Casing & Cement Thickness Correction Option	NO
CSCO	Casing & Cement Thickness Correction Option	NO
DHC	Density Hole Correction	2
FMAA	Form Factor Parameter	1
FMAB	Form Factor Parameter	0
FSAL	Formation Salinity	-99000 PPM
GCCO	Generalized Caliper Correction Option	HCAL
GSEV	Generalized Caliper Selection	2
GSEV	Average Angular Deviation of Borehole from Normal	0.016937 DEG
GUSO	Geothermal Gradient	0.2 DEG/M
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST
GTSE	Generalized Temperature Selection	AITH_HTEM
HBCO	Hole Size Correction Option	20
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE
MCOR	Mud Cake Correction Option	NO
MCOR	Mud Cake Correction	NATU
MPOP	MCFL Processing Operation Mode	GN
MSCO	Mud Salinity Type for Corrections	NACL
NAAC	MAXIS AF40 Activation Correction	OFF
NAIC	HILT Nuclear Mod Type	NOBARITE
NPRM	HRDD Processing Mode	HiRes MM
NSAM	HRDD Depth Sampling Rate	152.4 MM
PEFC	Photoelectric Calibration Correction Option	NO
RGAT	Standoff Data Source	SOCH
SHT	Surface Hole Temperature	3.175 DEGC
SOCO	Standoff Correction	NO
SOCO	Standoff Correction Option	1150 MM
	HOLEV: Integrated Hole/Cement Volume	
BIS	Bit Size	OPEN
BMCO	Bottom Hole Temperature (used in calculations)	200 DEGC
GCCO	Generalized Caliper Selection	HCAL
GDEV	Average Angular Deviation of Borehole from Normal	0.016937 DEG
GGRD	Geothermal Gradient	0.2 DEG/M
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST
GTSE	Generalized Temperature Selection	AITH_HTEM
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE
SHT	Surface Hole Temperature	20 DEGC
	STI: Stuck Tool Indicator	
LSFR	Trigger for MAXIS First Reading Label	TDL
STINT	STI Stuck Threshold	0.25 M
TDD	Total Depth - Driller	808.00 M
TDL	Total Depth - Logger	808.00 M
	System and Miscellaneous	
BS	Bit Size	311.000 MM
MSAL	Mud Sample Salinity	-99000.00 PPM
MSAV	Current Mud Sample Value	335.300 KG/M
CWEI	Casing Weight	101.00 KG/M
DFD	Drilling Fluid Density	1060.00 KG/M
MST	Mud Sample Temperature Where Resistivity of Mud Filtrate Sample	15.00 DEGC
MST	Measured	-30000.00 DEGM
TD	Total Depth	808 M

Format: PEX_LDC Vertical Scale: 1:200 Graphics File Created: 20-Jan-2003 00:32

OP System Version: 10C0-306

MCM

HILTB-FTB	OP10-KP1	GPIT-C	10C0-306
DSLT-FTB	OP10-KP1	DTC-H	10C0-306

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_012LUP	FN:21	20-Jan-2003 00:31
CUST	AIT_TLD_MCFL_CNL_012LUP	FN:22	20-Jan-2003 00:31
BACKUP	AIT_TLD_MCFL_CNL_012LUP	FN:23	20-Jan-2003 00:31

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Electronics Calibration Check - Thru Cal Mag. & Phase

Master: 1-Jan-2002 15:10 Before: 10-Jan-2003 19:09

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Thru Cal Magnitude - 0	0	0.6128	0.6137	N/A	N/A	N/A	V
Thru Cal Magnitude - 1	0	1.256	1.257	N/A	N/A	N/A	V
Thru Cal Magnitude - 2	0	0.6343	0.6347	N/A	N/A	N/A	V
Thru Cal Magnitude - 3	0	0.7093	0.7094	N/A	N/A	N/A	V
Thru Cal Magnitude - 4	0	1.322	1.324	N/A	N/A	N/A	V
Thru Cal Magnitude - 5	0	1.912	1.914	N/A	N/A	N/A	V
Thru Cal Magnitude - 6	0	1.369	1.369	N/A	N/A	N/A	V
Thru Cal Magnitude - 7	0	1.368	1.370	N/A	N/A	N/A	V
Phase - 0	0	64.41	64.07	N/A	N/A	N/A	DEG
Phase - 1	0	63.02	63.00	N/A	N/A	N/A	DEG
Phase - 2	0	49.77	49.48	N/A	N/A	N/A	DEG
Phase - 3	0	48.37	48.08	N/A	N/A	N/A	DEG
Phase - 4	0	42.44	42.26	N/A	N/A	N/A	DEG
Phase - 5	0	45.60	45.43	N/A	N/A	N/A	DEG
Phase - 6	0	36.47	36.30	N/A	N/A	N/A	DEG
Phase - 7	0	36.42	37.20	N/A	N/A	N/A	DEG

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Electronics Calibration Check - Auxiliary

Master: 1-Jan-2002 15:10 Before: 10-Jan-2003 19:09

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Array Induction EPA Zero	0	0.1004	0.09047	N/A	N/A	N/A	MV
Array Induction EPA Zero	0	0.0219	0.0220	N/A	N/A	N/A	V
Array Induction Temperature Pt	0.9150	0.0219	0.9220	N/A	N/A	N/A	V
Array Induction Temperature Ze	0	0.0001053	0.00006712	N/A	N/A	N/A	V

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Test Loop Gain Correction

Master: 1-Jan-2002 15:10

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Test Loop Gain Magnitude - 0	0	1.013	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 1	0	1.013	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 2	0	1.013	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 3	0	1.015	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 4	0	1.003	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 5	0	0.9974	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 6	0	0.9974	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 7	0	1.000	N/A	N/A	N/A	N/A	V
Phase - 0	0	-2.004	N/A	N/A	N/A	N/A	DEG
Phase - 1	0	-0.9819	N/A	N/A	N/A	N/A	DEG
Phase - 2	0	-0.2812	N/A	N/A	N/A	N/A	DEG
Phase - 3	0	0.09587	N/A	N/A	N/A	N/A	DEG
Phase - 4	0	0.05403	N/A	N/A	N/A	N/A	DEG
Phase - 5	0	-0.08211	N/A	N/A	N/A	N/A	DEG
Phase - 6	0	-0.1723	N/A	N/A	N/A	N/A	DEG
Phase - 7	0	-0.1723	N/A	N/A	N/A	N/A	DEG

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Sonde Error Correction

Master: 1-Jan-2002 15:10

Measurement	Nominal	Master	Before	After	Change	Limit	Units
R Sonde Error Correction - 0	0	-5.197	N/A	N/A	N/A	N/A	MMM
R Sonde Error Correction - 1	0	176.4	N/A	N/A	N/A	N/A	MMM
R Sonde Error Correction - 2	0	103.7	N/A	N/A	N/A	N/A	MMM
R Sonde Error Correction - 3	0	29.81	N/A	N/A	N/A	N/A	MMM
R Sonde Error Correction - 4	0	24.81	N/A	N/A	N/A	N/A	MMM
R Sonde Error Correction - 5	0	14.18	N/A	N/A	N/A	N/A	MMM
R Sonde Error Correction - 6	0	6.094	N/A	N/A	N/A	N/A	MMM
R Sonde Error Correction - 7	0	-0.4994	N/A	N/A	N/A	N/A	MMM
X Sonde Error Correction - 0	0	-353.7	N/A	N/A	N/A	N/A	MMM
X Sonde Error Correction - 1	0	-270.0	N/A	N/A	N/A	N/A	MMM
X Sonde Error Correction - 2	0	-165.6	N/A	N/A	N/A	N/A	MMM
X Sonde Error Correction - 3	0	-83.04	N/A	N/A	N/A	N/A	MMM
X Sonde Error Correction - 4	0	1.251	N/A	N/A	N/A	N/A	MMM
X Sonde Error Correction - 5	0	-4.309	N/A	N/A	N/A	N/A	MMM
X Sonde Error Correction - 6	0	-4.702	N/A	N/A	N/A	N/A	MMM
X Sonde Error Correction - 7	0	7.488	N/A	N/A	N/A	N/A	MMM

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Mud Gain Correction

Master: 1-Jan-2002 15:10

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Coarse - Mag, Real, Imag - 0	0	1.157	N/A	N/A	N/A	N/A	
Coarse - Mag, Real, Imag - 1	0	1.157	N/A	N/A	N/A	N/A	
Coarse - Mag, Real, Imag - 2	0	1.157	N/A	N/A	N/A	N/A	
Fine - Mag, Real, Imag - 0	0	1.148	N/A	N/A	N/A	N/A	
Fine - Mag, Real, Imag - 1	0	1.148	N/A	N/A	N/A	N/A	
Fine - Mag, Real, Imag - 2	0	1.148	N/A	N/A	N/A	N/A	

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Stab Measurement Summary

Before: 10-Jan-2003 18:13

Measurement	Nominal	Master	Before	After	Change	Limit	Units
BS Window Ratio	0.6799	N/A	0.6829	N/A	N/A	N/A	
BS Window Count	9366	N/A	9406	N/A	N/A	CPS	
LS Window Ratio	0.4913	N/A	0.4882	N/A	N/A	N/A	
SS Window Sum	10029	N/A	10009	N/A	N/A	N/A	
SS Window Count	1374	N/A	1372	N/A	N/A	CPS	
LS Window Sum	1159	N/A	1155	N/A	N/A	N/A	

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Photo-multiplier High Voltages Calibrations

Before: 10-Jan-2003 19:13

Measurement	Nominal	Master	Before	After	Change	Limit	Units
SS PM High Voltage (Command)	1870	N/A	1870	N/A	N/A	N/A	V
SS PM High Voltage (Command)	1813	N/A	1847	N/A	N/A	N/A	V
LS PM High Voltage (Command)	1878	N/A	1705	N/A	N/A	N/A	V

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Crystal Quality Resolutions Calibration

Before: 10-Jan-2003 19:13

Measurement	Nominal	Master	Before	After	Change	Limit	Units
SS Crystal Resolution	11.64	N/A	11.70	N/A	N/A	N/A	%
SS Crystal Resolution	10.21	N/A	10.62	N/A	N/A	N/A	%
LS Crystal Resolution	9.793	N/A	9.793	N/A	N/A	N/A	%

High resolution Integrated Logging Tool-DTS Wellsite Calibration - MCFL Calibration

Before: 10-Jan-2003 19:14

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Raw B2 Resistivity	3870	N/A	3892	N/A	N/A	N/A	OHMM
Raw B1 Resistivity	3830	N/A	3821	N/A	N/A	N/A	OHMM
Raw B2 Resistivity	3830	N/A	3837	N/A	N/A	N/A	OHMM

High resolution Integrated Logging Tool-DTS Wellsite Calibration - HILT Caliper Calibration

Before: 10-Jan-2003 19:11

Measurement	Nominal	Master	Before	After	Change	Limit	Units
HILT Caliper Zero Measurement	203.2	N/A	197.8	N/A	N/A	N/A	MM
HILT Caliper Pos Measurement	304.8	N/A	304.1	N/A	N/A	N/A	MM

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Detector Calibration

Before: 10-Jan-2003 19:09

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Gamma Ray Background	30.00	N/A	57.52	N/A	N/A	N/A	GAPI
Gamma Ray API Value	15.00	N/A	15.61	N/A	N/A	15.61	GAPI
Gamma Ray (Calibrated)	105.7	N/A	180.0	N/A	N/A	15.00	GAPI

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Zero Measurement

Master: 19-Dec-2002 10:44 Before: 10-Jan-2003 19:09

Measurement	Nominal	Master	Before	After	Change	Limit	Units
CFTC Background		27.64	30.51	N/A	N/A	4.148	CPS
CNTC Background		25.34	27.74	N/A	N/A	3.801	CPS

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Accelerometer Calibration

Before: 19-Jan-2002 20:40

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Z-Axis Acceleration		9.810	N/A	9.830	N/A	N/A	M/S2

High resolution Integrated Logging Tool-DTS Master Calibration - Inversion results

Master: 19-Dec-2002 17:01

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Rho Aluminum	2696	2661	--	--	--	--	KM3
Rho Magnesium	1686	1695	--	--	--	--	KM3
Pe Aluminum	4.043	4.043	--	--	--	--	
Pe Magnesium	2.682	2.682	--	--	--	--	

High resolution Integrated Logging Tool-DTS Master Calibration - Deviation Summary

Master: 14-Jan-2003 17:01

Measurement	Nominal	Master	Before	After	Change	Limit	Units
BS Average Deviation	0	0.2702	--	--	--	--	%
BS Max Deviation	0	1.233	--	--	--	--	%
SS Average Deviation	0	0.2220	--	--	--	--	%
SS Max Deviation	0	0.9590	--	--	--	--	%
LS Average Deviation	0	0.5927	--	--	--	--	%
LS Max Deviation	0	2.565	--	--	--	--	%

High resolution Integrated Logging Tool-DTS Master Calibration - Tank Measurement

Master: 19-Dec-2002 17:01

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Thermal Far Corr. (Tank)	2750	2493	--	--	--	--	CPS
Thermal Near Corr. (Tank)	2159	2,366	--	--	--	--	CPS

CNTC/GTC (Tank) 2.159 2.365

General Purpose Inclinometer Wellsite Calibration - CROUZET ACCELEROMETER FROM HAS BEEN READ CORRECTLY

Before: 15-Jan-2003 21:15							
TEMPERATURE REFERENCE :	N/A	N/A	20	N/A	N/A	N/A	DEGC
YEAR OF CALIBRATION :	N/A	N/A	0	N/A	N/A	N/A	
MONTH OF CALIBRATION :	N/A	N/A	11	N/A	N/A	N/A	
SIGNAL NUMBER :	N/A	N/A	748	N/A	N/A	N/A	

General Purpose Inclinometer Wellsite Calibration - CROUZET MAGNETOMETER FROM HAS BEEN READ CORRECTLY

Before: 15-Jan-2003 21:15							
TEMPERATURE REFERENCE :	N/A	N/A	21	N/A	N/A	N/A	DEGC
YEAR OF CALIBRATION :	N/A	N/A	0	N/A	N/A	N/A	
MONTH OF CALIBRATION :	N/A	N/A	11	N/A	N/A	N/A	
SIGNAL NUMBER :	N/A	N/A	437	N/A	N/A	N/A	

The GLS-XU source activity is acceptable.

The HGNS Neutron Master Calibration was done with the following parameters :

NCT-B Water Temperature	18.5	DEGC
Thermal Housing Size	85.700	MM

High resolution Integrated Logging Tool-DTS / Equipment Identification

Primary Equipment:
Array Induction Tool - H
Rev/SP Bottom Nose
Array Induction Sonde
HALS High Resolution Mechanical Sonde
HILT High Gamma-ray Device
HILT Nuclear Back-Scatter Detector
HILT Nuclear Shoot-Spacing Detector
HILT Nuclear Long Spacing Detector

AIT - H
AHRM - A
HRLA - A 989
HRAS - B 1719
HRSD - 916
HILT -
HILT -
HILT -

Auxiliary Equipment:

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Electronics Calibration Check - Thru Cal Mag. & Phase

Idx	Phase	Value	Thru Cal Magnitude V	Nominal	Value	Phase DEG	Nominal
	Master	0.6126		0.6000	54.41		71.00
	Before	0.6137			54.07		
	Master	1.356		1.270	55.32		70.00
	Before	1.257			53.00		
	Master	0.6244		0.6000	49.57		66.00
	Before	0.6247			49.28		
	Master	0.7063		0.7040	48.77		65.00
	Before	0.7004			48.48		
	Master	1.302		1.322	42.47		59.00
	Before	1.322			42.08		
	Master	1.910		1.955	40.80		57.00
	Before	1.915			40.56		
	Master	1.921		1.955	40.07		57.00
	Before	1.924			40.40		
	Master	1.369		1.415	36.84		53.00
	Before	1.378			37.20		
		60.00 % (Nominal)	Nominal	140.0 % (Nominal)	Nom: 60.00 (Nominal)	Nominal	Nom: + 60.00 (Nominal)

Master: 1-Jan-0003 15:19 Before: 16-Jan-0003 19:13

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Electronics Calibration Check - Auxiliary

Phase	Array Induction SPA Flux MV	Value	Phase	Array Induction SPA Zero MV	Value
Master		995.0	Master		0.1004
Before		999.9	Before		0.09047
	300.0 (Nominal)	1040 (Nominal)		60.00 (Nominal)	60.00 (Nominal)

Phase	Array Induction Temperature Flux V	Value	Phase	Array Induction Temperature Zero V	Value
Master		0.3219	Master		0.0001053
Before		0.3227	Before		0.0130126
	0.6700 (Nominal)	0.9100 (Nominal)	0.00000 (Nominal)	0.00000 (Nominal)	0.00000 (Nominal)

Master: 1-Jan-0003 15:19 Before: 16-Jan-0003 19:09

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Test Loop Gain Correction

Idx	Value	Test Loop Gain Magnitude V	Value	Phase DEG	
0	1.013	1.000	1.052	-0.044	0.000
		0.9000	1.000	0.0000	0.000
1	1.018	1.000	1.052	-0.0990	0.000
		0.9000	1.000	0.0000	0.000
2	1.019	1.000	1.052	-0.0918	0.000
		0.9000	1.000	0.0000	0.000
3	1.015	1.000	1.052	-0.0697	0.000
		0.9000	1.000	0.0000	0.000
4	1.003	1.000	1.052	-0.04402	0.000
		0.9000	1.000	0.0000	0.000
5	0.9853	1.000	1.052	-0.00611	0.000
		0.9000	1.000	0.0000	0.000
6	0.9874	1.000	1.052	0.0038	0.000
		0.9000	1.000	0.0000	0.000
7	1.005	1.000	1.052	-0.1723	0.000
		0.9000 (Nominal)	1.000 (Nominal)	0.0000 (Nominal)	0.000 (Nominal)

Master: 1-Jan-0003 15:19

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Sonde Error Correction

Idx	Value	R Sonde Error Correction MMM	Value	X Sonde Error Correction MMM	Value
1	6.187	220.8 (Nominal)	353.7	2000 (Nominal)	2000
		-65.00 (Nominal)	-118.0	-2000 (Nominal)	-2000
2	178.4	114.0 (Nominal)	279.3	425.0 (Nominal)	425.0
		158.0 (Nominal)	-204.0	-425.0 (Nominal)	-425.0
3	103.7	66.00 (Nominal)	110.8	252.0 (Nominal)	252.0
		-66.00 (Nominal)	-106.0	-252.0 (Nominal)	-252.0
4	64.44	39.00 (Nominal)	64.56	150.0 (Nominal)	150.0
		-39.00 (Nominal)	-64.00	-150.0 (Nominal)	-150.0
5	24.81	15.00 (Nominal)	1.251	63.00 (Nominal)	63.00
		-25.00 (Nominal)	-55.00	-63.00 (Nominal)	-63.00
6	14.18	4.000 (Nominal)	-4.939	50.00 (Nominal)	50.00
		-14.00 (Nominal)	-24.00	-50.00 (Nominal)	-50.00
7	9.589	0.000 (Nominal)	-8.702	30.00 (Nominal)	30.00
		-10.00 (Nominal)	-15.00	-30.00 (Nominal)	-30.00
8	-0.5094	-0.000 (Nominal)	7.468	90.00 (Nominal)	90.00
		0.000 (Nominal)	5.000	-90.00 (Nominal)	-90.00

Master: 1-Jan-0003 15:19

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Mud Gain Correction

Idx	Value	Coarse - Mag, Real, Imag	Value	Fine - Mag, Real, Imag	Value
1	1.157	1.000	1.200	1.146	1.200
		0.8000 (Nominal)	1.000 (Nominal)	0.8000 (Nominal)	1.000 (Nominal)
1	1.157	1.000	1.200	1.146	1.200
		0.8000 (Nominal)	1.000 (Nominal)	0.8000 (Nominal)	1.000 (Nominal)
2	1.157	1.000	1.200	1.148	1.200
		0.8000 (Nominal)	1.000 (Nominal)	0.8000 (Nominal)	1.000 (Nominal)

Master: 1-Jan-0003 15:19

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Bias Measurement Summary

Phase	BS Window Ratio	Value	Phase	SS Window Ratio	Value	Phase	LS Window Ratio	Value
Before		0.6823	Before		0.4662	Before		0.3039
	0.6400 (Nominal)	0.7135 (Nominal)	0.4670 (Nominal)	0.4662 (Nominal)	0.5100 (Nominal)	0.2870 (Nominal)	0.3100 (Nominal)	0.3039 (Nominal)
Phase	BS Window Sum CPS	Value	Phase	SS Window Sum CPS	Value	Phase	LS Window Sum CPS	Value
Before		9456	Before		10300	Before		1155
	9000 (Nominal)	9456 (Nominal)	10000 (Nominal)	10300 (Nominal)	11000 (Nominal)	1138 (Nominal)	1200 (Nominal)	1155 (Nominal)

Before: 16-Jan-0003 19:13

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Phase-vs-Multiple High Voltage Calibrations

Phase	30 Hz High Voltage (Command) V	Value	Phase	33 Hz High Voltage (Command) V	Value	Phase	2.8 Hz High Voltage (Command) V	Value
Before		1070	Before		1847	Before		1726
	1070 (Nominal)	1070 (Nominal)	1810 (Nominal)	1810 (Nominal)	1810 (Nominal)	1676 (Nominal)	1676 (Nominal)	1726 (Nominal)

Before: 16-Jan-2003 19:13

High resolution Integrated Logging Tool-DTS Wellsite Calibration
VCXL Calibration

Phase	SS Crystal Resolution %	Value	Phase	SS Crystal Resolution %	Value	Phase	LS Crystal Resolution %	Value
Before		11.70	Before		11.72	Before		9.192
	12.04 (Nominal)	11.70 (Nominal)	12.04 (Nominal)	11.72 (Nominal)	11.72 (Nominal)	9.769 (Nominal)	9.769 (Nominal)	10.75 (Nominal)

Before: 16-Jan-2003 19:14

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Electronics Calibration Check - Thru Cal Mag. & Phase

Idx	Phase	Value	Thru Cal Magnitude V	Nominal	Value	Phase DEG	Nominal
0	Master	0.6128		0.6000	54.41		71.00
1	Master	1.356		1.270	55.32		70.00
2	Master	0.6244		0.6000	49.57		66.00
3	Master	0.7063		0.7040	48.77		65.00
4	Master	1.302		1.322	42.47		59.00
5	Master	1.910		1.955	40.80		57.00
6	Master	1.921		1.955	40.07		57.00
7	Master	1.369		1.415	36.84		53.00
		60.00 % (Nominal)	Nominal	140.0 % (Nominal)	Nom: 60.00 (Nominal)	Nominal	Nom: + 60.00 (Nominal)

Master: 1-Jan-0003 15:19

High resolution Integrated Logging Tool-DTS Master Calibration
Electronics Calibration Check - Auxiliary

Phase	Array Induction SPA Flux MV	Value	Phase	Array Induction SPA Zero MV	Value
Master		995.0	Master		0.1004
Before		995.0	Before		0.09047
	300.0 (Nominal)	1040 (Nominal)		60.00 (Nominal)	60.00 (Nominal)

Phase	Array Induction Temperature Flux V	Value	Phase	Array Induction Temperature Zero V	Value
Master		0.3219	Master		0.0001053
Before		0.3227	Before		0.0130126
	0.6700 (Nominal)	0.9100 (Nominal)	0.00000 (Nominal)	0.00000 (Nominal)	0.00000 (Nominal)

Master: 1-Jan-0003 15:19

High resolution Integrated Logging Tool-DTS Master Calibration
Test Loop Gain Correction

Idx	Value	Test Loop Gain Magnitude V	Value	Phase DEG	
0	1.013	1.000	1.052	-0.044	0.000
		0.9000	1.000	0.0000	0.000
1	1.018	1.000	1.052	-0.0990	0.000
		0.9000 (Nominal)	1.000 (Nominal)	0.0000 (Nominal)	0.000 (Nominal)
2	1.019	1.000	1.052	-0.0918	0.000
		0.9000 (Nominal)	1.000 (Nominal)	0.0000 (Nominal)	0.000 (Nominal)
3	1.015	1.000	1.052	-0.0697	0.000
		0.9000 (Nominal)	1.000 (Nominal)	0.0000 (Nominal)	0.000 (Nominal)
4	1.003	1.000	1.052	-0.04402	0.000
		0.9000 (Nominal)	1.000 (Nominal)	0.0000 (Nominal)	0.000 (Nominal)
5	0.9853	1.000	1.052	-0.00611	0.000
		0.9000 (Nominal)	1.000 (Nominal)	0.0000 (Nominal)	0.000 (Nominal)
6	0.9874	1.000	1.052	0.0038	0.000
		0.9000 (Nominal)	1.000 (Nominal)	0.0000 (Nominal)	0.000 (Nominal)
7	1.005	1.000	1.052	-0.1723	0.000
		0.9000 (Nominal)	1.000 (Nominal)	0.0000 (Nominal)	0.000 (Nominal)

Master: 1-Jan-0003 15:19

High resolution Integrated Logging Tool-DTS Master Calibration
Sonde Error Correction

Idx	Value	R Sonde Error Correction MMM	Value	X Sonde Error Correction MMM	Value
1	6.187	220.8 (Nominal)	353.7	2000 (Nominal)	2000
		-65.00 (Nominal)	-118.0	-2000 (Nominal)	-2000
2	178.4	114.0 (Nominal)	279.3	425.0 (Nominal)	425.0
		158.0 (Nominal)	-204.0	-425.0 (Nominal)	-425.0
3	103.7	66.00 (Nominal)	110.8	252.0 (Nominal)	252.0
		-66.00 (Nominal)	-106.0	-252.0 (Nominal)	-252.0
4	64.44	39.00 (Nominal)	64.56	150.0 (Nominal)	150.0
		-39.00 (Nominal)	-64.00	-150.0 (Nominal)	-150.0
5	24.81	15.00 (Nominal)	1.251	63.00 (Nominal)	63.00
		-25.00 (Nominal)	-55.00	-63.00 (Nominal)	-63.00
6	14.18	4.000 (Nominal)	-4.939	50.00 (Nominal)	50.00
		-14.00 (Nominal)	-24.00	-50.00 (Nominal)	-50.00
7	9.589	0.000 (Nominal)	-8.702	30.00 (Nominal)	30.00
		-10.00 (Nominal)	-15.00	-30.00 (Nominal)	-30.00
8	-0.5094	-0.000 (Nominal)	7.468	90.00 (Nominal)	90.00
		0.000 (Nominal)	5.000	-90.00 (Nominal)	-90.00

Master: 1-Jan-0003 15:19

High resolution Integrated Logging Tool-DTS Master Calibration
Mud Gain Correction

Idx	Value	Coarse - Mag, Real, Imag	Value	Fine - Mag, Real, Imag	Value
1	1.157	1.000	1.200	1.146	1.200
		0.8000 (Nominal)	1.000 (Nominal)	0.8000 (Nominal)	1.000 (Nominal)
1	1.157	1.000	1.200	1.146	1.200
		0.8000 (Nominal)	1.000 (Nominal)	0.8000 (Nominal)	1.000 (Nominal)
2	1.157	1.000	1.200	1.148	1.200
		0.8000 (Nominal)	1.000 (Nominal)	0.8000 (Nominal)	1.000 (Nominal)

Master: 1-Jan-0003 15:19

High resolution Integrated Logging Tool-DTS Master Calibration
Inversion Results

Phase	Rho Aluminum kOM3	Value	Phase	Rho Magnesium kOM3	Value
Master		3601	Master		1685
	2900 (Nominal)	3601 (Nominal)	1600 (Nominal)	1685 (Nominal)	1600 (Nominal)
Phase	Pe Aluminum	Value	Phase	Pe Magnesium	Value
Master		2.561	Master		2.630
	2.473 (Nominal)	2.561 (Nominal)	2.630 (Nominal)	2.630 (Nominal)	2.730 (Nominal)

Master: 14-Jan-0000 17:01

High resolution Integrated Logging Tool-DTS Master Calibration
Sonde Summary

Phase	30 Average Deviation %	Value	Phase	60 Average Deviation %	Value	Phase	LS Average Deviation %	Value
Master		0.0102	Master		0.0000	Master		0.0007
	0.0000 (Nominal)	0.0102 (Nominal)	0.0000 (Nominal)	0.0000 (Nominal)	0.0000 (Nominal)	0.0000 (Nominal)	0.0000 (Nominal)	0.0007 (Nominal)
Phase	60 Max Deviation %	Value	Phase	90 Max Deviation %	Value	Phase	LS Max Deviation %	Value
Master		1.263	Master		0.2500	Master		0.2500
	0.0000 (Nominal)	1.263 (Nominal)	0.0000 (Nominal)	0.2500 (Nominal)	0.2500 (Nominal)	0.0000 (Nominal)	0.2500 (Nominal)	0.2500 (Nominal)

Master: 14-Jan-0000 17:01

High resolution Integrated Logging Tool-DTS Master Calibration
Tank Summary

Phase	Thermal Near Can (Tank) CPS	Value	Phase	Thermal Far Can (Tank) CPS	Value	Phase	CNTC/GTC (Tank)	Value
Master		3898	Master		2410	Master		2.363
	3000 (Nominal)	3931 (Nominal)	2000 (Nominal)	2075 (Nominal)	2730 (Nominal)	2125 (Nominal)	2.100 (Nominal)	2.159 (Nominal)

Master: 3-Dec-2002 10:44

General Purpose Inclinometer / Equipment Identification

Primary Equipment:
CHT Cartridge - C GPIC - C 813

Auxiliary Equipment:
CHT-Housing GPIC - B 1063

Company: CANNAT RESOURCES INC.
Well: CNRES BEHDZIAH YOUH O-52
Field: UNDEFINED
PROVINCE: NORTHWEST TERRITORIES

Schlumberger

PLATFORM EXPRESS:
ARRAY INDUCTION - RXOZ
SP LOG

LEGIBILITY
OF LOG
COULD VARY
DUE TO
COLOR
CONTENT

SONIC

COMPANY: CANNAT RESOURCES INC.

WELL: CNRES BEHDZIAH YOUH 0-52

FIELD: UNDEFINED

Province: NORTHWEST TERRITORIES

Schlumberger

PLATFORM EXPRESS
BHC SONIC LOG

LATITUDE: 66 DEG 51'	Elev.: K.B. 265 m
LONGITUDE: 126 DEG 39'	G.L. 258.9 m
UWID: 300/O-52-67.00-126.300	D.F. 264.7 m
Permanent Datum: GROUND LEVEL	Elev.: 258.9 m
Log Measured From: KELLY BUSHING 6.1 m	above Perm. Datum
Drilling Measured From: KELLY BUSHING	

API Serial No. 1900	LATITUDE: 66 DEG 51' N	LONGITUDE: 126 DEG 39' W

| | | |

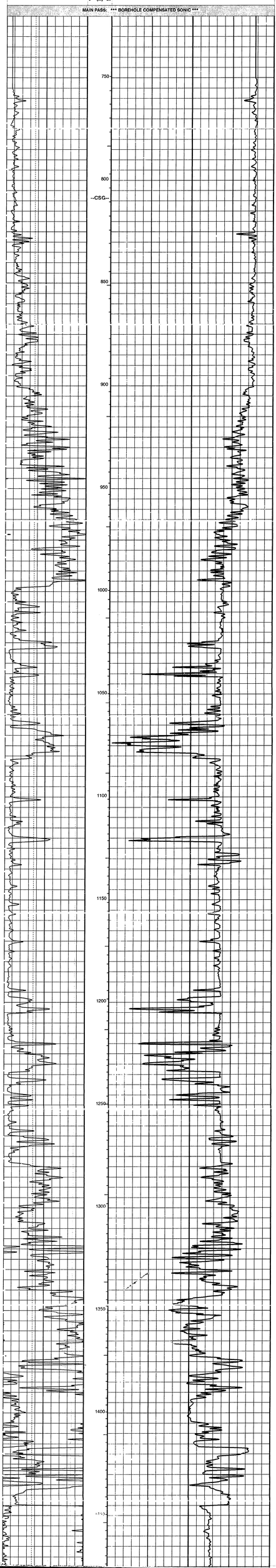
Gamma Ray (GR) (GAPI)
0 150

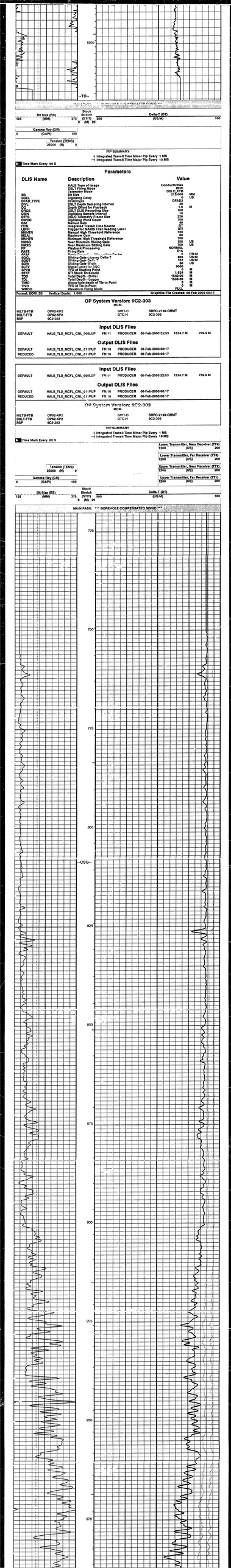
Bit Size (BS) (MM)
125 375

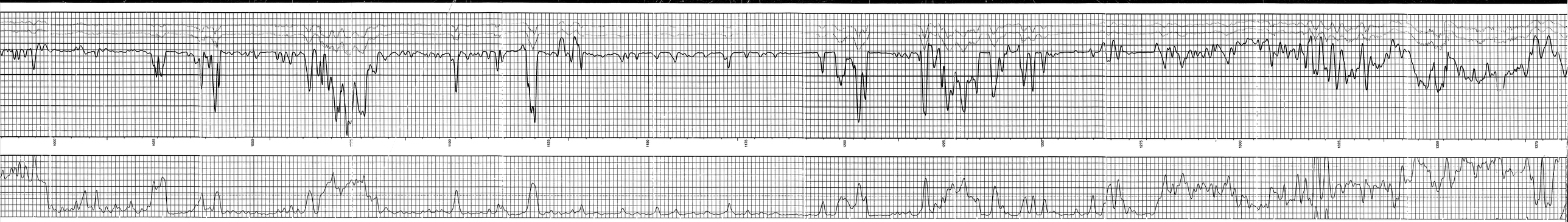
Stuck Stretch (STIT) (M)
0 20

Delta-T (DT) (US/M)
500 100

MAIN PASS: *** BOREHOLE COMPENSATED SONIC ***




1500
--TD--
Stuck Stretch
Bit Size (BS)
(MM)
375
(STIT)
500
Delta-T (DT)
(US/M)
100
0
(W)
20
Gamma Ray (GR)
(GAPI)
0
150
Tension (TENS)
25000
(N)
0
PIP SUMMARY
-| Integrated Transit Time Minor Pip Every 1 MS
-=| Integrated Transit Time Major Pip Every 10 MS
Time Mark Every 60 S
Parameters
DLIS Name
Description
Value
HALS Type of Image
DSLT Filter Mode
Conductivities
DSLC STD
BS
Bit Size
215.900
MM
DDAS
Digitizing Delay
0
US
DFAC_TYPE
DFAC Type
DFAC
DSLT
DSLT Data Sampling Interval
20
CO
Depth Offset for Playback
1.0
M
DBCS
DSLT DLIS Recording Size
100
DBIN
Digitizing Sample Interval
10
DSIZ
DSLT Digitizing Frame Size
200
DWCO
Digitizing Word Count
100
GAIN
Manual Gain
20
LBS
Trigger for Transit Time Source
MTT1
LBFR
Trigger for MAIN First Reading Label
STT
MANTR
Manual High Threshold Reference
120
MGAI
Maximum Gain
40
MTHR
Minimum High Threshold Reference
100
NMSG
Near Minimum Sliding Gate
150
US
NMXG
Near Maximum Sliding Gate
710
US
PP
Playback Processing
NORMAL
RATE
Rig Rate
FULL
SGCL
Sliding Gate Lissmp Delta-T
800
US/M
SGCR
Sliding Gate Ratio
1.50
US/M
SGW
Sliding Gate Width
80
US
SLEV
Signal Level for AGC
5000
SPVD
TTD at Starting Point
1.524
M
STRT
STT Stuck Threshold
1040.00
M
TDC
Total Depth - Cable
1533.00
M
TDD
Total Depth - Logger
1533.06
M
TIMD
Along-hole depth of Tie-in Point
0
M
TIME
TTD at Tie-in Point
0
M
WMOD
Waveform Processing Mode
FULL
Format: SONI_52
Vertical Scale: 1:600
Graphics File Created: 06-Feb-2003 00:17
OP System Version: 9C2-303
MCM
HILTB-FTB
OP92-KP2
GPIT-C
SRPC-2149-OBMT
DSLT-FTB
OP92-KP2
DTC-H
9C2-303
BSP
9C2-303
Input DLIS Files
DEFAULT
HALS_TLD_MCFL_CNL_606LUP
FN:11
PRODUCER
05-Feb-2003 22:53
1534.7 M
739.9 M
Output DLIS Files
DEFAULT
HALS_TLD_MCFL_CNL_911PUP
FN:16
PRODUCER
06-Feb-2003 00:17
REDUCED
HALS_TLD_MCFL_CNL_911PUP
FN:18
PRODUCER
06-Feb-2003 00:17
Input DLIS Files
DEFAULT
HALS_TLD_MCFL_CNL_606LUP
FN:11
PRODUCER
06-Feb-2003 22:53
1534.7 M
739.9 M
Output DLIS Files
DEFAULT
HALS_TLD_MCFL_CNL_911PUP
FN:16
PRODUCER
06-Feb-2003 00:17
REDUCED
HALS_TLD_MCFL_CNL_911PUP
FN:18
PRODUCER
06-Feb-2003 00:17
OP System Version: 9C2-303
MCM
HILTB-FTB
OP92-KP2
GPIT-C
SRPC-2149-OBMT
DSLT-FTB
OP92-KP2
DTC-H
9C2-303
BSP
9C2-303
PIP SUMMARY
-| Integrated Transit Time Minor Pip Every 1 MS
-=| Integrated Transit Time Major Pip Every 10 MS
Time Mark Every 60 S
Lower Transmitter, Near Receiver (TT4)
1200
(US)
200
Lower Transmitter, Far Receiver (TT3)
1200
(US)
200
Upper Transmitter, Near Receiver (TT2)
1200
(US)
200
Upper Transmitter, Far Receiver (TT1)
1200
(US)
200
Tension (TENS)
25000
(N)
0
Gamma Ray (GR)
(GAPI)
0
150
Stuck Stretch
Bit Size (BS)
(MM)
375
(STIT)
500
Delta-T (DT)
(US/M)
100
0
(W)
20
MAIN PASS: *** BOREHOLE COMPENSATED SONIC ***
725
750
775
800
--CSG--
825
850
875
900
925
950
975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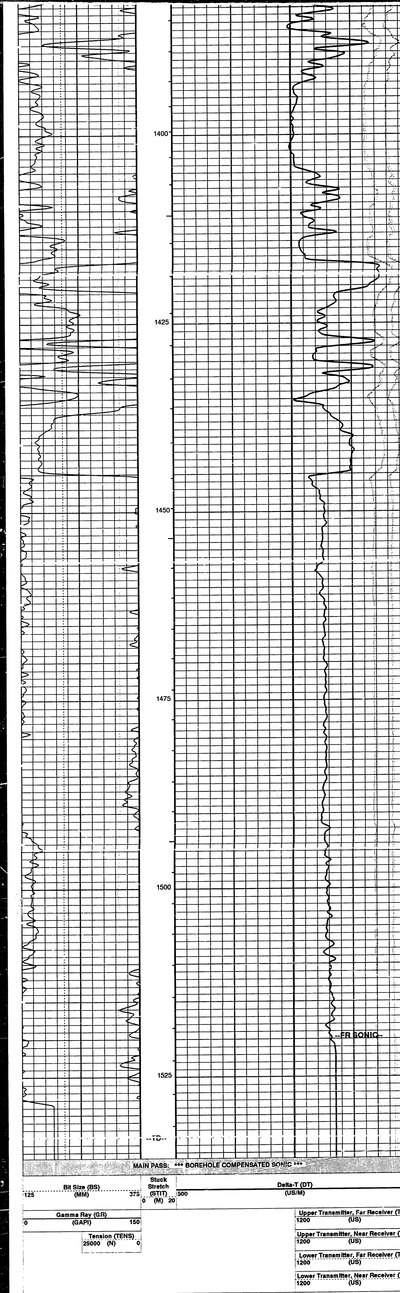
1050
1100
1150
1200
1250
1300
1350
1375



MAIN PASS: *** BOREHOLE COMPENSATED SONIC ***

Bit Size (BS) (MM) 125 375

Stuck Stretch (STIT) (M) 0 500 30

Delta-T (DT) (US/M) 500 100

Gamma Ray (GR) (GAPI) 0 150

Tension (TENS) 25000 (N) 0

Upper Transmitter, Far Receiver (TT1) 1200 (US) 200

Upper Transmitter, Near Receiver (TT2) 1200 (US) 200

Lower Transmitter, Far Receiver (TT3) 1200 (US) 200

Lower Transmitter, Near Receiver (TT4) 1200 (US) 200

PIP SUMMARY

-| Integrated Transit Time Minor Pip Every 1 MS

-| Integrated Transit Time Major Pip Every 10 MS

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	HALS Type of Image	ConductivWas	
	DSLT Filing Mode	BHC	
	Telemetry Mode	DSLC_ETB	
A2EX	HALS-B A2 Extended (Groningen effect)	YES	
ACCP	Accelerometer Pressure	PRESENT	
AFMO	Averaging Filtering Mode	MOVING_AVERAGE	
AGC	Automatic Gain Control Status	ON	
AGOS	HALS-DPIT OFFSET	-2288	MM
ALTSPNCHAN	Name of alternate depth channel	SpcedCorrectedDepth	US
AMSG	Auxiliary Minimum Sliding Gate	140	
ARSP_LTS	HALS Long Tool Stiffness Correction	ON	
ARSP_SHOULDEH	HALS Borehole Correction	OFF	
BHCC	Borehole Compensation Temperature	20	DEGC
BHDC	HALS Borehole Correction	ON	
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	22	DEGC
BLI	Bond Index Level for Zone Location	0	
BS	Bit Size	215.9MM	MM
CBAL	Borehole Salinity	190000.00	PPM
CBCO	Borehole Salinity Correction Option	NO	
CBAF	CBL Adjustment Factor	1	
CBCF	CBL Correction Factor	1.6	
CBLG	CBL Gate Width	45	US
CCSO	Casing Collar and Thickness Correction Option	NO	
CDTS	Casing-1 Status	328.084	US/M
CDTT	Current Casing Size	244.500	MM
CMTR	Compressive Strength of Cement	0	KPAA
CWEI	Casing Weight	56.00	KG/M
DIWL	Digitizing Delay	0	US
DBTE	Delta-T Detection	3	
DFAD_TYPE	Digital Fine Arrival Detection Switch	DSLC	
DFD	Drilling Fluid Type	DFADS	
DFMD	Drilling Fluid Density	1260.00	K/M3
DHCP	Diameter & Eccentering used in HALS Borehole Corrections	BitSize_Eccentered	
DIVL	DSLT Depth Sampling Interval	20	M
DO	Depth Offset for Playback	0	
DPPM	DSLT Depth Sampling Mode	HIRES	
DRDI	DSLT DLIS Recording Step	100	
DSSI	Digitizing Sample Interval	10	
DTCM	Delta-T Computation Mode	FULL	
DTF	Delta-T Fluid	620.079	US/M
DTFS	DSLC Telemetry Frame Size	1	
DTM	Delta-T Matrix	183.727	US/M
DWCO	Delta-T Window Count	100	
EXBO	External Shale Indicator Clean Value	20	
EXSH	External Shale Indicator Shale Value	150	
FCF	CBL Fluid Compensation Factor	1	
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
FPHI	Form Factor Porosity Source	DPHZ	
FSAL	Formation Salinity	500000	PPM
FSCO	Formation Salinity Correction Option	NO	
GAI	Manual Gain	40	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	7	DEG
GGRD	Geothermal Gradient	0.01829	DC/M
GLM	GPIT Logging Mode	DPM	
GMOC	Gamma Offset	2	MV
GRCC	HALS Gronigen Correction	OFF	
GRSE	Generalized Mud Resistivity Selection	HALS_RESIST	
GTSE	Generalized Temperature Selection	HSTB_PTEM	
HACPP	Accelerometer PROM Presence	PRESENT_FILE	
HAHT	Accelerometer Reference Temperature	25	DEGC
HDCSD	HILT Density Coal detection	2000	K/M3
HDSD	HILT Density Shale detection	2100	K/M3
HILT_GAS_DENSITY	HILT Gas Downhole Density	0	K/M3
HILT_GAS_OPTION	HILT Gas Computation Option	OFF	
HLAC	HALS-B Loop A Coefficient	LOW	
HLMO	HALS Logging Mode	HIRES	
HMSO	HALS Mechanical Standoff	3.45	MM
HNCOD	HILT Neutron Coal detection	0.45	V/V
HNSD	HILT Neutron Shale detection	0.05	V/V
HPHECUT	HILT effective Porosity Cutoff	0.45	V/V
HRSP	High Resolution Spacing	129.927	MM
HRUN	HALS-B Record Unillustrated Channels	NO	
HSCO	Hole Size Correction Option	YES	
HSIB	HILT Shale Indication Baseline	0.3	%
HSWCUT	HILT Water Saturation SHALE cutoff	1	
HSWO	HILT Saturation Computation Mode	AUTOMATIC_SELECTION	
HSOD	HALS Image Orientation	OFF	
ITTS	Integrated Transit Time Source	DT	
LBFR	Trigger for MAIN First Reading Label	BTI	
LIMP	HALS Left Image Processing	DeepPHV	
LOP1	HALS-B Mode 1 Loop Mode	OFF	
LOP2	HALS-B Mode 2 Loop Mode	OFF	
LOP3	HALS-B Mode 3 Loop Mode	OFF	
LTUT	Lower to Upper Transmitter Spacing Ratio	1	
MAHTR	Manual High Threshold Reference	120	
MAPP	Magnetometer PROM Presence	PRESENT	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MDEP	Measured Depth Channel Interval	4.5178	M
MDOR	Mud Correction	NATU	
MDRO	Magnetic Field Declination	30.9837	DEG
MGAI	Maximum Gain	60	
MIGA	Minimum Gain	0	
MNHTR	Minimum High Threshold Reference	100	
MODE	Mode of Operation	BHC	
MRTE	Magnetic Reference Temperature	21	DEGC
MSIP	Minimum Sonic Amplitude	14.5467	MV
MST	Mud Sample Temperature	20.00	DEGC
MWCO	Mud Weight Correction Option	NO	
NMSG	Near Minimum Sliding Gate	NOBARITE	US
NMT	HILT Nuclear Mud Type	750	US
NWSG	Near Window Sampling Gate	1.524	M
OCCL	Occurrence of Cancellation	NO	
PBVSADP	Use alternate depth channel for playback	0.35	V/V
PHMAX	HILT max porosity	NORMAL	
PP	Playback Processing	YES	
PTCO	Pressure/Temperature Correction Option	RHO	
RATE	Firing Rate	OFF	
RCSF	Rock Salinity	ShallowRear	
RIMP	HALS Right Image Processing	0.0380	OHMM
RMFS	Resistivity of Mud Filtrate Sample	OFF	
RTCOMP	HALS Rt Computation	100000	OHMM
RTRE	HALS Resistivity Threshold	100000	OHMM
RW	Resistivity of Connate Water	5.0000	
SDAT	Standoff Data Source	20000	
SDAT_HILT	HILT Standoff Source	2	
SEXP_HILT	HILT Saturation Exponent	2	DB/M
SFAF	Sonic Formation Attenuation Factor	0	
SGAO	Sliding Gate Status	ON	
SGAI	Selectable Acquisition Gain	AUTO	
SGCL	Sliding Gate Closing Delta-T	225	US/M
SGCW	Sliding Gate Closing Width	60	US
SGOL	Sliding Gate Level	164	US/M
SGW	Sliding Gate Width	90	US
SHT	Surface Hole Temperature	20	DEGC
SLEV	Signal Level for AGC	5000	
SOCN	Standoff Distance	3.175	MM
SOCO	Standoff Correction Option	NONE	
SPCO	HALS-B Special Power Correction	OFF	
SPFS	Sonic Porosity Starting Point	0	M
SPRS	Sonic Porosity Formula	RAYMER_HUNT	
SPND	North Departure of Starting Point	0	M
SPNV	SP Next Value	0	MV
SPRO	Sonic Porosity Source	DT	
SPVD	TVD of Starting Point	0	M
STXT	STI Stuck Threshold	1.524	M
SVEL	Vertical Section Azimuth	1000	
TAZI	Vertical Section Azimuth	0	DEG
TCOR	HALS TLC Correction	OFF	
TD	Total Depth	1540	M
TDD	Total Depth - Driller	1539.00	M
TDL	Total Depth - Logger	1539.00	M
TEMB	Temperature Bottom Hole Used	BOTH	
TIED	Along-hole depth of Tie-In Point	0	M
TIND	Along-hole depth of Tie-In Point	0	M
TINT	North Departure of Tie-In Point	0	M
TVD	TVD of Tie-In Point	0	M
TWS	Temperature of Connate Water Sample	37.778	DEGC
UNSPK	HALS Deepking Filter Options	OFF	
UNSPK_THOLD	HALS Deepking Filter Threshold (in %)	20	%
VDL_GAIN	VDL Gain (Variable Density Log)	40	****
VDLG	VDL Manual Gain	40	
WAGC	Waveform AGC Allow/Disallow	OFF	
WGAI	Waveform Manual Gain	20	US/M
WGDT	Waveform Gain Delta-T	2540	UB
WGIN	Waveform Gain Interval	FULL	
WMOD	Waveform Firing Mode	1	

Graphics File Created: 06-Feb-2003 00:17

Format: SONI_SS Vertical Scale: 1/240

OP System Version: 9C2-303

MCM

HILTB-FTB	OP92-KP2	GPIT-C	SRPC-2149-OBMT
DSLT-FTB	OP92-KP2	DTC-H	9C2-303
BSP	9C2-303		

Input DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_008LUP	FN:11	PRODUCER	05-Feb-2003 22:53	1534.7 M	739.9 M

Output DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_011PUP	FN:16	PRODUCER	06-Feb-2003 00:17
REDUCED	HALS_TLD_MCFL_CNL_011PUP	FN:16	PRODUCER	06-Feb-2003 00:17

COMPANY	CANNAT RESOURCES INC.	BOTTOM LOG INTERVAL	1520 m
		SCHLUMBERGER DEPTH	1533 m
WELL	CNRES BEHDZIAH YOUH 0-52	DEPTH DRILLER	1540 m
FIELD	UNDEFINED	KELLY BUSHING	265 m
Province	NORTHWEST TERRITORIES	DRILL FLOOR	264.7 m
		GROUND LEVEL	258.9 m

Schlumberger

PLATFORM EXPRESS
BHC SONIC LOG

DENSITY

Schlumberger

CANNAT RESOURCES INC.
UNDEFINED
CANRES BEHZDIH YOUH O-52
PROVINCE NORTHWEST TERRITORIES

PLATFORM EXPRESS - LITHOLOGY DENSITY COMPENSATED NEUTRON LITHOLOGY LOG

LOCATION
LATITUDE 66 DEG 51' 0.000"
LONGITUDE 126 DEG 37' 0.000"
UNDEFINED
KELLY BUSHING
GROUND LEVEL
MEAN SEA LEVEL

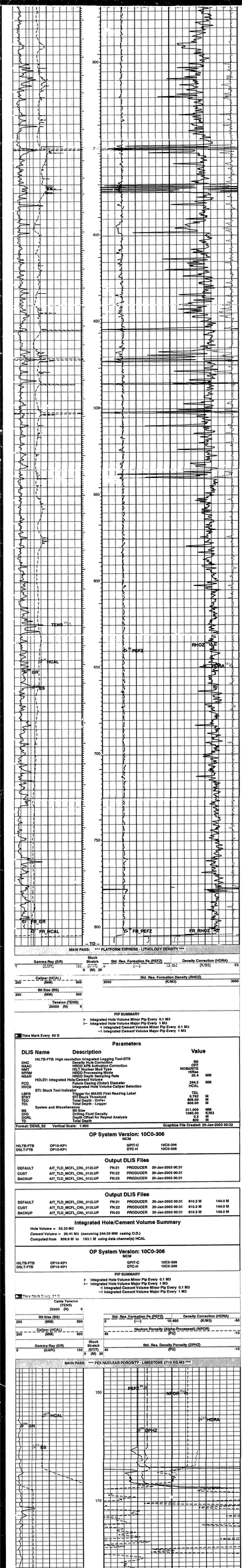
Elev.: K.B. 390.0 m
D.F. 389.0 m
G.L. 354.5 m

Log Measured From: KELLY BUSHING, 35.5 m Above Perm. Datum
Drilling Measured From: KELLY BUSHING

LOGGING DATE: 18/DEC/2 AT W
API SERIAL NO.: 05-035-51174

MUD
Run Number
Depth Driller
Depth Logger
Bottom Log Interval
Top Log Interval
Casing Driller Size @ Depth
Casing Logger Size @ Depth
Bit Size
Type Fluid in Hole
Density
Viscosity
PH
Fluid Loss
Source of Sample
Rm @ Measured Temperature
Rmf @ Measured Temperature
Rmc @ Measured Temperature
Source Rmf / Rmc
Rm @ BHT
Time Circulation Stopped
Time Logger on Bottom
Maximum Recorded Temperature
Equipment / Base Number
Recorded By
Witnessed By

ONE				
3000 m				
3000 m				
1800 m				
1800 m				
193.8 m @ 1800 m				
193.8 m @ 1800 m				
215.9 mm @ 193.8 m				
WATER BASED MUD				
1200 kg/m3				
29 s				
8.5				
15 cm3/30 min				
FLOWLINE				
0.276 ohm.m @ 23 degC				
MEASURED				
0.15 ohm.m @ 23 degC				
MEASURED				
0.15 ohm.m @ 23 degC				
15 degC				
66 degC				
66 degC				
66



Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
	HILTB-FTB: High resolution Integrated Logging Tool-DTS	
DHC	Density Hole Correction	BS
NAAC	HRDD APS Activation Correction	NOBARITE
MMM	HRDD Mud Mixture	Hilton
NSAR	HRDD Processing Mode	25.4 MM
	HRDD Depth Sampling Rate	
	HOLEV: Integrated Hole/Casead Volume	
FCD	Future Casing (Outer) Diameter	244.5 MM
IWCS	Integrated Hole Volume Caliper Selection	HCAL
	STI: Stuck Tool Indicator	
LBFR	Trigger for MAXIS Flint Reading Label	TDL
STOT	Total Depth - Driller	809.00 M
STOT	Total Depth - Driller	809.00 M
TDL	Total Depth - Logger	808.00 M
	System and Miscellaneous	
BS	Bit Size	311.000 MM
DFD	Drilling Fluid Density	1060.00 K/M3
DOFA	Depth Offset for Repeat Analysis	0.0 M
TD	Total Depth	808.0 M

Format: DENS_S2 Vertical Scale: 1:600 Graphics File Created: 20-Jan-2003 00:32

OP System Version: 10C0-306

MCM

HILTB-FTB	OP10-KP1	GPIT-C	10C0-306
DSLT-FTB	OP10-KP1	DTC-H	10C0-306

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_012LUP	FN:21	PRODUCER	20-Jan-2003 00:31	
CUST	AIT_TLD_MCFL_CNL_012LUP	FN:22	PRODUCER	20-Jan-2003 00:31	
BACKUP	AIT_TLD_MCFL_CNL_012LUP	FN:23	PRODUCER	20-Jan-2003 00:31	

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_012LUP	FN:21	PRODUCER	20-Jan-2003 00:31	810.2 M	144.0 M
CUST	AIT_TLD_MCFL_CNL_012LUP	FN:22	PRODUCER	20-Jan-2003 00:31	810.2 M	144.0 M
BACKUP	AIT_TLD_MCFL_CNL_012LUP	FN:23	PRODUCER	20-Jan-2003 00:31	810.2 M	144.0 M

Integrated Hole/Cement Volume Summary

Hole Volume = 55.33 M3
Cement Volume = 26.41 M3 (assuming 244.50 MM casing O.D.)
Computed from 808.9 M to 193.1 M using data channel(s): HCAL

OP System Version: 10C0-306

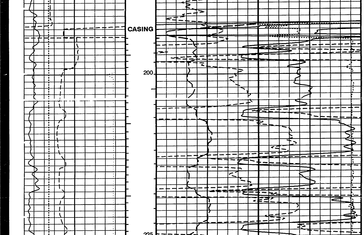
MCM

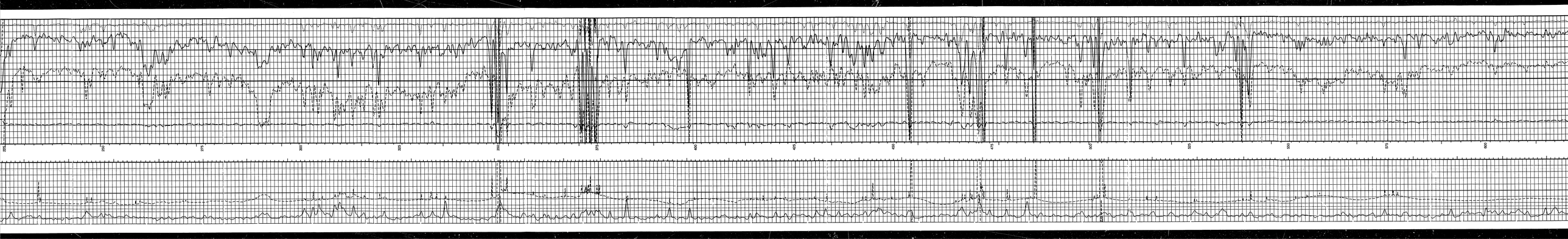
HILTB-FTB	OP10-KP1	GPIT-C	10C0-306
DSLT-FTB	OP10-KP1	DTC-H	10C0-306

PIP SUMMARY
Integrated Hole Volume Minor Pip Every 0.1 M3
Integrated Hole Volume Major Pip Every 1 M3
Integrated Cement Volume Minor Pip Every 0.1 M3
Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

Cable Tension (TENS)
Bit Size (BS)
Caliper (HCAL)
Std. Res. Formation Pe (PEFZ)
Density Correction (HDRA)
Neutron Porosity (Alpha Processed) (NPOR)
Gamma Ray (GR)
Stuck Stretch
Std. Res. Density Porosity (DPHZ)

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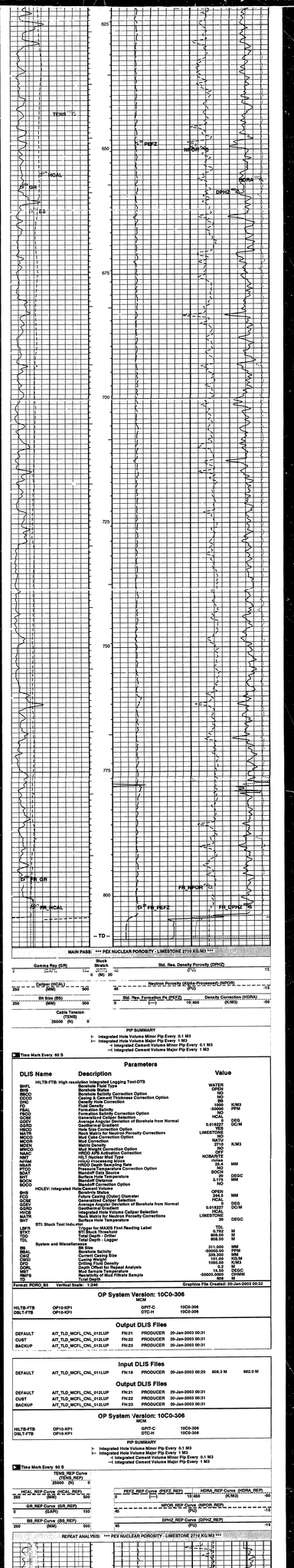
375
400
425
450
475
500
525
550
575
600



PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
  - Integrated Cement Volume Minor Pip Every 0.1 M3
  - Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
BHTI	HLTB-FTB: High resolution Integrated Logging Tool-OTS Borehole Fluid Type	WATER
BHSO	Borehole Shape	OVAL
BNCO	Borehole Salinity Correction Option	NO
CCCO	Casing & Cement Thickness Correction Option	NO
DHC	Deep Hole Correction	NO
FBAL	Formation Balance	1000 K/M3
FSAL	Formation Salinity	-50000 PPM
FSCO	Formation Salinity Correction Option	NO
GCSE	Generalized Caliper Selection	HCAL
GDEV	Average Angular Deviation of Borehole from Normal	0.014227 DEG
GSRO	Geological Source	DCM
HSCO	Hole Size Correction Option	YES
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE
MCOR	Mud Cake Correction Option	NO
MDCR	Mud Correction	NATU
MDEN	Matrix Density	2710 K/M3
MWCO	Mud Weight Correction Option	OFF
NCOR	Neutron Correction	NOBASITE
NMT	HILT Nuclear Mud Type	Water
NRIM	nHUQ Processing Mode	Fast MM
PTCO	Pressure Temperature Correction Option	NO
PTOO	Pressure/Temperature Correction Option	NO
SDAT	Standoff Data Source	SOCN DEGC
SHT	Surface Hole Temperature	9.172 MM
SOCC	Standoff Correction	NO
SOCO	Standoff Correction Option	NO
	HOLEV: Integrated Hole Cement Volume	
BHS	Borehole Shape	OPEN
BSE	Bit Size (Or Cutter) Diameter	264.5 MM
CGSE	Generalized Caliper Selection	HCAL
GDEV	Average Angular Deviation of Borehole from Normal	0.014227 DEG
GSRC	Geological Source	DCM
HVCS	Integrated Hole Volume Caliper Selection	HCAL
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE
SHT	Surface Hole Temperature	20 DEGC
	STI: Stuck Tool Indicator	
LSFS	Trigger for MAXIS First Reading Label	TDL
STKT	STT Stuck Threshold	0.782 M
TDD	Total Depth - Driller	809.00 M
TDL	Total Depth - Logger	809.00 M
	System and Miscellaneous	
BS	Bit Size	311.000 MM
CSAL	Casing Salinity	200000 PPM
CSID	Current Casing Size	339.300 MM
CWGI	Casing Weight	101.00 KG/M
DFD	Drilling Fluid Density	1000.00 K/M3
DOFF	Depth Offset for Repeat Analysis	0 M
DPRE	Drilling Fluid Pressure	15.50 DEGC
RMFS	Resistivity of Mud Filtrate Sample	-50000.000 OHMM
TD	Total Depth	809 M

Format: PORO_BS Vertical Scale: 1:240 Graphics File Created: 20-Jan-2003 00:32

OP System Version: 10CO-306

MCM

HLTB-FTB	OP10-KP1	GPIT-C	10CO-306
DBLT-FTB	OP10-KP1	DTC-H	10CO-306

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_012.UP	FN:21	PRODUCER	20-Jan-2003 00:31
CUST	AIT_TLD_MCFL_CNL_012.UP	FN:22	PRODUCER	20-Jan-2003 00:31
BACKUP	AIT_TLD_MCFL_CNL_012.UP	FN:23	PRODUCER	20-Jan-2003 00:31

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_011.UP	FN:18	PRODUCER	20-Jan-2003 00:20	808.3 M 682.0 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_012.UP	FN:21	PRODUCER	20-Jan-2003 00:31
CUST	AIT_TLD_MCFL_CNL_012.UP	FN:22	PRODUCER	20-Jan-2003 00:31
BACKUP	AIT_TLD_MCFL_CNL_012.UP	FN:23	PRODUCER	20-Jan-2003 00:31

OP System Version: 10CO-306

MCM

HLTB-FTB	OP10-KP1	GPIT-C	10CO-306
DBLT-FTB	OP10-KP1	DTC-H	10CO-306

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
  - Integrated Cement Volume Minor Pip Every 0.1 M3
  - Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

TENS_REP Curve (TENS_REP)
HCAL_REP Curve (HCAL_REP)
PEFZ_REP Curve (PEFZ_REP)
HDRA_REP Curve (HDRA_REP)
GR_REP Curve (GR_REP)
NPOR_REP Curve (NPOR_REP)
BS_REP Curve (BS_REP)
DPHZ_REP Curve (DPHZ_REP)

REPEAT ANALYSIS: *** PEX NUCLEAR POROSITY - LIMESTONE 2710 KG/M3 ***

LAST READINGS

P/P SUMMARY
- Integrated Hole Volume Minor Plp Every 0.1 M3
- Integrated Hole Volume Major Plp Every 1 M3
- Integrated Cement Volume Minor Plp Every 0.1 M3
- Integrated Cement Volume Major Plp Every 1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
	HILTB-FTB: High resolution Integrated Logging Tool-DTS	
BHC	Borehole Salin type	WATER
BHS	Borehole Status	OPEN
SSCO	Borehole Salinity Correction Option	NO
CCCO	Casing & Cement Thickness Correction Option	NO
FCO	Fluid Density Correction	0
FD	Fluid Density	1000 K/M3
FBAL	Formation Salinity	-50000 PPM
FSCO	Formation Salinity Correction Option	NO
GSCO	Generalized Caliper Selection	HCAL
GDEV	Average Angular Deviation of Borehole from Normal	0 DEG
GGRD	Geothermal Gradient	-L-018227 DC/M
HSCO	Hole Size Correction Option	YES
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE
MCOO	Mud Cake Correction Option	NO
MCOR	Mud Correction	NATU
MDEN	Mud Density	1210 K/M3
MWCO	Mud Weight Correction Option	YES
NAAC	HRDD APS Activation Correction	OFF
NMT	HILT Nuclear Mud Type	NOBLEWELL
NBAH	HRDD Depth Bias Type	HRDD
NSAM	HRDD Depth Sampling Rate	25.4 MM
PTCO	Pressure/Temperature Correction Option	NO
SDAT	Standoff Data Source	SCOL
SDTE	Standoff Temperature	25 DEGC
SOCN	Standoff Distance	3.175 MM
SOCO	Standoff Correction Option	NO
	HOLEV: Integrated Hole Volume	
BHS	Borehole Status	OPEN
FCD	Future Casing (Outer) Diameter	244.5 MM
GDSE	Generalized Caliper Selection	HCAL
GDEV	Average Angular Deviation of Borehole from Normal	0 DEG
GGRD	Geothermal Gradient	0.018227 DC/M
HOCO	Integrated Hole Volume Caliper P Jection	HCAL
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE
SHT	Surface Hole Temperature	25 DEGC
	STI: Stuck Tool Indicator	
TDL	Total Depth - Logger	808.00 M
	System and Miscellaneous	
BS	Bit Size	311.000 MM
BSAL	Borehole Salinity	-50000.00 PPM
CBZ	Current Casing Size	508.000 MM
CWEI	Casing Weight	106.50 KG/M
DFD	Drilling Fluid Density	1060.00 K/M3
DOFF	Depth Offset for Repeat Analysis	0.0 M
MST	Mud Sample Temperature	15.50 DEGC
RMFS	Resistivity of Mud Filtrate Sample	-50000.000 OHMM
TD	Total Depth	808 M

Format: PORO_94_REP Vertical Scale: 1:240 Graphics File Created: 20-Jan-2003 00:32

OP System Version: 10C0-306

	MCM	
HILTB-FTB	GPIT-C	10C0-306
DSLT-FTB	DTC-H	10C0-306

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_011UP	FN:18	PRODUCER	20-Jan-2003 00:20	808.3 M 682.0 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_012UP	FN:21	PRODUCER	20-Jan-2003 00:31
CUST	AIT_TLD_MCFL_CNL_012UP	FN:22	PRODUCER	20-Jan-2003 00:31
BACKUP	AIT_TLD_MCFL_CNL_012UP	FN:23	PRODUCER	20-Jan-2003 00:31

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_012UP	FN:21	PRODUCER	20-Jan-2003 00:31	810.2 M 144.0 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_017PUP	FN:28	PRODUCER	20-Jan-2003 03:54	810.2 M 145.2 M
CUST	AIT_TLD_MCFL_CNL_017PUP	FN:29	PRODUCER	20-Jan-2003 03:54	810.2 M 145.2 M

Integrated Hole/Cement Volume Summary

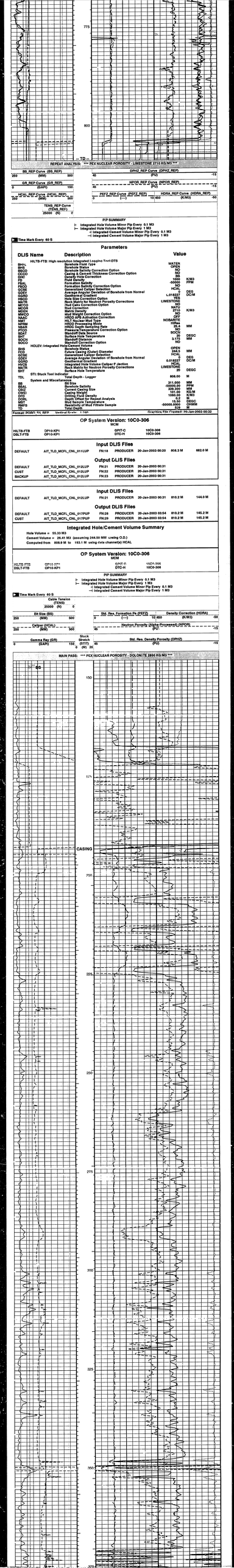
Hole Volume = 55.33 M3
Cement Volume = 26.41 M3 (assuming 244.50 MM casing O.D.)
Computed from 808.8 M to 153.1 M using-rate channel(s) HCAL

OP System Version: 10C0-306

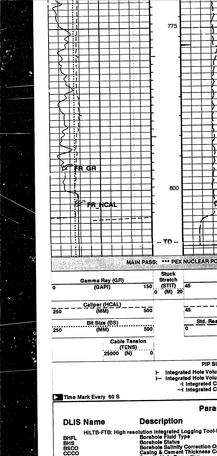
	MCM	
HILTB-FTB	GPIT-C	10C0-306
DSLT-FTB	DTC-H	10C0-306

P/P SUMMARY
- Integrated Hole Volume Minor Plp Every 0.1 M3
- Integrated Hole Volume Major Plp Every 1 M3
- Integrated Cement Volume Minor Plp Every 0.1 M3
- Integrated Cement Volume Major Plp Every 1 M3

Time Mark Every 60 S



450
475
500
525
550
575
600
625
650
675
700
725
750
T PMT2
DPM
TEMP
HEAT
PRESS



MAIN PASS: *** PEX NUCLEAR POROSITY - DOLOMITE 2650 KG/M3 ***

Gamma Ray (GR) (GAPI)		Shock Stretch (STIT) (PU)		Std. Res. Density Porosity (DPHZ)
0	150	0	45	-15
	0	90		
Caliper (HCAL) (MM)		Neutron Porosity (Alpha-Processed) (NPOR) (PU)		
200	500	45		-15
Bit Size (BS) (MM)		Std. Res. Formation Pe (PEFZ) (--)		Density Correction (HDRA) (K/M3)
200	500	0	10	-50
Cable Tension (TENS)				
25000	0			

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
	HILTB-FTB: High resolution Integrated Logging Tool-DTS	
BHFL	Borehole Fluid Type	WATER
BHSL	Borehole Salinity	OPEN
CCOR	Borehole Salinity Correction Option	NO
CSCO	Casing & Cement Thickness Correction Option	NO
DHC	Density Hole Correction	NO
FD	Fluid Density	1000
SALL	Formation Salinity	-99000
FSCO	Formation Salinity Correction Option	NO
GCBE	Generalized Caliper Selection	HCAL
HDIA	Hole Size Correction Diameter of Borehole from Normal	0 DEG
HGAO	Gastrointestinal Gradient	0.018227 DCM
HHJU	Hole Size Correction Option	YES
MATR	Matrix Density for Neutron Porosity Corrections	DOLOMITE
MCOO	Mud Cake Correction Option	NO
MDEN	Mud Correction	NATU
MDIN	Matrix Density	2650 K/M3
MWCO	Mud Weight Correction Option	NO
NAME	Name of Neutron Porosity Correction	OFF
NMT	HILT Nuclear Matrix	NORMAL
NPHM	HRDD Processing Mode	THRU
RMAS	Pressure/Temperature Correction Option	29.4 MM
SCOO	Pressure/Temperature Correction Option	NO
SDAT	Standoff Data Source	BOCN DEGC
SHT	Surface Hole Temperature	3.172 MM
SOCN	Standoff Correction	NO
SOCO	Standoff Correction Option	
	DIR: Directional Survey Computation	
SPVD	TVD of Starting Point	0 M
TIED	Measured Depth of Tie-In Point	808 M
TVDT	TVD of Tie-In Point	808 M
	HOLEV: Integrated Hole/Cement Volume	
BHS	Hole Size	OPEN MM
CCS	Picture Casting (Outer) Diameter	HCAL
GCBE	Generalized Caliper Selection	DEG
HDIA	Average Angular Deviation of Borehole from Normal	0.018227 DCM
GGSS	Gastrointestinal Volume Caliper Selection	HCAL
MATR	Matrix Density for Neutron Porosity Corrections	DOLOMITE
SHT	Surface Hole Temperature	80 DEGC
	STI: Stuck Tool Indicator	
LSPD	Trigger for MAXIS Flint Reading Label	TDL M
STKT	STT Stuck Threshold	3792 M
TDD	Total Depth - Driller	809.2 M
TDL	Total Depth - Logger	808.04 M
	System and Miscellaneous	
BS	Bit Size	311.000 MM
BSAL	Borehole Salinity	-99000.00 PPM
CSIZ	Casing Nominal Size	338.300 MM
CWEI	Casing Weight	107.000 K/M3
DFD	Drilling Fluid Density	1060.00 G
HT	Hole Temperature at Bottom	43 DEGC
MST	Mud Sample Temperature	15.56
PD	Playback Processing	NORMAL
RMFS	Resistivity of Mud Filtrate Sample	-99000.00 OHMM
SI	Total Depth	809 M

Format: PCORO_55 Vertical Scale: 1:240 Graphics File Created: 20-Jan-2003 03:54

OP System Version: 10C0-306

MCM

		GPIT-C	10C0-306
HILTB-FTB	OP10-KP1	OTC-H	10C0-306
DSLT-FTB	OP10-KP1		

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_612UP	FN:21	PRODUCER	20-Jan-2003 00:31	810.2 M	144.0 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_017PUP	FN:28	PRODUCER	20-Jan-2003 03:54
CUST	AIT_TLD_MCFL_CNL_017PUP	FN:29	PRODUCER	20-Jan-2003 03:54

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Limit	Units
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Electronics Calibration Check - Thru Cal Mag. & Phase								
Master: 1-Jan-2003 15:19 Before: 16-Jan-2003 19:09								
Thru Cal Magnitude - 1	0	0.8128	0.8137	N/A	N/A	N/A	N/A	V
Thru Cal Magnitude - 2	0	1.258	1.257	N/A	N/A	N/A	N/A	V
Thru Cal Magnitude - 3	0	0.8244	0.8247	N/A	N/A	N/A	N/A	V
Thru Cal Magnitude - 4	0	1.280	1.280	N/A	N/A	N/A	N/A	V
Thru Cal Magnitude - 5	0	1.022	1.023	N/A	N/A	N/A	N/A	V
Thru Cal Magnitude - 6	0	1.912	1.915	N/A	N/A	N/A	N/A	V
Thru Cal Magnitude - 7	0	1.931	1.934	N/A	N/A	N/A	N/A	V
Thru Cal Magnitude - 7	0	1.569	1.570	N/A	N/A	N/A	N/A	V
Phase - 1	0	49.57	49.58	N/A	N/A	N/A	N/A	DEG
Phase - 2	0	53.50	53.50	N/A	N/A	N/A	N/A	DEG
Phase - 3	0	48.57	48.28	N/A	N/A	N/A	N/A	DEG
Phase - 4	0	46.77	46.78	N/A	N/A	N/A	N/A	DEG
Phase - 5	0	42.47	42.28	N/A	N/A	N/A	N/A	DEG
Phase - 6	0	42.40	42.43	N/A	N/A	N/A	N/A	DEG
Phase - 7	0	40.42	40.40	N/A	N/A	N/A	N/A	DEG
Phase - 7	0	36.94	37.20	N/A	N/A	N/A	N/A	DEG
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Electronics Calibration Check - Auxiliary								
Master: 1-Jan-2003 15:19 Before: 16-Jan-2003 19:09								
Array Induction SPA Pru	990.5	990.0	990.9	N/A	N/A	N/A	N/A	MV
Array Induction SPA Zero	0	0.1034	0.0847	N/A	N/A	N/A	N/A	MV
Array Induction Temperature Pk	0.9150	0.9219	0.9021	N/A	N/A	N/A	N/A	V
Array Induction Temperature Zero	0	0.05129	0.000672	N/A	N/A	N/A	N/A	V
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Test Loop Gain Correction								
Master: 1-Jan-2003 15:19								
Test Loop Gain Magnitude - 0	0	1.013	N/A	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 1	0	1.019	N/A	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 2	0	1.019	N/A	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 3	0	1.003	N/A	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 4	0	0.9853	N/A	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 5	0	0.9874	N/A	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 7	0	1.004	N/A	N/A	N/A	N/A	N/A	V
Phase - 0	0	0.1000	N/A	N/A	N/A	N/A	N/A	DEG
Phase - 1	0	0.2992	N/A	N/A	N/A	N/A	N/A	DEG
Phase - 2	0	-0.3818	N/A	N/A	N/A	N/A	N/A	DEG
Phase - 3	0	-0.0403	N/A	N/A	N/A	N/A	N/A	DEG
Phase - 4	0	0.03403	N/A	N/A	N/A	N/A	N/A	DEG
Phase - 5	0	-0.0821	N/A	N/A	N/A	N/A	N/A	DEG
Phase - 6	0	0.0668	N/A	N/A	N/A	N/A	N/A	DEG
Phase - 7	0	-0.1723	N/A	N/A	N/A	N/A	N/A	DEG
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Sonde Error Correction								
Master: 1-Jan-2003 15:19								
R Sonde Error Correction - 0	0	-5.197	N/A	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 1	0	103.6	N/A	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 2	0	103.7	N/A	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 3	0	64.44	N/A	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 4	0	24.81	N/A	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 5	0	9.588	N/A	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 6	0	9.588	N/A	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 7	0	-0.3064	N/A	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 0	0	353.7	N/A	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 1	0	-379.2	N/A	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 2	0	49.96	N/A	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 3	0	49.96	N/A	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 4	0	1.251	N/A	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 5	0	-4.702	N/A	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 6	0	-4.702	N/A	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 7	0	7.468	N/A	N/A	N/A	N/A	N/A	MM/M
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Mud Gain Correction								
Master: 1-Jan-2003 15:19								
Coarse - Mag, Real, Imag - 0	0	1.157	N/A	N/A	N/A	N/A	N/A	
Coarse - Mag, Real, Imag - 1	0	1.157	N/A	N/A	N/A	N/A	N/A	
Coarse - Mag, Real, Imag - 0	0	1.157	N/A	N/A	N/A	N/A	N/A	
Fine - Mag, Real, Imag - 0	0	1.146	N/A	N/A	N/A	N/A	N/A	
Fine - Mag, Real, Imag - 2	0	1.146	N/A	N/A	N/A	N/A	N/A	
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Stab Measurement Summary								
Before: 16-Jan-2003 19:13								
SS Window Ratio	0.6795	N/A	0.6823	N/A	N/A	N/A	N/A	
SS Window Sum	9368	N/A	9406	N/A	N/A	N/A	N/A	CPS
LS Window Ratio	0.4618	N/A	0.4662	N/A	N/A	N/A	N/A	
LS Window Sum	6367	N/A	6430	N/A	N/A	N/A	N/A	CPS
LB Window Ratio	0.2874	N/A	0.3009	N/A	N/A	N/A	N/A	
LB Window Sum	1158	N/A	1155	N/A	N/A	N/A	N/A	CPS
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Pulse-Height Value Calibrations								
Before: 16-Jan-2003 19:13								
SS PH High Voltage (Command)	1670	N/A	1670	N/A	N/A	N/A	N/A	V
SS PH High Voltage (Command)	1813	N/A	1847	N/A	N/A	N/A	N/A	V
LS PH High Voltage (Command)	1813	N/A	1847	N/A	N/A	N/A	N/A	V
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Crystal Quality Resolutions Calibration								
Before: 16-Jan-2003 19:13								
SS Crystal Resolution	11.64	N/A	11.70	N/A	N/A	N/A	N/A	%
LS Crystal Resolution	10.01	N/A	10.62	N/A	N/A	N/A	N/A	%
LB Crystal Resolution	5.231	N/A	5.763	N/A	N/A	N/A	N/A	%
High resolution Integrated Logging Tool-DTS Wellsite Calibration - MCFL Calibration								
Before: 16-Jan-2003 19:14								
Rev B0 Resistivity	2675	N/A	3652	N/A	N/A	N/A	N/A	OHMM
Rev B1 Resistivity	2675	N/A	3821	N/A	N/A	N/A	N/A	OHMM
Rev B2 Resistivity	3535	N/A	3621	N/A	N/A	N/A	N/A	OHMM
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Caliper Calibration								
Before: 16-Jan-2003 19:11								
HILT Caliper Zero Measurement	203.2	N/A	197.8	N/A	N/A	N/A	N/A	MM
HILT Caliper Plus Measurement	254.1	N/A	254.1	N/A	N/A	N/A	N/A	MM
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Detector Calibration								
Before: 16-Jan-2003 19:08								
Gamma Ray (Calibrated)	30.00	N/A	57.52	N/A	N/A	N/A	N/A	GAPI
Gamma Ray (Up - Stop)	30.00	N/A	171.7	N/A	N/A	N/A	N/A	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	N/A	N/A	N/A	GAPI
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Gain Measurement								
CFTC Detector	23.04	N/A	27.24	N/A	N/A	3.001	N/A	CPS
CFTC Background	27.65	N/A	30.51	N/A	N/A	4.148	N/A	CPS
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Accelerometer Calibration								
Before: 19-Jan-2003 03:40								
Z-Axis Acceleration	9.810	N/A	9.830	N/A	N/A	N/A	N/A	MS2
High resolution Integrated Logging Tool-DTS Master Calibration - Inversion results								
Master: 14-Jan-2003 17:01								
Rho Aluminum	2598	2601	--	--	--	--	--	K/M3
Rho Magnesium	1770	2455	--	--	--	--	--	K/M3
Pe Aluminum	2.550	2.581	--	--	--	--	--	
Pe Magnesium	3.650	2.630	--	--	--	--	--	
High resolution Integrated Logging Tool-DTS Master Calibration - Deviation Summary								
Master: 14-Jan-2003 17:01								
SS Average Deviation	0	0.2708	--	--	--	--	--	
SS Max Deviation	0	1.283	--	--	--	--	--	
LS Average Deviation	0	0.2555	--	--	--	--	--	
LS Max Deviation	0	0.9355	--	--	--	--	--	
LB Average Deviation	0	0.6827	--	--	--	--	--	
LB Max Deviation	0	2.331	--	--	--	--	--	
High resolution Integrated Logging Tool-DTS Master Calibration - Tank Measurement								
Master: 15-Dec-2002 10:44								
Thermal Nad Corr. (Tank)	6031	5898	--	--	--	--	--	CPS
Thermal Far Corr. (Tank)	2783	2455	--	--	--	--	--	CPS
CNTC/CFTC (Tank)	2.159	2.365	--	--	--	--	--	
General Purpose Inclinometer Wellsite Calibration - CIROUZET ACCELEROMETER PRIOM HAS BEEN READ CORRECTLY								
Before: 17-Jan-2003 23:10								
TEMPERATURE REFERENCE :	N/A	N/A	20	N/A	N/A	N/A	N/A	DEGC
YEAR OF CALIBRATION :	N/A	N/A	11	N/A	N/A	N/A	N/A	
MONTH OF CALIBRATION :	N/A	N/A	11	N/A	N/A	N/A	N/A	
SERIAL NUMBER :	N/A	N/A	435	N/A	N/A	N/A	N/A	
General Purpose Inclinometer Wellsite Calibration - CIROUZET MAGNETOMETER PRIOM HAS BEEN READ CORRECTLY								
Before: 19-Jan-2003 23:18								
TEMPERATURE REFERENCE :	N/A	N/A	21	N/A	N/A	N/A	N/A	DEGC
YEAR OF CALIBRATION :	N/A	N/A	11	N/A	N/A	N/A	N/A	
MONTH OF CALIBRATION :	N/A	N/A	11	N/A	N/A	N/A	N/A	
SERIAL NUMBER :	N/A	N/A	437	N/A	N/A	N/A	N/A	

The GLS-XJ source activity is acceptable.

The HGNS Neutron Master Calibration was done with the following parameters :

NCT-B Water Temperature	18.5	DEGC
Thermal Housing Size	85.100	MM

High resolution Integrated Logging Tool-DTS / Equipment Identification

Primary Equipment:		AIT -H	
Array Induction Tool - H		AIRM - A	
Rm/Bf Sonde Hous		AHS - BA	189
HILT Nuclear Sonde		HRMS - B	1718
HILT High-Resolution Mechanical Sonde		HRDD -	918
HILT Rdc Gamma-ray Device		HILT -	
HILT Nuclear Back-Scatter Detector		HILT -	
HILT Nuclear Short-Spacing Detector		HILT -	
HILT Nuclear Long-Spacing Detector			

Auxiliary Equipment:

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Electronics Calibration Check - Thru Cal Mag. & Phase

Up	Phase	Value	Thru Cal Magnitude 7	Nominal	Value	Phase	DES	Nominal
1	Master	0.8128	0.8650	0.8650	64.64			71.00
	Before	0.8137			64.07			
2	Master	1.258	1.270	1.270	53.32			70.00
	Before	1.257			53.50			
3	Master	0.8244	0.8250	0.8250	48.57			68.00
	Before	0.8247			49.28			
4	Master	0.7283	0.7040	0.7040	46.77			66.00
	Before	0.7284			46.78			
5	Master	1.320	1.305	1.305	42.47			59.00
	Before	1.320			42.28			
6	Master	1.912	1.935	1.935	42.43			57.00
	Before	1.915			42.40			
7	Master	1.931	1.955	1.955	40.37			57.00
	Before	1.934			40.40			
8	Master	1.569	1.415	1.415	36.94			53.00
	Before	1.570			37.20			
		80.00 % Minimum	140.0 % Nominal	140.0 % Nominal	main station Nominal		Nom = 80.00 Nominal	
					Before: 16-Jan-2003 19:09			

Master: 1-Jan-2003 15:19

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Electronics Calibration Check - Auxiliary

Phase	Array Induction SPA Pru	MV	Value	Phase	Array Induction SPA Zero	MV	Value
Master	990.5		990.5	Master	0		0.1034
Before	990.9		990.9	Before	0		0.08047
	90.0 Minimum	990.5 Nominal	110.0 Maximum		90.00 Minimum	0 Nominal	50.00 Maximum
Phase	Array Induction Temperature Pk	Value		Phase	Array Induction Temperature Zero	Value	
Master		0.921 9		Master		0.000 181	
Before		0.9021		Before		0.71 E-05	
	0.8150 Minimum	0.9150 Nominal	0.9600 Maximum		0.00000 Minimum	0.00000 Nominal	0.00500 Maximum

Before: 16-Jan-2003 19:09

Master: 1-Jan-2003 15:19

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Test Loop Gain Magnitude 3

Up	Value	Test Loop Gain Magnitude 3	Value	Phase DES
1	1.013		-0.564	
	0.8500 Minimum	1.000 Nominal	1.150 Maximum	0.1000 Minimum	0 Nominal	0.3000 Maximum
2	1.019	1.000	-0.0992	
	0.8500 Minimum	1.000 Nominal	1.150 Maximum	0.1000 Minimum	0 Nominal	0.3000 Maximum
3	1.019	1.000	-0.3818	
	0.8500 Minimum	1.000 Nominal	1.150 Maximum	0.1000 Minimum	0 Nominal	0.3000 Maximum
4	1.003	1.000	-0.0403	
	0.8500 Minimum	1.000 Nominal	1.150 Maximum	0.1000 Minimum	0 Nominal	0.3000 Maximum
5	0.9853	1.000	-0.0821	
	0.8500 Minimum	1.000 Nominal	1.150 Maximum	0.1000 Minimum	0 Nominal	0.3000 Maximum
6	0.9874	1.000	-0.0668	
	0.8500 Minimum	1.000 Nominal	1.150 Maximum	0.1000 Minimum	0 Nominal	0.3000 Maximum
7	1.008	1.000	-0.1723	
	0.8500 Minimum	1.000 Nominal	1.150 Maximum	0.1000 Minimum	0 Nominal	0.3000 Maximum

Master: 1-Jan-2003 15:19

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Sonde Error Correction

Up	Value	R Sonde Error Correction MM/M	Value	X Sonde Error Correction MM/M
0	-5.197	353.7		
	-20.00 Minimum	-50.00 Nominal	110.0 Maximum	-500 Minimum	0 Nominal	500 Maximum
1	179.4	103.6	-379.2	
	114.0 Minimum	119.0 Nominal	204.0 Maximum	-408.0 Minimum	-379.0 Nominal	625.0 Maximum
2	103.7	103.7	-185.6	
	68.00 Minimum	113.0 Nominal	156.0 Maximum	-350.0 Minimum	-350.0 Nominal	350.0 Maximum
3	64.44	49.96	-93.96	
	39.00 Minimum	44.00 Nominal	69.00 Maximum	-250.0 Minimum	-250.0 Nominal	250.0 Maximum
4	24.81	1.251	1.251	
	13.00 Minimum	20.00 Nominal	38.00 Maximum	-40.00 Minimum	0 Nominal	40.00 Maximum
5	14.14	-4.702	-4.702	
	4.000 Minimum	14.00 Nominal	24.00 Maximum	-30.00 Minimum	0 Nominal	30.00 Maximum
6	9.588	-4.702	-4.702	
	5.000 Minimum	10.00 Nominal	18.00 Maximum	-30.00 Minimum	0 Nominal	30.00 Maximum
7	-0.5494	7.468	7.468	
	0.0000 Minimum	6.000 Nominal	20.00 Maximum	-30.00 Minimum	0 Nominal	30.00 Maximum

Master: 1-Jan-2003 15:19

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Mud Gain Correction

Up	Value	Coarse - Mag, Real, Imag	Value	Fine - Mag, Real, Imag
0	1.157	1.157	1.146	1.146
	0.8500 Minimum	1.000 Nominal	1.150 Maximum	0.8500 Minimum	1.000 Nominal	1.150 Maximum

		(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)
1	1.157				1.148				
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)			0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)
2	1.157				1.148				
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)			0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)

Master: 1-Jan-2003 15:19

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Stab Measurement Summary

Phase	BS Window Ratio			Value	Phase	SS Window Ratio			Value	Phase	LS Window Ratio			Value
Before				0.6823	Before				0.4682	Before				0.3039
	0.6455 (Minimum)	0.6795 (Nominal)	0.7135 (Maximum)			0.4670 (Minimum)	0.4916 (Nominal)	0.5162 (Maximum)			0.2825 (Minimum)	0.2974 (Nominal)	0.3122 (Maximum)	

Phase	BS Window Sum CPS			Value	Phase	SS Window Sum CPS			Value	Phase	LS Window Sum CPS			Value
Before				9406	Before				10020	Before				1155
	8918 (Minimum)	9388 (Nominal)	9857 (Maximum)			9515 (Minimum)	10020 (Nominal)	10520 (Maximum)			1101 (Minimum)	1158 (Nominal)	1216 (Maximum)	

Before: 16-Jan-2003 19:13

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Photo-multiplier High Voltages Calibrations

Phase	BS PM High Voltage (Command) V			Value	Phase	SS PM High Voltage (Command) V			Value	Phase	LS PM High Voltage (Command) V			Value
Before				1670	Before				1847	Before				1705
	1570 (Minimum)	1670 (Nominal)	1770 (Maximum)			1713 (Minimum)	1813 (Nominal)	1913 (Maximum)			1578 (Minimum)	1678 (Nominal)	1778 (Maximum)	

Before: 16-Jan-2003 19:13

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Crystal Quality Resolutions Calibrations

Phase	BS Crystal Resolution %			Value	Phase	SS Crystal Resolution %			Value	Phase	LS Crystal Resolution %			Value
Before				11.70	Before				10.62	Before				9.763
	10.64 (Minimum)	11.64 (Nominal)	12.64 (Maximum)			9.208 (Minimum)	10.21 (Nominal)	11.21 (Maximum)			8.789 (Minimum)	9.789 (Nominal)	10.79 (Maximum)	

Before: 16-Jan-2003 19:13

High resolution Integrated Logging Tool-DTS Wellsite Calibration
MCFL Calibration

Phase	Raw B0 Resistivity OHMM			Value	Phase	Raw B1 Resistivity OHMM			Value	Phase	Raw B2 Resistivity OHMM			Value
Before				3852	Before				3821	Before				3837
	3585 (Minimum)	3875 (Nominal)	4165 (Maximum)			3524 (Minimum)	3830 (Nominal)	4136 (Maximum)			3524 (Minimum)	3830 (Nominal)	4136 (Maximum)	

Before: 16-Jan-2003 19:14

High resolution Integrated Logging Tool-DTS Wellsite Calibration
HILT Caliper Calibration

Phase	HILT Caliper Zero Measurement MM			Value	Phase	HILT Caliper Plus Measurement MM			Value
Before				197.8	Before				304.1
	152.4 (Minimum)	203.2 (Nominal)	254.0 (Maximum)			228.6 (Minimum)	304.8 (Nominal)	381.0 (Maximum)	

Before: 16-Jan-2003 19:11

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Detector Calibration

Phase	Gamma Ray Background GAPI			Value	Phase	Gamma Ray (Jig - Bkg) GAPI			Value	Phase	Gamma Ray (Calibrated) GAPI			Value
Before				57.52	Before				171.7	Before				165.0
	0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)			156.1 (Minimum)	171.7 (Nominal)	187.3 (Maximum)			150.0 (Minimum)	165.0 (Nominal)	180.0 (Maximum)	

Before: 16-Dec-2002 10:44

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Zero Measurement

Phase	CNTC Background CPS			Value	Phase	CFTC Background CPS			Value
Master				25.34	Master				27.65
Before				27.74	Before				30.51
	5.000 (Minimum)	25.34 (Nominal)	40.00 (Maximum)			5.000 (Minimum)	27.65 (Nominal)	40.00 (Maximum)	

Master 19-Dec-2002 10:44 Before: 16-Jan-2003 19:09

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Accelerometer Calibration

Phase	Z-Axis Acceleration M/S2			Value
Before				9.833
	9.810 (Minimum)	9.810 (Nominal)	10.01 (Maximum)	

Before: 19-Jan-2003 23:43

High resolution Integrated Logging Tool-DTS Master Calibration
Electronics Calibration Check - Thru Cal Mag. & Phase

Idx	Phase	Value	Thru Cal Magnitude V	Nominal	Value	Phase DEG	Nominal
0	Master	0.6128		0.6050	54.41		71.00
1	Master	1.256		1.270	53.32		70.00
2	Master	0.6244		0.6230	49.57		66.00
3	Master	0.7083		0.7040	48.77		65.00
4	Master	1.332		1.337	42.47		59.00
5	Master	1.912		1.955	40.60		57.00
6	Master	1.921		1.955	40.57		57.00
7	Master	1.369		1.415	38.94		53.00
		60.00 % (Minimum)	% (Nominal)	140.0 % (Maximum)		Nom -60.00 (Minimum) (Nominal)	Nom + 60.00 (Maximum)

Master: 1-Jan-2003 15:19

High resolution Integrated Logging Tool-DTS Master Calibration
Electronics Calibration Check - Auxiliary

Phase	Array Induction SPA Plus MV			Value	Phase	Array Induction SPA Zero MV			Value
Master				995.0	Master				0.1004
	941.0 (Minimum)	990.5 (Nominal)	1040 (Maximum)			-50.00 (Minimum)	0 (Nominal)	50.00 (Maximum)	

Phase	Array Induction Temperature Plus V			Value	Phase	Array Induction Temperature Zero V			Value
Master				0.9219	Master				0.0001053
	0.8700 (Minimum)	0.9150 (Nominal)	0.9600 (Maximum)			-0.05000 (Minimum)	0 (Nominal)	0.05000 (Maximum)	

Master: 1-Jan-2003 15:19

High resolution Integrated Logging Tool-DTS Master Calibration
Test Loop Gain Correction

Idx	Value	Test Loop Gain Magnitude V			Value	Phase DEG		
0	1.013				-2.564			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
1	1.018				0.2992			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
2	1.019				-0.3819			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
3	1.015				0.09587			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
4	1.003				0.03403			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
5	0.9853				-0.08211			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
6	0.9974				0.3688			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
7	1.005				-0.1723			
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)

Master: 1-Jan-2003 15:19

High resolution Integrated Logging Tool-DTS Master Calibration
Sonde Error Correction

Idx	Value	R Sonde Error Correction MM/M			Value	X Sonde Error Correction MM/M		
0	-5.197				353.7			
		-231.0 (Minimum)	-56.00 (Nominal)	119.0 (Maximum)		-2250 (Minimum)	0 (Nominal)	2250 (Maximum)
1	178.4				-379.0			
		114.0 (Minimum)	159.0 (Nominal)	204.0 (Maximum)		-625.0 (Minimum)	0 (Nominal)	625.0 (Maximum)
2	103.7				-165.6			
		68.00 (Minimum)	111.0 (Nominal)	156.0 (Maximum)		-350.0 (Minimum)	0 (Nominal)	350.0 (Maximum)
3	64.44				-63.96			
		38.00 (Minimum)	64.00 (Nominal)	88.00 (Maximum)		-250.0 (Minimum)	0 (Nominal)	250.0 (Maximum)
4	24.81				1.251			
		13.00 (Minimum)	25.00 (Nominal)	38.00 (Maximum)		-63.00 (Minimum)	0 (Nominal)	63.00 (Maximum)
5	14.18				-4.939			
		4.000 (Minimum)	14.00 (Nominal)	24.00 (Maximum)		-50.00 (Minimum)	0 (Nominal)	50.00 (Maximum)
6	9.598				-4.702			
		5.000 (Minimum)	10.00 (Nominal)	15.00 (Maximum)		-30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)
7	-0.5064				7.468			
		-5.000 (Minimum)	0 (Nominal)	5.000 (Maximum)		-30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)

Master: 1-Jan-2003 15:19

High resolution Integrated Logging Tool-DTS Master Calibration
Mud Gain Correction

Idx	Value	Coarse - Mag. Real, Imag			Value	Fine - Mag. Real, Imag		
0	1.157				1.148			
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)
1	1.157				1.148			
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)
2	1.157				1.148			
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)

Master: 1-Jan-2003 15:19

High resolution Integrated Logging Tool-DTS Master Calibration
Inversion results

Phase	Rho Aluminum K/M3			Value	Phase	Rho Magnesium K/M3			Value
Master				2601	Master				1685
	2586 (Minimum)	2596 (Nominal)	2606 (Maximum)			1676 (Minimum)	1686 (Nominal)	1696 (Maximum)	

Phase	Pe Aluminum			Value	Phase	Pe Magnesium			Value
Master				2.581	Master				2.630
	2.470 (Minimum)	2.570 (Nominal)	2.670 (Maximum)			2.550 (Minimum)	2.650 (Nominal)	2.750 (Maximum)	

Master: 14-Jan-2003 17:01

High resolution Integrated Logging Tool-DTS Master Calibration
Deviation Summary

Phase	BS Average Deviation %			Value	Phase	SS Average Deviation %			Value	Phase	LS Average Deviation %			Value
Master				0.2702	Master				0.2225	Master				0.6927
	-0.8000 (Minimum)	0 (Nominal)	0.8000 (Maximum)			-1.000 (Minimum)	0 (Nominal)	1.000 (Maximum)			-1.500 (Minimum)	0 (Nominal)	1.500 (Maximum)	

Phase	BS Max Deviation %			Value	Phase	SS Max Deviation %			Value	Phase	LS Max Deviation %			Value
Master				1.263	Master				0.9580	Master				2.331
	-1.600 (Minimum)	0 (Nominal)	1.600 (Maximum)			-2.500 (Minimum)	0 (Nominal)	2.500 (Maximum)			-3.500 (Minimum)	0 (Nominal)	3.500 (Maximum)	

Master: 14-Jan-2003 17:01

High resolution Integrated Logging Tool-DTS Master Calibration
Tank Measurement

Phase	Thermal Neu. Corr. (Tank) CPS			Value	Phase	Thermal Far Corr. (Tank) CPS			Value	Phase	CNTC/CFTC (Tank)			Value
Master				5696	Master				2493	Master				2.965
	5000 (Minimum)	6031 (Nominal)	7200 (Maximum)			2075 (Minimum)	2793 (Nominal)	3125 (Maximum)			2.130 (Minimum)	2.159 (Nominal)	2.540 (Maximum)	

Master: 19-Dec-2002 10:44

General Purpose Inclinometer / Equipment Identification

Primary Equipment: GPIT Cartridge - C — GPIC - C — 813

Auxiliary Equipment: GPIT Housing — GPIH - B — 1963

Company: CANNAT RESOURCES INC.

Well: CNRES BEHDZIAH YOUH O-52

Field: UNDEFINED

PROVINCE: NORTHWEST TERRITORIES

Schlumberger

PLATFORM EXPRESS:
COMPENSATED NEUTRON
LITHODENSITY LOG

COMPANY: CANNAT RESOURCES INC.

WELL: CNRES BEHDZIAH YOUH 0-52

FIELD: UNDEFINED

Province: NORTHWEST TERRITORIES

Schlumberger

PLATFORM EXPRESS
LITHO-DENSITY
COMPENSATED NEUTRON

LATITUDE: 66 DEG 51'
LONGITUDE: 126 DEG 29'
LAND: 300/O-32-047-0/-126.500

Elev.: K.B. 365 m
G.L. 359.9 m
D.F. 364.7 m

Permanent Datum: GROUND LEVEL
Log Measured From: KELLY BUSHING 6.1 m above Perm. Datum
Drilling Measured From: KELLY BUSHING

	API Serial No.	LATITUDE	LONGITUDE
	Well	66 DEG 51' N	126 DEG 29' W

Logging Date	4-Feb-2003				
Run Number	ONE				
Depth Driller	1745 m				
Schlumberger Depth	1743 m				
Bottom Log Interval	1740 m				
Top Log Interval	800 m				
Casing Driller Size @ Depth	244.5 mm @ 800 m				
Casing Schlumberger	800 m				
Bit Size	215.900 mm				
Type Fluid in Hole	SALT MUD				
Density	1090 kg/m3	90 s			
Fluid Loss	10 cm3	10			
Source of Sample	FLOWLINE				
RM @ Measured Temperature	0.040 ohm.m	@ 20 degC			
RMF @ Measured Temperature	0.038 ohm.m	@ 20 degC			
RMC @ Measured Temperature	0.118 ohm.m	@ 17 degC			
Source RMF / RMC	MEAS /	MEAS			
RM @ BHT	0.024 ohm.m	@ 53.0 degC	@	@	@
Maximum Recorded Temperature	71 degC				
Circulation Stopped	4-Feb-2003	Time			
Logger On Bottom	6-Feb-2003	Time	2:00		
Unit Number	3418	Location	NORMAN WELLS		
Recorded By	DEWN BEAN				
Witnessed By	JERRY SOLESTY				

SANDSTONE/LOOK

	Run 1	Run 2	Run 3	Run 4
Run Number	1			
Depth Driller	1745 m			
Schlumberger Depth	1743 m			
Top Log Interval	800 m			
Bottom Log Interval	1740 m			
Casing Driller Size @ Depth	244.5 mm @ 800 m			
Casing Schlumberger	800 m			
Bit Size	215.900 mm			
Type Fluid in Hole	SALT MUD			
Density	1090 kg/m3			
Viscosity	90 s			
Fluid Loss	10 cm3			
Source of Sample	FLOWLINE			
RM @ Measured Temperature	0.040 ohm.m @ 20 degC			
RMF @ Measured Temperature	0.038 ohm.m @ 20 degC			
RMC @ Measured Temperature	0.118 ohm.m @ 17 degC			
Source RMF / RMC	MEAS / MEAS			
RM @ BHT	0.024 ohm.m @ 53.0 degC	@	@	@
Maximum Recorded Temperature	71 degC			
Circulation Stopped	4-Feb-2003 Time			
Logger On Bottom	6-Feb-2003 Time	2:00		
Unit Number	3418 Location	NORMAN WELLS		
Recorded By	DEWN BEAN			
Witnessed By	JERRY SOLESTY			

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OTHER SERVICES
CBIL AIT-H DSNT
CBIL AIT-H DSNT
CBIL AIT-H DSNT
CBIL AIT-H DSNT

REMARKS: RUN 1

RUN 1 WITH 244.5mm CASING TO 800m. DRILLED 215.9mm HOLE TO 1745m. LOGGED WITH PLATFORM EXPRESS AIT-H DSNT. RUN 1 WITH 244.5mm CASING TO 800m. DRILLED 215.9mm HOLE TO 1745m. LOGGED WITH PLATFORM EXPRESS AIT-H DSNT.

RECEIVED AT GSC AT 08:00, 07 FEB

SURFACE EQUIPMENT SERIAL NUMBER

EQUIPMENT NUMBER: 3418

EQUIPMENT LOCATION: NORMAN WELLS, N.W.T.

ENGINEER'S NAME: DEWN BEAN

WITNESS'S NAME: JERRY SOLESTY

BOWLEVARIA	2303	2303	
LAST CASING	244.5mm	@ 800m	
OPEN HOLE	215.9mm	800m	1745m

LEH-QT	LEH-QT		
BHC	SP-SPARC	CTEM	
ECS-H	ECS-H		
DIT-H	DIT-H		
HNGS	HNGS-ITEM		
GR/TC	GR/TC		
HLDS/TTRM	HLDS/TTRM		
HNGS	HNGS-ITEM		
HRAC	HRAC-ITEM		
CMTD	CMTD-ITEM		

RUN 1

GSW-P	PAD	GSW-P	PAD
CNTB	1984	CNTB	1984
CCSB	1984	CCSB	1984

SURFACE EQUIPMENT

HSVS-FSRA		HSVS-FSRA	
HGCS	1984	HGCS	1984
GCSB	1984	GCSB	1984

DOWNHOLE EQUIPMENT

HDIS-FSRA		HDIS-FSRA	
HGDS	1984	HGDS	1984
GDSB	1984	GDSB	1984

DOWNHOLE EQUIPMENT

HLDS	1984	HLDS	1984
HRAC	1984	HRAC	1984
HNGS	1984	HNGS	1984

RUN 2

HSVS-FSRA		HSVS-FSRA	
HGCS	1984	HGCS	1984
GCSB	1984	GCSB	1984

DOWNHOLE EQUIPMENT

HDIS-FSRA		HDIS-FSRA	
HGDS	1984	HGDS	1984
GDSB	1984	GDSB	1984

DOWNHOLE EQUIPMENT

HLDS	1984	HLDS	1984
HRAC	1984	HRAC	1984
HNGS	1984	HNGS	1984

BRD-CCS		BRD-CCS	
ATTN-HNG		ATTN-HNG	
TOOL STRING (TOP TO BOTTOM)		TOOL STRING (TOP TO BOTTOM)	
MARUKA STRING (TOP TO BOTTOM)		MARUKA STRING (TOP TO BOTTOM)	

RUN 1

7.93		6.74	
4.74		4.74	
3.51		3.51	
HDIS-GDX		HDIS-GDX	
Gamma Ray		Gamma Ray	
4.19		4.19	
4.18		4.18	
Neutron F		Neutron F	
Neutron N		Neutron N	
3.87		3.87	
HDIS wire		HDIS wire	
2.65		2.65	
HRAC cart		HRAC cart	
1.05		1.05	
0.85		0.85	
0.73		0.73	
0.14		0.14	

24.87	23.99	24.87	23.99
20.03		20.03	
14.69		14.69	
14.66		14.66	
13.82		13.82	
13.70		13.70	
11.25		11.25	
11.48		11.48	
8.52		8.52	
8.41		8.41	
7.39		7.39	
7.17		7.17	
6.42		6.42	
6.17		6.17	
24.74		24.74	
24.50		24.50	
7.71		7.71	
24.74		24.74	
24.50		24.50	
7.71		7.71	
HLDS-B		HLDS-B	
24.74		24.74	
24.50		24.50	
7.71		7.71	
TOOL ROT		TOOL ROT	
MARUKA STRING (TOP TO BOTTOM)		MARUKA STRING (TOP TO BOTTOM)	

Input DLIS Files

DEFAULT	HALS_TLD_MCH_CAL_SHYRP	Pass 1	PRODUCER	08-Feb-2003 00:24	1530.7 M	753.8 M
DEFAULT	HALS_TLD_MCH_CAL_SHYRP	Pass 1	PRODUCER	08-Feb-2003 01:44	1491.1 M	1492.1 M

Output DLIS Files

Integrated Hole/Cement Volume Summary

Hole Volume = 0.07 m3 Integrating 1745.0 to 800.0 m
Casing Volume = 0.04 m3 Integrating 800.0 to 0.0 m

OP System Version: 9C2-383		
HLDS-FTB	ORIG-P2	ORIG-CEMENT
DSN-FTB	ORIG-P2	8C2-383
DPHI-FTB	DPHI-P2	
	DPHI-DT	

Integrated Hole Volume Minus Pipe 0.03 m3
Integrated Cement Volume Minus Pipe 0.01 m3
Integrated Cement Volume Minus Pipe 0.01 m3

Time Mark Every 60 S	Cable Tension (LBF)	Bit Size (Schlumberger) (IN)	Delta Computer (DSPA) (K/M3)
3000	2000	6	12
120	1	24	-12
Caliper (DSPA) (IN)		Gamma Ray (API)	
6	16	0	150
Density Bulk (DSPA) (G/C3)		Delta Rho (DSPA) (G/C3)	
1.95	2.95	0.45	-0.15
Neutron Porosity (DSPA) (V/V)		Density Porosity (DSPA) (V/V)	
0.45	-0.15	0.45	-0.15

MAIN PASS

Time Mark Every 60 S	Cable Tension (LBF)	Bit Size (Schlumberger) (IN)	Delta Computer (DSPA) (K/M3)
3000	2000	6	12
120	1	24	-12
Caliper (DSPA) (IN)		Gamma Ray (API)	
6	16	0	150
Density Bulk (DSPA) (G/C3)		Delta Rho (DSPA) (G/C3)	
1.95	2.95	0.45	-0.15
Neutron Porosity (DSPA) (V/V)		Density Porosity (DSPA) (V/V)	
0.45	-0.15	0.45	-0.15

RUN 1 MAIN PASS — HI RES NEUTRON POROSITY - SANDSTONE (HNPS) — HI RES NEUTRON POROSITY - SANDSTONE (HNPS)

Time Mark Every 60 S	Cable Tension (LBF)	Bit Size (Schlumberger) (IN)	Delta Computer (DSPA) (K/M3)
3000	2000	6	12
120	1	24	-12
Caliper (DSPA) (IN)		Gamma Ray (API)	
6	16	0	150
Density Bulk (DSPA) (G/C3)		Delta Rho (DSPA) (G/C3)	
1.95	2.95	0.45	-0.15
Neutron Porosity (DSPA) (V/V)		Density Porosity (DSPA) (V/V)	
0.45	-0.15	0.45	-0.15

RUN 1 MAIN PASS — HI RES NEUTRON POROSITY - SANDSTONE (HNPS) — HI RES NEUTRON POROSITY - SANDSTONE (HNPS)

PIP SUMMARY

Integrated Hole Volume Minus Pipe 0.03 m3
Integrated Cement Volume Minus Pipe 0.01 m3
Integrated Cement Volume Minus Pipe 0.01 m3

DLIS Name

DLIS Name	Description	Value
TIME	Elapsed Time	
BS	Bit Size	
CALI	Caliper 1	
DEVI	Deviation	
HAZI	Hole Azimuth	
P1AZ	Pad 1 Azimuth	
RB	Relative Bearing	
DRHO	Bulk Density Correction	
RHOB	Bulk Density	
GR	Gamma Ray	
HTEN	Head Tension	
MRES	Mud Resistivity	
MTEM	Mud Temperature	
NPHI	Neutron Porosity	
PEF	Photoelectric Factor	
RSFL	Resistivity of the Flushed Zone	
RT	True Resistivity	
SP	Spontaneous Potential	
TENS	Tension	
DPHI	Density Porosity	
HNPO	Hi Res Neutron Porosity	
HNPS	Hi Res Neutron Porosity - Sandstone	
HNPL	Hi Res Neutron Porosity - Limestone	
HDPH	Hi Res Density Porosity	
HMIN	Micro Inverse	
HMNO	Micro Normal	
HCAL	Hi Res Caliper	
HRHO	Hi Res Density	
HDRH	Hi Res Delta Rho	
HPEF	Hi Res Photoelectric Factor	
HGR	Hi Res Gamma Ray	
HTNP	Hi Res Thermal Neutron Porosity	
HFK	Hi Res Formation Potassium	
HTHO	Hi Res Formation Thorium	
HURA	Hi Res Formation Uranium	
HSGR	Hi Res Standard Gamma Ray	
HCGR	Hi Res Computed Gamma Ray	
HENV	Hi Res Environmental Gamma Ray	
HWTH	Hi Res Weight	
HTEN	Hi Res Tension	
HMRT	Hi Res Mud Resistivity	
HMTE	Hi Res Mud Temperature	

Input DLIS Files

DEFAULT	HALS_TLD_MCH_CAL_SHYRP	Pass 1	PRODUCER	08-Feb-2003 00:24	1530.7 M	753.8 M
DEFAULT	HALS_TLD_MCH_CAL_SHYRP	Pass 1	PRODUCER	08-Feb-2003 01:44	1491.1 M	1492.1 M

Output DLIS Files

OP System Version: 9C2-383		
HLDS-FTB	ORIG-P2	ORIG-CEMENT
DSN-FTB	ORIG-P2	8C2-383
DPHI-FTB	DPHI-P2	
	DPHI-DT	

Time Mark Every 60 S	Cable Tension (LBF)	Bit Size (Schlumberger) (IN)	Delta Computer (DSPA) (K/M3)
3000	2000	6	12
120	1	24	-12
Caliper (DSPA) (IN)		Gamma Ray (API)	
6	16	0	150
Density Bulk (DSPA) (G/C3)		Delta Rho (DSPA) (G/C3)	
1.95	2.95	0.45	-0.15
Neutron Porosity (DSPA) (V/V)		Density Porosity (DSPA) (V/V)	
0.45	-0.15	0.45	-0.15

RUN 1 MAIN PASS — HI RES NEUTRON POROSITY - SANDSTONE (HNPS) — HI RES NEUTRON POROSITY - SANDSTONE (HNPS)

PIP SUMMARY

Integrated Hole Volume Minus Pipe 0.03 m3
Integrated Cement Volume Minus Pipe 0.01 m3
Integrated Cement Volume Minus Pipe 0.01 m3

DLIS Name

DLIS Name	Description	Value
TIME	Elapsed Time	
BS	Bit Size	
CALI	Caliper 1	
DEVI	Deviation	
HAZI	Hole Azimuth	
P1AZ	Pad 1 Azimuth	
RB	Relative Bearing	
DRHO	Bulk Density Correction	
RHOB	Bulk Density	
GR	Gamma Ray	
HTEN	Head Tension	
MRES	Mud Resistivity	
MTEM	Mud Temperature	
NPHI	Neutron Porosity	
PEF	Photoelectric Factor	
RSFL	Resistivity of the Flushed Zone	
RT	True Resistivity	
SP	Spontaneous Potential	
TENS	Tension	
DPHI	Density Porosity	
HNPO	Hi Res Neutron Porosity	
HNPS	Hi Res Neutron Porosity - Sandstone	
HNPL	Hi Res Neutron Porosity - Limestone	
HDPH	Hi Res Density Porosity	
HMIN	Micro Inverse	
HMNO	Micro Normal	
HCAL	Hi Res Caliper	
HRHO	Hi Res Density	
HDRH	Hi Res Delta Rho	
HPEF	Hi Res Photoelectric Factor	
HGR	Hi Res Gamma Ray	
HTNP	Hi Res Thermal Neutron Porosity	
HFK	Hi Res Formation Potassium	
HTHO	Hi Res Formation Thorium	
HURA	Hi Res Formation Uranium	
HSGR	Hi Res Standard Gamma Ray	
HCGR	Hi Res Computed Gamma Ray	
HENV	Hi Res Environmental Gamma Ray	
HWTH	Hi Res Weight	
HTEN	Hi Res Tension	
HMRT	Hi Res Mud Resistivity	
HMTE	Hi Res Mud Temperature	

COMPANY:	CANNAT RESOURCES INC.
WELL:	CNRES BEHDZIAH YOUH 0-52
FIELD:	UNDEFINED
Province:	NORTHWEST TERRITORIES

Schlumberger

PLATFORM EXPRESS
LITHO-DENSITY
COMPENSATED NEUTRON

Transverse Log

COMPANY: CANNAT RESOURCES INC.

WELL: CNRES BEHDZIAH YOUH 0-52

FIELD: UNDEFINED

Province: NORTHWEST TERRITORIES

Schlumberger

PLATFORM EXPRESS
LITHO-DENSITY
COMPENSATED NEUTRON

LATITUDE: 66 DEG 51'	Elev.: K.B. 260 m
LONGITUDE: 126 DEG 39'	G.L. 258.9 m
UWI: 300O-52-67.00-126.300	D.F. 264.7 m

Permanent Datum:	GROUND LEVEL	Elev.:	258.9 m
Log Measured From:	KELLY BUSHING	6.1 m	above Perm. Datum
Drilling Measured From:	KELLY BUSHING		

API Serial No. 1980 | LATITUDE: 66 DEG 51' N | LONGITUDE: 126 DEG 39' W

	Run 1	Run 2	Run 3	Run 4
Logging Date	4-Feb-2003			
Run Number	TWO			
Depth Driller	1040 m			
Schlumberger Depth	1033 m			
Bottom Log Interval	1032 m			
Top Log Interval	809 m			
Casing Driller Size at Depth	244.500 mm @ 809 m			
Casing Schlumberger	809 m			
Bit Size	215.000 mm			
Type Fluid in Hole	SALT MUD			
Density / Viscosity	1240 kg/m3 / 90 s			
Fluid Loss / pH	10.5 cm3 / 10			
Source Of Sample	FLOWLINE			
RM @ Measured Temperature	0.045 ohm m @ 20 degC			
RMF @ Measured Temperature	0.038 ohm m @ 20 degC			
RMC @ Measured Temperature	0.055 ohm m @ 17 degC			
Source: RMF / RMC	PRESS / PRESS			
RM @ MRT / RMF @ MRT	0.044 @ 21 / 0.037 @ 21			
Maximum Recorded Temperature	21 degC			
Circulation Stopped / Time	4-Feb-2003 / 16:30			
Logger On Bottom / Time	4-Feb-2003 / 2:00			
Unit Number / Location	8416 / NORMAN WELLS			
Recorded By	GEVIN BEAN			
Witnessed By	CHAAG SKUBLENY			

	Run 1	Run 2	Run 3	Run 4
Logging Date				
Run Number				
Depth Driller				
Schlumberger Depth				
Bottom Log Interval				
Top Log Interval				
Casing Driller Size at Depth				
Casing Schlumberger				
Bit Size				
Type Fluid in Hole				
Density / Viscosity				
Fluid Loss / PH				
Source Of Sample				
RM @ Measured Temperature				
RMF @ Measured Temperature				
RMC @ Measured Temperature				
Source: RMF / RMC				
RM @ MRT / RMF @ MRT				
Maximum Recorded Temperature				
Circulation Stopped / Time				
Logger On Bottom / Time				
Unit Number / Location				
Recorded By				
Witnessed By				

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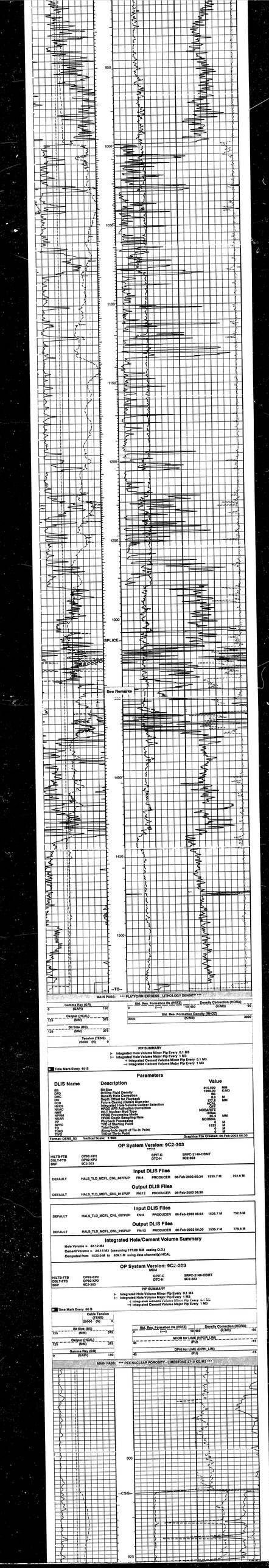
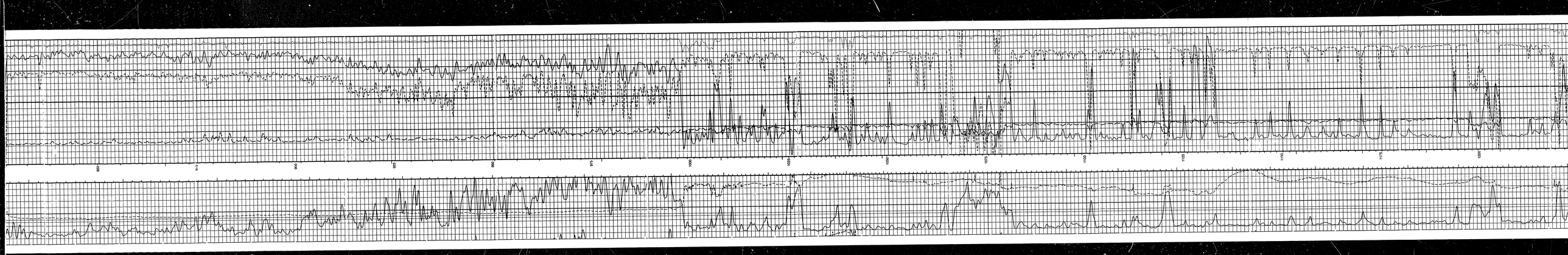
OTHER SERVICES
OBI
OBI
GM
GM
GM


950
1000
1050
1100
1150
1200
1250
1300
SPLICE
See Remarks
1400
1450
1500
-TD-
MAIN PASS: *** PLATFORM EXPRESS - LITHOLOGY DENSITY ***
Gamma Ray (GR) (GAPI) 0 150
Caliper (HCAL) (MM) 125 375
Bit Size (BS) (MM) 125 375
Tension (TENS) 25000 (N) 0
Std. Res. Formation Pe (PEFZ) 0 10
Density Correction (HDRA) (K/M3) 1650 -50
Std. Res. Formation Density (RHOZ) (K/M3) 3000 3000
PIP SUMMARY
Integrated Hole Volume Minor Pip Every 0.1 M3
Integrated Hole Volume Major Pip Every 1 M3
Integrated Cement Volume Minor Pip Every 0.1 M3
Integrated Cement Volume Major Pip Every 1 M3
Time Mark Every 60 S
Parameters
DLIS Name | Description | Value
BS | Bit Size | 215.000 MM
DFD | Drilling Fluid Density | 1280.00 K/M3
DFV | Drilling Fluid Viscosity | 56
DMF | Depth Offset for Playback | 0.0 M
DOD | Future Casing (Outer) Diameter | 177.8 MM
FICO | Integrated Hole Volume Caliper Selection | CAL2
HHCS | HRDD APS Activation Correction | CBF
HLAC | HRDD Log Activity | NOBARITE
MATR | HRDD Processing Mode | HRM+
NPHI | HRDD Depth Sampling Rate | 152.4 MM
NSAR | HRDD Environment | NORMAL
PP | PP Starting Point | 0
SPVD | TVD of Starting Point | 1533 M
TD | Total Depth | 1539 M
TIMD | Along-hole depth of Tie-In Point | 0 M
TIVD | TVD of Tie-In Point | 0 M
Format: DENS_02 Vertical Scale: 1:600 Graphics File Created: 06-Feb-2003 06:30
OP System Version: 9C2-303 MCSI
HILTB-FTB OP92-KP2 GRT-C SRPC-2149-OBMT
DSLT-FTB OP92-KP2 DTC-H 9C2-303
BSP 9C2-303
Input DLIS Files
DEFAULT HALS_TLD_MCFL_CNL_007PUP FN:4 PRODUCER 06-Feb-2003 05:34 1535.7 M 752.6 M
Output DLIS Files
DEFAULT HALS_TLD_MCFL_CNL_015PUP FN:12 PRODUCER 06-Feb-2003 06:30
Input DLIS Files
DEFAULT HALS_TLD_MCFL_CNL_007PUP FN:4 PRODUCER 06-Feb-2003 05:34 1535.7 M 752.6 M
Output DLIS Files
DEFAULT HALS_TLD_MCFL_CNL_015PUP FN:12 PRODUCER 06-Feb-2003 06:30 1535.7 M 776.6 M
Integrated Hole/Cement Volume Summary
Hole Volume = 42.12 M3
Cement Volume = 24.14 M3 (assuming 177.80 MM casing O.D.)
Computed from 1533.0 M to 809.1 M using data channel(s) HCAL
OP System Version: 9C2-303 MCSI
HILTB-FTB OP92-KP2 GRT-C SRPC-2149-OBMT
DSLT-FTB OP92-KP2 DTC-H 9C2-303
BSP 9C2-303
PIP SUMMARY
Integrated Hole Volume Minor Pip Every 0.1 M3
Integrated Hole Volume Major Pip Every 1 M3
Integrated Cement Volume Minor Pip Every 0.1 M3
Integrated Cement Volume Major Pip Every 1 M3
Time Mark Every 60 S
Cable Tension (TENS) 25000 (N) 0
Bit Size (BS) (MM) 125 375
Caliper (HCAL) (MM) 125 375
Gamma Ray (GR) (GAPI) 0 150
Std. Res. Formation Pe (PEFZ) 0 10
Density Correction (HDRA) (K/M3) 1650 -50
NPOR for LIME (NPOR_LIM) 45 -15
DPHI for LIME (DPHI_LIM) (PU) 45 -15
MAIN PASS: *** PEX NUCLEAR POROSITY - LIMESTONE 2710 KG/M3 ***
800
-CSG-
825


895
910
925
940
955
970
985
1000
1015
1030
1045
1060
1075
1090
1105
1120
1135
1150
1165
1180
1195

MAIN PASS: *** PEX NUCLEAR POROSITY - LIMESTONE 2710 KG/M3 ***

Gamma Ray (GR) (GAPI)			OPHI for LIME (OPHI_LIM) (PU)	
0		150	45	-15
Caliper (HCAL) (MM)			NPOR for LIME (NPOR_LIM) (PU)	
125		375	45	-15
Bit Size (BS) (MM)			Stat. Res. Formation Pe (PEF) (---)	Density Correction (HDRA) (KG/M3)
125		375	0 10 400	-50 50

Cable Tension (TENS)
25000 (N) 0

PIP SUMMARY
- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
BHFL	Borehole Fluid Type	WATER
BHS	Borehole Status	OPEN
BS	Bit Size	215.900 MM
BSAL	Borehole Salinity	190000.00 PPM
BSCO	Borehole Salinity Correction Option	NO
CCCO	Casing & Cement Thickness Correction Option	NO
CSIZ	Casing Size	244.500 MM
CWEI	Casing Weight	58.60 KG/M
DFD	Drilling Fluid Density	1260.00 K/M3
DHC	Density Hole Correction	EX
DO	Depth Offset for Playback	177.8 MM
DRHO	Density Porosity (Dolar) Diameter	1000 KIN
FD	Fluid Density	1000.00 PPM
FSAL	Formation Salinity	0
GDCO	Geothermal Gradient Correction Option	NO
GDEV	Average Angular Deviation of Borehole from Normal	0 DEG
GGRD	Geothermal Gradient	0.018227 DC/M
HDCO	Hole Bit Size Correction Option	NO
HVCO	Integrated Hole Volume Caliper Selection	HCAL
HVOL	Hole Volume Correction Option	NO
MCOR	Mud Correction	NATIO
MST	Mud Sample Temperature	39.50 DEGC
MTCO	Mud Temperature Correction Option	NO
NMAC	HNDD APS activation Correction	OFF
NMT	HILT Nuclear Mud Type	NOBARITE
NPHM	HNPO Porosity Method	LIME
NRAM	HNDD Depth Sampling Rate	25.4 MM
PP	Playback Processing	NORMAL
PTOO	Pressure Temperature Correction Option	NO
RMFS	Resistivity Mud Filtrate Sample	0.0380 OHMM
SDCN	Standoff Data Source	SOCN
SOCN	Standoff Distance	1.73 MM
SOCO	Standoff Correction Option	NO
STIM	Start Timing Point	0 M
TD	Total Depth	1533.00 M
TDL	Total Depth - Logger	1533.00 M
TIMD	Along Hole Depth of Tie-in Point	0 M
TIVD	Vertical Depth of Tie-in Point	0 M

Format: PORO_64_LIME Vertical Scale: 1:240 Graphics File Created: 06-Feb-2003 08:30

OP System Version: 9C2-303

HILTB-FTB	OP02-KP2	GPIT-C	SRPC-2149-OBMT
DSLT-FTB	OP02-KP2	DTC-H	9C2-303
BHP	9C2-303		

Input DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_007PUP	FN: 1	PRODUCER	06-Feb-2003 05:34 1535.7 M	752.6 M

Output DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_015PUP	FN:12	PRODUCER	06-Feb-2003 08:30	

Input DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_007PUP	FN:4	PRODUCER	06-Feb-2003 05:34 1535.7 M	752.6 M

Output DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_015PUP	FN:12	PRODUCER	06-Feb-2003 08:30 1535.7 M	778.6 M

Integrated Hole/Cement Volume Summary

Hole Volume = 42.12 M3
Cement Volume = 24.14 M3 (assuming 177.80 MM casing O.D.)
Computed from 1533.0 M to 876.1 M using data channel(s) HCAL

OP System Version: 9C2-303

MCM

HILTB-FTB
DSLT-FTB
BSP

OP92-KP2
CP92-KP2
9C2-303

GPIT-C
DTC-H

SRPC-2149-OBMT
9C2-303

PIP SUMMARY
- Integrated Hole Volume Minor Plg Every 0.1 M3
- Integrated Hole Volume Major Plg Every 1 M3
- -| Integrated Cement Volume Minor Plg Every 0.1 M3
- -|| Integrated Cement Volume Major Plg Every 1 M3

Time Mark Every 60 S

Cable Tension (TENS)
4,000# 0# 10,000#

Bit Size (BS) (MM)
120 375

Caliper (HCAL) (MM)
120 375

HiRes Gamma Ray (HGR) (GAPI)
0 150

Ft. Res. Formation Pe (PEFZ) (---)
0 10

Density Correction (HDRA) TO 450 (KG/M3)
-50 450

HDPH for LIME (HDPH_LIM) (PU)
45 -15

HNPO for LIME (HNPO_LIM) (PU)
45 -15

HIRES SECTION: *** PEX NUCLEAR POROSITY - LIMESTONE 2710 KG/M3 ***

800

825

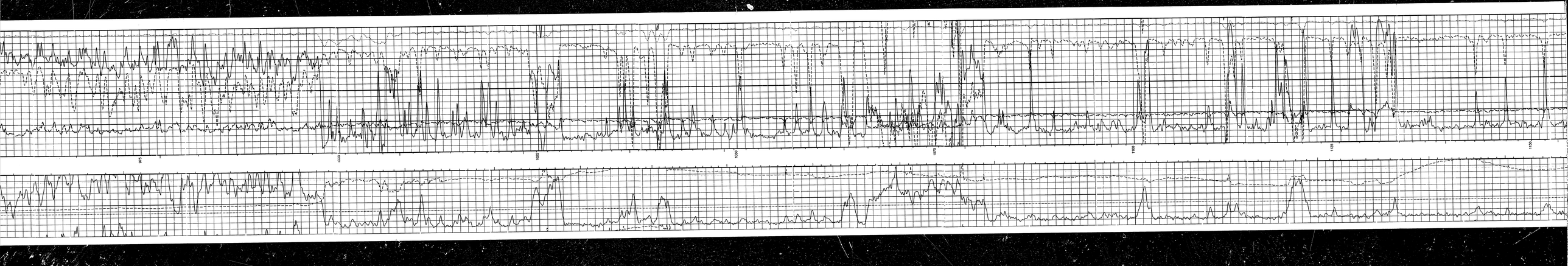
850

875

900

925

950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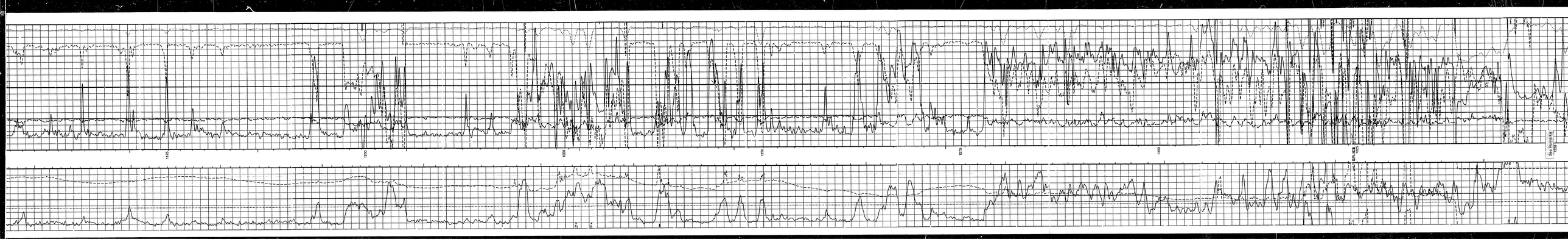
1000
1025
1050
1075
1100
1125
1150


1175
1200
1225
1250
1275
1300
1325
1350
San Bernardo
1300

1375
1400
1425
1450
1475
1500
1525
-TD-
HRS SECTION: ***PEX-NUCLEAR POROSITY - LIMESTONE (2.710 G/C3) ***
HRS Gamma Ray (HGR)
0
150
Caliper (HCAL)
6
16
Bit Size (BS)
6
16
HDIN Res (RILM) (HDIN_LM)
0.2
2000
HDIN Res (RILD) (HDIN_LD)
0.2
2000
HRS NEUTRON
0.45
-0.15
HRS DENSITY
1.95
2.95
XL Res Corrected Pe (PEF8)
0
10
Density Correction (HDRA)
-0.5
0.5
Density Correction (HDRA)
-0.5
0.5
PIP SUMMARY
Integrated Hole Volume Below Pip Every 0.5 MD
Integrated Hole Volume Below Pip Every 1 MD
Integrated Caliper Volume Below Pip Every 0.5 MD
Integrated Caliper Volume Below Pip Every 1 MD
Time Mark Every 60 S
DLIS Name
Description
Value
Units
Parameters
Borehole Fluid Type

BHS	Borehole Status	OPEN
BS	Bit Size	215.000 MM
BSAL	Borehole Salinity	190000.00 PPM
DECO	Borehole Salinity Correction Option	NO
DECS	Borehole & Casing Thickness Correction Option	NO
CSIZ	Current Casing Size	244.500 MM
CWEI	Casing Weight	58.00 KG/M
DFD	Drilling Fluid Density	1200.00 KG/M3
DFL	Density Hole Correction	0.0 M
DO	Depth Offset for Playback	1.0 M
FCD	Future Casing (Outer) Diameter	1000 MM
FL	Formation Salinity	0.0 PPM
FSAL	Formation Salinity Correction Option	NO
FSCO	Average Angular Deviation of Borehole from Normal	0.018227 DEG
GRAD	Geothermal Gradient	0.0000 DC/M
HHCO	Hole Size Correction Option	YES
HVCO	Integrated Hole Volume Caliper Selection	HCAL
MCCO	Mud Cake Correction Option	NO
MCOR	Mud Cake Correction	NATU
MST	Mud Sample Temperature	20.00 DEGC
MWCO	Mud Weight Correction Option	OFF
NMAT	HNGS Matrix Calibration	NORMAL
NPRM	HNGS Processing Mode	Hifloi
NBAR	HNGS Depth Sampling Rate	0.5 MM
PSAL	Pressure Salinity	NO
PTCO	Pressure Temperature Correction Option	0.0330 OHMM
RMFS	Resistivity of Mud Filtrate Sample	0.000
SDAT	Standoff Data Source	3.175 MM
SOCH	Standoff Distance	YES
SPCO	Standoff Correction Option	1930 M
SPVD	TVD of Starting Point	0 M
TD	Total Depth	1533.2 M
TLAG	Total Depth - Logger	1533.2 M
TMD	Along-hole depth of Tie-In Point	0 M
TVD	TVD of Tie-In Point	0 M

Format: HIRES_LIME Vertical Scale: 1:120 Graphic File Created: 06-Feb-2003 06:30

OP System Version: 9C2-303

MCM

HLTB-FTB	OP93-KP2	SRPC-2149-OBMT
DBLT-FTB	OP93-KP2	9C2-303
BSP	9C2-303	

Input DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_007PUP	FN:4	PRODUCER	06-Feb-2003 06:34	1535.7 M	752.6 M

Output DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_015PUP	FN:12	PRODUCER	06-Feb-2003 06:20		

Input DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_014LUP	FN:25	PRODUCER	05-Feb-2003 00:33	1338.2 M	970.9 M
DEFAULT	HALS_TLD_MCFL_CNL_015PUP	FN:22	PRODUCER	04-Feb-2003 23:18	1347.5 M	690.7 M

Output DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_017PUP	FN:28	PRODUCER	05-Feb-2003 01:11	1338.2 M	1175.2 M
REDUCED	HALS_TLD_MCFL_CNL_017PUP	FN:29	PRODUCER	05-Feb-2003 01:11	1338.2 M	1175.2 M

Integrated Hole/Cement Volume Summary

Hole Volume = 8.91 M3
Cement Volume = 5.39 M3 (assuming 177.80 MM casing O.D.)
Computed from 1338.2 M to 1156.2 M using data channel(s) HCAL

OP System Version: 9C2-303

MCM

HLTB-FTB	OP93-KP2	SRPC-2149-OBMT
DTC-H	9C2-303	BSP

PIP SUMMARY
- Integrated Hole Volume Minor Plg Every 0.1 M3
- Integrated Hole Volume Major Plg Every 1 M3
- -I Integrated Cement Volume Minor Plg Every 0.1 M3
- -I Integrated Cement Volume Major Plg Every 1 M3

Time Mark Every 60 S

TENS_REP Curve (TENS_REP)
25000 (N) 0

HCAL_REP Curve (HCAL_REP)
125 (MM) 375

PEFZ_REP Curve (PEFZ_REP)
0 (---) 10

HDRA_REP Curve (HDRA_REP)
1650 (K-M3) -50

GR_REP Curve (GR_REP)
0 (GAPI) 150

NPOR LIM_REP Curve (NPOR LIM_REP)
45 (PU) -15

DPHI_LIM_REP Curve (DPHI_LIM_REP)
45 (PU) -15

RS_REP Curve (RS_REP)
125 (MM) 375

MAIN PASS: *** PEX NUCLEAR POROSITY - LIMESTONE 2710 KG/M3 ***

1200
1225
1250
1275
1300
1325

MAIN PASS: *** PEX NUCLEAR POROSITY - LIMESTONE 2710 KG/M3 ***

RS_REP Curve (RS_REP)
125 (MM) 375

GR_REP Curve (GR_REP)
0 (GAPI) 150

DPHI_LIM_REP Curve (DPHI_LIM_REP)
45 (PU) -15

NPOR LIM_REP Curve (NPOR LIM_REP)
45 (PU) -15

HCAL_REP Curve (HCAL_REP)
125 (MM) 375

PEFZ_REP Curve (PEFZ_REP)
0 (---) 10

HDRA_REP Curve (HDRA_REP)
1650 (K-M3) -50

TENS_REP Curve (TENS_REP)
25000 (N) 0

PIP SUMMARY
- Integrated Hole Volume Minor Plg Every 0.1 M3
- Integrated Hole Volume Major Plg Every 1 M3
- -I Integrated Cement Volume Minor Plg Every 0.1 M3
- -I Integrated Cement Volume Major Plg Every 1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
BHFL	Borehole Fluid Type	WATER
BHS	Borehole Status	OPEN
BS	Bit Size	215.000 MM
BSAL	Borehole Salinity	190000.00 PPM
DECO	Borehole Salinity Correction Option	NO
DECS	Borehole & Casing Thickness Correction Option	NO
CSIZ	Current Casing Size	244.500 MM
CWEI	Casing Weight	58.00 KG/M
DFD	Drilling Fluid Density	1200.00 KG/M3
DFL	Density Hole Correction	0.0 M
DO	Depth Offset for Playback	1.0 M
DOPL	Depth Offset for Repeat Analysis	177.8 MM
FCD	Future Casing (Outer) Diameter	1000 MM
FL	Formation Salinity	-99999 PPM
FSCO	Formation Salinity Correction Option	NO
GRAD	Average Angular Deviation of Borehole from Normal	0.018227 DEG
HHCO	Geothermal Gradient	0.0000 DC/M
HVCO	Hole Size Correction Option	YES
MCCO	Integrated Hole Volume Caliper Selection	HCAL
MCOR	Mud Cake Correction Option	NO
MST	Mud Cake Correction	NATU
MWCO	Mud Sample Temperature	20.00 DEGC
NMAT	Mud Weight Correction Option	OFF
NPRM	HILT Nuclear Mod Type	NORMAL
NBAR	HNGS Processing Mode	Hifloi
PSAL	HNGS Depth Sampling Rate	0.5 MM
PTCO	Pressure Salinity	NO
RMFS	Pressure Temperature Correction Option	0.0330 OHMM
SDAT	Resistivity of Mud Filtrate Sample	0.000
SOCH	Standoff Data Source	3.175 MM
SPCO	Standoff Distance	YES
SPVD	Standoff Correction Option	1930 M
TD	TVD of Starting Point	0 M
TLAG	Total Depth	1533.2 M
TMD	Total Depth - Logger	1533.2 M
TVD	Along-hole depth of Tie-In Point	0 M
	TVD of Tie-In Point	0 M

Format: PORO_SS_LIME_REP Vertical Scale: 1:240 Graphic File Created: 05-Feb-2003 01:11

OP System Version: 9C2-303

MCM

HLTB-FTB	OP93-KP2	SRPC-2149-OBMT
DTC-H	9C2-303	BSP

Input DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_016LUP	FN:25	PRODUCER	05-Feb-2003 00:33	1338.2 M	970.9 M
DEFAULT	HALS_TLD_MCFL_CNL_015PUP	FN:22	PRODUCER	04-Feb-2003 23:13	1347.5 M	690.7 M

Output DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_017PUP	FN:28	PRODUCER	05-Feb-2003 01:11		
REDUCED	HALS_TLD_MCFL_CNL_017PUP	FN:29	PRODUCER	05-Feb-2003 01:11		

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
High resolution Integrated Logging Tool-DTS Wellsite Calibration - HALSB Total current mode 1							
Before: 4-Feb-2003 21:26	1.000	N/A	0.999	N/A	N/A	0.035	MA
tot 1 Gain	0.000	N/A	0.000	N/A	N/A	0.100	DEG
tot 1 Phase							
High resolution Integrated Logging Tool-DTS Wellsite Calibration - HALSB Aux current mode 1							
Before: 4-Feb-2003 21:26	1.000	N/A	0.995	N/A	N/A	0.035	MA
laux 1 Gain	0.000	N/A	-0.041	N/A	N/A	1.900	DEG
laux 1 Phase							
High resolution Integrated Logging Tool-DTS Wellsite Calibration - HALSB A0 current mode 2A							
Before: 4-Feb-2003 21:26	1.000	N/A	0.992	N/A	N/A	0.046	MA
ia0 2 Gain	0.000	N/A	0.020	N/A	N/A	0.100	DEG
ia0 2 Phase							
High resolution Integrated Logging Tool-DTS Wellsite Calibration - HALSB A0 current mode 2B							
Before: 4-Feb-2003 21:26	1.000	N/A	0.997	N/A	N/A	0.036	UA
ia0 2 Gain	0.000	N/A	0.000	N/A	N/A	0.100	DEG
ia 2B Phase							
High resolution Integrated Logging Tool-DTS Wellsite Calibration - HALSB Upper Bridle Voltage mode 1							
Before: 4-Feb-2003 21:26	1.000	N/A	0.999	N/A	N/A	0.036	UA
2xb 1 Gain	0.000	N/A	-0.069	N/A	N/A	0.500	DEG
2xb 1 Phase							
High resolution Integrated Logging Tool-DTS Wellsite Calibration - HALSB Lower Bridle Voltage mode 1							
Before: 4-Feb-2003 21:26	1.000	N/A	0.999	N/A	N/A	0.025	MV
2xb 1 Gain	0.000	N/A	0.095	N/A	N/A	2.300	DEG
2xb 1 Phase							
High resolution Integrated Logging Tool-DTS Wellsite Calibration - HALSB M1-M2 Voltage gains							
Before: 4-Feb-2003 21:29	1.000	N/A	0.999	N/A	N/A	0.039	UV
2VM 2 Gain	1.000	N/A	0.995	N/A	N/A	0.018	UV
2VH 3 Gain	1.000	N/A	0.994	N/A	N/A	0.019	UV
High resolution Integrated Logging Tool-DTS Wellsite Calibration - HALSB M1-M2 Voltage Phases							
Before: 4-Feb-2003 21:29	0.000	N/A	0.956	N/A	N/A	3.800	DEG
2VM 2 Phase	0.000	N/A	0.956	N/A	N/A	3.800	DEG
2VH 3 Phase	0.000	N/A	0.956	N/A	N/A	1.000	DEG
High resolution Integrated Logging Tool-DTS Wellsite Calibration - HALSB M1-A0* Voltage gains							
Before: 4-Feb-2003 21:28	1.000	N/A	0.997	N/A	N/A	0.513	UV
2VH 2 Gain	1.000	N/A	0.995	N/A	N/A	0.046	UV
2VH 3 Gain	1.000	N/A	0.992	N/A	N/A	0.046	UV
High resolution Integrated Logging Tool-DTS Wellsite Calibration - HALSB M1-A0* Voltage Phases							
Before: 4-Feb-2003 21:28	0.000	N/A	0.772	N/A	N/A	3.800	DEG
2VH 2 Phase	0.000	N/A	1.970	N/A	N/A	1.300	DEG
2VH 3 Phase	0.000	N/A	1.990	N/A	N/A	1.300	DEG
High resolution Integrated Logging Tool-DTS Wellsite Calibration - HALSB Aux Voltage gains							
Before: 4-Feb-2003 21:28	1.000	N/A	1.007	N/A	N/A	0.032	MV
2VR 3 Gain	1.000	N/A	1.000	N/A	N/A	0.040	MV
2VR 2 Gain	1.000	N/A	1.014	N/A	N/A	0.045	MV

ZVA 3 Gain	1.000	N/A	1.014	N/A	N/A	0.045	MV

High resolution Integrated Logging Tool-DTS Wellsite Calibration - HALSB Aux Voltage Phases
Before: 4-Feb-2003 21:28

ZVA 1 Phase	0.000	N/A	-0.327	N/A	N/A	2.300	DEG
ZVA 2 Phase	0.000	N/A	-0.010	N/A	N/A	0.800	DEG
ZVA 3 Phase	0.000	N/A	0.098	N/A	N/A	0.500	DEG

High resolution Integrated Logging Tool-DTS Wellsite Calibration - HALSB A0*-A0** Diff. Voltage mode 1
Before: 4-Feb-2003 21:28

ZVD 1 Gain	1.000	N/A	0.996	N/A	N/A	0.047	UV
ZVD 1 Phase	0.000	N/A	-0.001	N/A	N/A	3.800	DEG

High resolution Integrated Logging Tool-DTS Wellsite Calibration - HALSB A0*-A0** Diff. Voltage mode 2
Before: 4-Feb-2003 21:28

ZVD 2 Gain	1.000	N/A	0.983	N/A	N/A	0.056	UV
ZVD 2 Phase	0.000	N/A	1.108	N/A	N/A	1.300	DEG

High resolution Integrated Logging Tool-DTS Wellsite Calibration - HALSB A0*-A0** Diff. Voltage mode 3A
Before: 4-Feb-2003 21:28

ZVD 3A Gain	1.000	N/A	0.985	N/A	N/A	0.056	UV
ZVD 3A Phase	0.000	N/A	0.628	N/A	N/A	1.000	DEG

High resolution Integrated Logging Tool-DTS Wellsite Calibration - HALSB A0*-A0** Diff. Voltage mode 3B
Before: 4-Feb-2003 21:28

ZVD 3B Gain	1.000	N/A	1.001	N/A	N/A	0.054	UV
ZVD 3B Phase	0.000	N/A	0.270	N/A	N/A	1.000	DEG

High resolution Integrated Logging Tool-DTS Wellsite Calibration - HALSB vertical Voltage mode 1
Before: 4-Feb-2003 21:28

ZVV 1 Gain	1.000	N/A	1.000	N/A	N/A	0.022	UV
ZVV 1 Phase	0.000	N/A	0.198	N/A	N/A	2.600	DEG

High resolution Integrated Logging Tool-DTS Wellsite Calibration - HALSB vertical Voltage mode 2
Before: 4-Feb-2003 21:28

ZVV 2 Gain	1.000	N/A	0.988	N/A	N/A	0.036	UV
ZVV 2 Phase	0.000	N/A	2.391	N/A	N/A	1.300	DEG

High resolution Integrated Logging Tool-DTS Wellsite Calibration - HALSB Azimuthal Voltages mode 1
Before: 4-Feb-2003 21:28

Az 1 Gain - 0	1.000	N/A	1.002	N/A	N/A	0.047	UV
Az 1 Gain - 1	1.000	N/A	0.995	N/A	N/A	0.047	UV
Az 1 Gain - 2	1.000	N/A	0.997	N/A	N/A	0.047	UV
Az 1 Gain - 3	1.000	N/A	0.997	N/A	N/A	0.047	UV
Az 1 Gain - 4	1.000	N/A	1.000	N/A	N/A	0.047	UV
Az 1 Gain - 5	1.000	N/A	0.997	N/A	N/A	0.047	UV
Az 1 Gain - 6	1.000	N/A	0.997	N/A	N/A	0.047	UV
Az 1 Gain - 7	1.000	N/A	1.001	N/A	N/A	0.047	UV
Az 1 Gain - 8	1.000	N/A	0.996	N/A	N/A	0.047	UV
Az 1 Gain - 9	1.000	N/A	0.997	N/A	N/A	0.047	UV
Az 1 Gain - 10	1.000	N/A	0.995	N/A	N/A	0.047	UV
Az 1 Gain - 11	1.000	N/A	0.998	N/A	N/A	0.047	UV
AZ 1 Phase - 0	0.000	N/A	0.477	N/A	N/A	3.800	DEG
AZ 1 Phase - 1	0.000	N/A	0.531	N/A	N/A	3.800	DEG
AZ 1 Phase - 2	0.000	N/A	0.550	N/A	N/A	3.800	DEG
AZ 1 Phase - 3	0.000	N/A	0.509	N/A	N/A	3.800	DEG
AZ 1 Phase - 4	0.000	N/A	0.509	N/A	N/A	3.800	DEG
AZ 1 Phase - 5	0.000	N/A	0.255	N/A	N/A	3.800	DEG
AZ 1 Phase - 6	0.000	N/A	0.537	N/A	N/A	3.800	DEG
AZ 1 Phase - 7	0.000	N/A	0.445	N/A	N/A	3.800	DEG
AZ 1 Phase - 8	0.000	N/A	0.485	N/A	N/A	3.800	DEG
AZ 1 Phase - 9	0.000	N/A	0.527	N/A	N/A	3.800	DEG
AZ 1 Phase - 10	0.000	N/A	0.490	N/A	N/A	3.800	DEG
AZ 1 Phase - 11	0.000	N/A	0.473	N/A	N/A	3.800	DEG

High resolution Integrated Logging Tool-DTS Wellsite Calibration - HALSB Azimuthal Voltages mode 2
Before: 4-Feb-2003 21:28

Az 2 Gain - 0	1.000	N/A	0.989	N/A	N/A	0.056	UV
Az 2 Gain - 1	1.000	N/A	0.981	N/A	N/A	0.056	UV
Az 2 Gain - 2	1.000	N/A	0.984	N/A	N/A	0.056	UV
Az 2 Gain - 3	1.000	N/A	0.984	N/A	N/A	0.056	UV
Az 2 Gain - 4	1.000	N/A	0.987	N/A	N/A	0.056	UV
Az 2 Gain - 5	1.000	N/A	0.983	N/A	N/A	0.056	UV
Az 2 Gain - 6	1.000	N/A	0.984	N/A	N/A	0.056	UV
Az 2 Gain - 7	1.000	N/A	0.988	N/A	N/A	0.056	UV
Az 2 Gain - 8	1.000	N/A	0.983	N/A	N/A	0.056	UV
Az 2 Gain - 9	1.000	N/A	0.984	N/A	N/A	0.056	UV
Az 2 Gain - 10	1.000	N/A	0.983	N/A	N/A	0.056	UV
Az 2 Gain - 11	1.000	N/A	0.986	N/A	N/A	0.056	UV
Az 2 Phase - 0	0.000	N/A	1.155	N/A	N/A	1.300	DEG
Az 2 Phase - 1	0.000	N/A	1.089	N/A	N/A	1.300	DEG
Az 2 Phase - 2	0.000	N/A	1.107	N/A	N/A	1.300	DEG
Az 2 Phase - 3	0.000	N/A	1.082	N/A	N/A	1.300	DEG
Az 2 Phase - 4	0.000	N/A	1.216	N/A	N/A	1.300	DEG
Az 2 Phase - 5	0.000	N/A	1.036	N/A	N/A	1.300	DEG
Az 2 Phase - 6	0.000	N/A	1.117	N/A	N/A	1.300	DEG
Az 2 Phase - 7	0.000	N/A	1.096	N/A	N/A	1.300	DEG
Az 2 Phase - 8	0.000	N/A	1.116	N/A	N/A	1.300	DEG
Az 2 Phase - 9	0.000	N/A	1.075	N/A	N/A	1.300	DEG
Az 2 Phase - 10	0.000	N/A	1.161	N/A	N/A	1.300	DEG
Az 2 Phase - 11	0.000	N/A	1.157	N/A	N/A	1.300	DEG

High resolution Integrated Logging Tool-DTS Wellsite Calibration - HALSB Azimuthal Voltages mode 3A
Before: 4-Feb-2003 21:28

Az 3A Gain - 0	1.000	N/A	0.992	N/A	N/A	0.056	UV
Az 3A Gain - 1	1.000	N/A	0.985	N/A	N/A	0.056	UV
Az 3A Gain - 2	1.000	N/A	0.987	N/A	N/A	0.056	UV
Az 3A Gain - 3	1.000	N/A	0.987	N/A	N/A	0.056	UV
Az 3A Gain - 4	1.000	N/A	0.990	N/A	N/A	0.056	UV
Az 3A Gain - 5	1.000	N/A	0.987	N/A	N/A	0.056	UV
Az 3A Gain - 6	1.000	N/A	0.987	N/A	N/A	0.056	UV
Az 3A Gain - 7	1.000	N/A	0.991	N/A	N/A	0.056	UV
Az 3A Gain - 8	1.000	N/A	0.986	N/A	N/A	0.056	UV
Az 3A Gain - 9	1.000	N/A	0.988	N/A	N/A	0.056	UV
Az 3A Gain - 10	1.000	N/A	0.986	N/A	N/A	0.056	UV
Az 3A Gain - 11	1.000	N/A	0.989	N/A	N/A	0.056	UV
Az 3A Phase - 0	0.000	N/A	0.693	N/A	N/A	1.000	DEG
Az 3A Phase - 1	0.000	N/A	0.659	N/A	N/A	1.000	DEG
Az 3A Phase - 2	0.000	N/A	0.679	N/A	N/A	1.000	DEG
Az 3A Phase - 3	0.000	N/A	0.687	N/A	N/A	1.000	DEG
Az 3A Phase - 4	0.000	N/A	0.736	N/A	N/A	1.000	DEG
Az 3A Phase - 5	0.000	N/A	0.601	N/A	N/A	1.000	DEG
Az 3A Phase - 6	0.000	N/A	0.691	N/A	N/A	1.000	DEG
Az 3A Phase - 7	0.000	N/A	0.667	N/A	N/A	1.000	DEG
Az 3A Phase - 8	0.000	N/A	0.684	N/A	N/A	1.000	DEG
Az 3A Phase - 9	0.000	N/A	0.673	N/A	N/A	1.000	DEG
Az 3A Phase - 10	0.000	N/A	0.718	N/A	N/A	1.000	DEG
Az 3A Phase - 11	0.000	N/A	0.714	N/A	N/A	1.000	DEG

High resolution Integrated Logging Tool-DTS Wellsite Calibration - HALSB Azimuthal Voltages mode 3B
Before: 4-Feb-2003 21:28

Az 3B Gain - 0	1.000	N/A	1.006	N/A	N/A	0.054	UV
Az 3B Gain - 1	1.000	N/A	0.994	N/A	N/A	0.054	UV
Az 3B Gain - 2	1.000	N/A	0.998	N/A	N/A	0.054	UV
Az 3B Gain - 3	1.000	N/A	0.996	N/A	N/A	0.054	UV
Az 3B Gain - 4	1.000	N/A	1.008	N/A	N/A	0.054	UV
Az 3B Gain - 5	1.000	N/A	0.995	N/A	N/A	0.054	UV
Az 3B Gain - 6	1.000	N/A	1.000	N/A	N/A	0.054	UV
Az 3B Gain - 7	1.000	N/A	1.003	N/A	N/A	0.054	UV
Az 3B Gain - 8	1.000	N/A	1.000	N/A	N/A	0.054	UV
Az 3B Gain - 9	1.000	N/A	0.998	N/A	N/A	0.054	UV
Az 3B Gain - 10	1.000	N/A	1.002	N/A	N/A	0.054	UV
Az 3B Gain - 11	1.000	N/A	1.003	N/A	N/A	0.054	UV
Az 3B Phase - 0	0.000	N/A	0.125	N/A	N/A	1.000	DEG
Az 3B Phase - 1	0.000	N/A	0.046	N/A	N/A	1.000	DEG
Az 3B Phase - 2	0.000	N/A	-0.015	N/A	N/A	1.000	DEG
Az 3B Phase - 3	0.000	N/A	0.045	N/A	N/A	1.000	DEG
Az 3B Phase - 4	0.000	N/A	0.303	N/A	N/A	1.000	DEG
Az 3B Phase - 5	0.000	N/A	0.002	N/A	N/A	1.000	DEG
Az 3B Phase - 6	0.000	N/A	0.074	N/A	N/A	1.000	DEG
Az 3B Phase - 7	0.000	N/A	0.142	N/A	N/A	1.000	DEG
Az 3B Phase - 8	0.000	N/A	0.107	N/A	N/A	1.000	DEG
Az 3B Phase - 9	0.000	N/A	0.068	N/A	N/A	1.000	DEG
Az 3B Phase - 10	0.000	N/A	0.201	N/A	N/A	1.000	DEG
Az 3B Phase - 11	0.000	N/A	0.262	N/A	N/A	1.000	DEG

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Stab Measurement Summary
Before: 30-Jan-2003 12:56

BS Window Ratio	0.6795	N/A	0.6827	N/A	N/A	
BS Window Sum	9398	N/A	9383	N/A	N/A	CPS
SS Window Ratio	0.4916	N/A	0.4915	N/A	N/A	
SS Window Sum	10020	N/A	10010	N/A	N/A	CPS
LS Window Ratio	0.2974	N/A	0.2987	N/A	N/A	
LS Window Sum	1158	N/A	1158	N/A	N/A	CPS

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Photo-multiplier High Voltages Calibrations
Before: 30-Jan-2003 12:56

BS PM High Voltage (Command)	1670	N/A	1672	N/A	N/A	V
SS PM High Voltage (Command)	1813	N/A	1824	N/A	N/A	V
LS PM High Voltage (Command)	1678	N/A	1691	N/A	N/A	V

High resolution Integrated Logging Tool-DTS Wellsite Calibration Crystal Quality Resolutions Calibration
Before: 30-Jan-2003 12:56

BS Crystal Resolution	11.64	N/A	11.54	N/A	N/A	%
SS Crystal Resolution	10.21	N/A	10.40	N/A	N/A	%
LS Crystal Resolution	9.789	N/A	9.811	N/A	N/A	%

High resolution Integrated Logging Tool-DTS Wellsite Calibration - MCFL Calibration
Before: 30-Jan-2003 13:09

Raw B0 Resistivity	3875	N/A	3853	N/A	N/A	OHMM
Raw B1 Resistivity	3830	N/A	3820	N/A	N/A	OHMM
Raw B2 Resistivity	3830	N/A	3836	N/A	N/A	OHMM

High resolution Integrated Logging Tool-DTS Wellsite Calibration - HILT Caliper Calibration
Before: 30-Jan-2003 13:05

HILT Caliper Zero Measurement	203.2	N/A	198.2	N/A	N/A	MM
HILT Caliper Plus Measurement	304.8	N/A	301.9	N/A	N/A	MM

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Detector Calibration
Before: 30-Jan-2003 12:54

Gamma Ray Background	30.00	N/A	25.13	N/A	N/A	GAPI
Gamma Ray (Jig - Bkg)	177.4	N/A	177.4	N/A	16.12	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	15.00	GAPI

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Zero Measurement
Master: 19-Dec-2002 10:44 Before: 30-Jan-2003 13:26

CNTC Background	25.34	25.34	26.58	N/A	3.801	CPS
CFTC Background	27.65	27.65	31.72	N/A	4.148	CPS

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Accelerometer Calibration
Before: 4-Feb-2003 21:18

Z-Axis Acceleration	9.810	N/A	9.832	N/A	N/A	M/S2

High resolution Integrated Logging Tool-DTS Master Calibration - Inversion results
Master: 14-Jan-2003 17:01

Rho Aluminum	2596	2601	---	---	---	K/M3
Rho Magnesium	1686	1685	---	---	---	K/M3
Pe Aluminum	2.570	2.581	---	---	---	
Pe Magnesium	2.653	2.630	---	---	---	

High resolution Integrated Logging Tool-DTS Master Calibration - Deviation Summary
Master: 14-Jan-2003 17:01

BS Average Deviation	0	0.2702	---	---	---	%
BS Max Deviation	0	1.263	---	---	---	%
SS Average Deviation	0	0.2225	---	---	---	%
SS Max Deviation	0	0.9550	---	---	---	%
LS Average Deviation	0	0.6927	---	---	---	%
LS Max Deviation	0	2.331	---	---	---	%

High resolution Integrated Logging Tool-DTS Master Calibration - Tank Measurement
Master: 19-Dec-2002 10:44

Thermal Near Corr. (Tank)	6031	5898	---	---	---	CPS
Thermal Far Corr. (Tank)	2793	2493	---	---	---	CPS
CNTC/CFTC (Tank)	2.159	2.366	---	---	---	

The GLS-VJ source activity is acceptable.

The HGNS Neutron Master Calibration was done with the following parameters :

NCT-B Water Temperature 16.5 DEGC.
Thermal Housing Size 85.700 MM.

High resolution Integrated Logging Tool-DTS / Equipment Identification

Primary Equipment:	
HILT Azimuthal Laterolog Sonde B	HALS - B
HILT high-Resolution Mechanical Sonde	HRMS - B 1719
HILT Rxo Gamma-ray Device	HRGD - 916
HILT Nuclear Back-Scatter Detector	HILT -
HILT Nuclear Short-Spacing Detector	HILT -
HILT Nuclear Long-Spacing Detector	HILT -
Micro Cylindrically Focused Log Device	MCFL -
GR Logging Source	GLS - VJ 1984
Auxiliary Equipment:	
Laterolog Control Module	LCM - AA

High resolution Integrated Logging Tool-DTS Wellsite Calibration
HALSB Total current mode 1

Itot 1 Gain MA	Value	Itot 1 Phase DEG	Value
0.926 (Minimum) 1.000 (Nominal) 1.081 (Maximum)	0.999	-0.100 (Minimum) 0.000 (Nominal) 0.100 (Maximum)	0.000

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Wellsite Calibration
HALSB Aux current mode 1

Iaux 1 Gain MA	Value	Iaux 1 Phase DEG	Value
0.854 (Minimum) 1.000 (Nominal) 1.160 (Maximum)	0.995	-4.600 (Minimum) 0.000 (Nominal) 4.600 (Maximum)	-0.041

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Wellsite Calibration
HALSB Aux current mode 2

Iaux 2 Gain MA	Value	Iaux 2 Phase DEG	Value
0.816 (Minimum) 1.000 (Nominal) 1.232 (Maximum)	0.982	-1.000 (Minimum) 0.000 (Nominal) 0.100 (Maximum)	-0.000

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Wellsite Calibration
HALSB A0 current mode 3A

I0 3A Gain UA	Value	I0 3A Phase DEG	Value
0.893 (Minimum) 1.000 (Nominal) 1.114 (Maximum)	0.987	-1.000 (Minimum) 0.000 (Nominal) 0.100 (Maximum)	0.000

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Wellsite Calibration
HALSB A0 current mode 3B

I0 3B Gain UA	Value	I0 3B Phase DEG	Value
0.893 (Minimum) 1.000 (Nominal) 1.114 (Maximum)	0.979	-1.000 (Minimum) 0.000 (Nominal) 0.100 (Maximum)	0.000

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Wellsite Calibration
HALSB Torpedo Voltage gains

Zvt 1 Gain MV	Value	Zvt 2 Gain MV	Value	Zvt 3 Gain MV	Value
0.925 (Minimum) 1.000 (Nominal) 1.078 (Maximum)	0.999	0.865 (Minimum) 1.000 (Nominal) 1.153 (Maximum)	0.994	0.865 (Minimum) 1.000 (Nominal) 1.153 (Maximum)	0.991

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Wellsite Calibration
HALSB Torpedo Voltage Phases

Zvt 1 Phase DEG	Value	Zvt 2 Phase DEG	Value	Zvt 3 Phase DEG	Value
-4.400 (Minimum) 0.000 (Nominal) 4.400 (Maximum)	-0.195	-2.800 (Minimum) 0.000 (Nominal) 2.800 (Maximum)	-0.370	-1.400 (Minimum) 0.000 (Nominal) 1.400 (Maximum)	-0.275

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Wellsite Calibration
HALSB Upper Bride Voltage mode 1

Zvb 1 Gain MV	Value	Zvb 1 Phase DEG	Value
0.925 (Minimum) 1.000 (Nominal) 1.078 (Maximum)	0.998	-4.400 (Minimum) 0.000 (Nominal) 4.400 (Maximum)	-0.069

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Wellsite Calibration
HALSB M1-M2 Voltage gains

ZVM 1 Gain UV	Value	ZVM 2 Gain UV	Value	ZVM 3 Gain UV	Value
0.895 (Minimum) 1.000 (Nominal) 1.117 (Maximum)	0.999	0.943 (Minimum) 1.000 (Nominal) 1.056 (Maximum)	0.995	0.943 (Minimum) 1.000 (Nominal) 1.056 (Maximum)	0.994

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Wellsite Calibration
HALSB M1-M2 Voltage Phases

ZVM 1 Phase DEG	Value	ZVM 2 Phase DEG	Value	ZVM 3 Phase DEG	Value
-6.500 (Minimum) 0.000 (Nominal) 6.500 (Maximum)	0.666	-3.300 (Minimum) 0.000 (Nominal) 3.300 (Maximum)	1.484	-2.000 (Minimum) 0.000 (Nominal) 2.000 (Maximum)	0.998

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Wellsite Calibration
HALSB M1-A0* Voltage gains

ZVH 1 Gain UV	Value	ZVH 2 Gain UV	Value	ZVH 3 Gain UV	Value
0.962 (Minimum) 1.000 (Nominal) 1.039 (Maximum)	0.997	0.864 (Minimum) 1.000 (Nominal) 1.154 (Maximum)	0.995	0.864 (Minimum) 1.000 (Nominal) 1.154 (Maximum)	0.992

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Wellsite Calibration
HALSB M1-A0* Voltage Phases

ZVH 1 Phase DEG	Value	ZVH 2 Phase DEG	Value	ZVH 3 Phase DEG	Value
-6.500 (Minimum) 0.000 (Nominal) 6.500 (Maximum)	0.773	-3.300 (Minimum) 0.000 (Nominal) 3.300 (Maximum)	1.970	-2.000 (Minimum) 0.000 (Nominal) 2.000 (Maximum)	1.290

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Wellsite Calibration
HALSB Aux Voltage gains

ZVA 1 Gain MV	Value	ZVA 2 Gain MV	Value	ZVA 3 Gain MV	Value
0.905 (Minimum) 1.000 (Nominal) 1.103 (Maximum)	1.057	0.866 (Minimum) 1.000 (Nominal) 1.151 (Maximum)	1.040	0.866 (Minimum) 1.000 (Nominal) 1.151 (Maximum)	1.014

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Wellsite Calibration
HALSB Aux Voltage Phases

ZVA 1 Phase DEG	Value	ZVA 2 Phase DEG	Value	ZVA 3 Phase DEG	Value
-4.100 (Minimum) 0.000 (Nominal) 4.100 (Maximum)	-0.327	-2.300 (Minimum) 0.000 (Nominal) 2.300 (Maximum)	-0.010	-1.000 (Minimum) 0.000 (Nominal) 1.000 (Maximum)	0.098

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Wellsite Calibration
HALSB A0*-A0** Diff. Voltage mode 1

ZVD 1 Gain UV	Value	ZVD 1 Phase DEG	Value
0.874 (Minimum) 1.000 (Nominal) 1.147 (Maximum)	0.996	-6.300 (Minimum) 0.000 (Nominal) 6.300 (Maximum)	-0.001

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Wellsite Calibration
HALSB A0*-A0** Diff. Voltage mode 2

ZVD 2 Gain UV	Value	ZVD 2 Phase DEG	Value
0.842 (Minimum) 1.000 (Nominal) 1.187 (Maximum)	0.983	-3.300 (Minimum) 0.000 (Nominal) 3.300 (Maximum)	1.108

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Wellsite Calibration
HALSB A0*-A0** Diff. Voltage mode 3A

ZVD 3A Gain UV	Value	ZVD 3A Phase DEG	Value
0.842 (Minimum) 1.000 (Nominal) 1.187 (Maximum)	[illegible]	-2.000 (Minimum) 0.000 (Nominal) 2.000 (Maximum)	[illegible]

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Wellsite Calibration
HALSB A0*-A0** Diff. Voltage mode 3B

ZVD 3B Gain UV	Value	ZVD 3B Phase DEG	Value
0.845 (Minimum) 1.000 (Nominal) 1.183 (Maximum)	1.001	-2.000 (Minimum) 0.000 (Nominal) 2.000 (Maximum)	0.270

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Wellsite Calibration
HALSB vertical Voltage mode 1

ZVV 1 Gain UV	Value	ZVV 1 Phase DEG	Value
0.936 (Minimum) 1.000 (Nominal) 1.065 (Maximum)	1.000	-4.600 (Minimum) 0.000 (Nominal) 4.600 (Maximum)	0.198

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Wellsite Calibration
HALSB vertical Voltage mode 2

ZVV 2 Gain UV	Value	ZVV 2 Phase DEG	Value
0.895 (Minimum) 1.000 (Nominal) 1.112 (Maximum)	0.988	-2.800 (Minimum) 0.000 (Nominal) 2.800 (Maximum)	2.391

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Wellsite Calibration
HALSB Azimuthal Voltages mode 1

Idx	Az 1 Gain UV	Value	Idx	AZ 1 Phase DEG	Value
0		1.002	0		0.477
1		0.995	1		0.531
2		0.997	2		0.550
3		0.997	3		0.509
4		1.000	4		0.509
5		0.997	5		0.255
6		0.997	6		0.537
7		1.001	7		0.445
8		0.996	8		0.485
9		0.997	9		0.527
10		0.995	10		0.490
11		0.998	11		0.473
	0.874 (Minimum) 1.000 (Nominal) 1.147 (Maximum)			-6.300 (Minimum) 0.000 (Nominal) 6.300 (Maximum)	

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Wellsite Calibration
HALSB Azimuthal Voltages mode 2

Idx	Az 2 Gain UV	Value	Idx	Az 2 Phase DEG	Value
0		0.989	0		1.155
1		0.981	1		1.089
2		0.984	2		1.107
3		0.984	3		1.082
4		0.987	4		1.216
5		0.983	5		1.036
6		0.984	6		1.117
7		0.988	7		1.096
8		0.983	8		1.116
9		0.984	9		1.075
10		0.983	10		1.161
11		0.986	11		1.157
	0.842 (Minimum) 1.000 (Nominal) 1.187 (Maximum)			-3.300 (Minimum) 0.000 (Nominal) 3.300 (Maximum)	

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Wellsite Calibration
HALSB Azimuthal Voltages mode 3A

Idx	Az 3A Gain UV	Value	Idx	Az 3A Phase DEG	Value
0		0.992	0		0.693
1		0.985	1		0.659
2		0.987	2		0.679
3		0.987	3		0.687
4		0.990	4		0.736
5		0.987	5		0.601
6		0.987	6		0.691
7		0.991	7		0.667
8		0.986	8		0.684
9		0.988	9		0.673
10		0.986	10		0.718
11		0.989	11		0.714
	0.842 (Minimum) 1.000 (Nominal) 1.187 (Maximum)			-2.000 (Minimum) 0.000 (Nominal) 2.000 (Maximum)	

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Wellsite Calibration
HALSB Azimuthal Voltages mode 3B

Idx	Az 3B Gain UV	Value	Idx	Az 3B Phase DEG	Value
0		1.006	0		0.125
1		0.994	1		0.046
2		0.998	2		-0.015
3		0.996	3		0.045
4		1.008	4		0.303
5		0.995	5		0.002
6		1.000	6		0.074
7		1.003	7		0.142
8		1.000	8		0.107
9		0.998	9		0.068
10		1.002	10		0.201
11		1.003	11		0.262
	0.845 (Minimum) 1.000 (Nominal) 1.183 (Maximum)			-2.000 (Minimum) 0.000 (Nominal) 2.000 (Maximum)	

Before: 4-Feb-2003 21:28

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Stab Measurement Summary

Phase	BS Window Ratio	Value	Phase	SS Window Ratio	Value	Phase	LS Window Ratio	Value
Before	0.6455 (Minimum) 0.6795 (Nominal) 0.7135 (Maximum)	0.6827	Before	0.4670 (Minimum) 0.4916 (Nominal) 0.5162 (Maximum)	0.4915	Before	0.2825 (Minimum) 0.2974 (Nominal) 0.3122 (Maximum)	0.2987
Phase	BS Window Sum CPS	Value	Phase	SS Window Sum CPS	Value	Phase	LS Window Sum CPS	Value
Before	8918 (Minimum) 9398 (Nominal) 9857 (Maximum)	9383	Before	9515 (Minimum) 10020 (Nominal) 10520 (Maximum)	10010	Before	1101 (Minimum) 1158 (Nominal) 1216 (Maximum)	1158

Before: 30-Jan-2003 12:56

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Photo-multiplier High Voltages Calibrations

Phase	BS PM High Voltage (Command) V	Value	Phase	SS PM High Voltage (Command) V	Value	Phase	LS PM High Voltage (Command) V	Value
Before	1570 (Minimum) 1670 (Nominal) 1770 (Maximum)	1672	Before	1713 (Minimum) 1813 (Nominal) 1913 (Maximum)	1824	Before	1578 (Minimum) 1678 (Nominal) 1778 (Maximum)	1691

Before: 30-Jan-2003 12:56

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Crystal Quality Resolutions Calibration

Phase	BS Crystal Resolution %	Value	Phase	SS Crystal Resolution %	Value	Phase	LS Crystal Resolution %	Value
Before	10.64 (Minimum) 11.64 (Nominal) 12.64 (Maximum)	11.54	Before	9.208 (Minimum) 10.21 (Nominal) 11.21 (Maximum)	10.40	Before	8.789 (Minimum) 9.789 (Nominal) 10.79 (Maximum)	9.811

Before: 30-Jan-2003 12:56

High resolution Integrated Logging Tool-DTS Wellsite Calibration

Phase	Raw B0 Resistivity OHMM	Value	Phase	Raw B1 Resistivity OHMM	Value	Phase	Raw B2 Resistivity OHMM	Value
Before		3853	Before		3820	Before		3836
3565 (Minimum)	3875 (Nominal)	4185 (Maximum)	3524 (Minimum)	3830 (Nominal)	4136 (Maximum)	3524 (Minimum)	3830 (Nominal)	4136 (Maximum)

Before: 30-Jan-2003 13:09

High resolution Integrated Logging Tool-DTS Wellsite Calibration

HILT Caliper Calibration

Phase	HILT Caliper Zero Measurement MM	Value	Phase	HILT Caliper Plus Measurement MM	Value
Before		196.2	Before		301.9
152.4 (Minimum)	203.2 (Nominal)	254.0 (Maximum)	228.6 (Minimum)	304.8 (Nominal)	381.0 (Maximum)

Before: 30-Jan-2003 13:05

High resolution Integrated Logging Tool-DTS Wellsite Calibration

Detector Calibration

Phase	Gamma Ray Background GAPI	Value	Phase	Gamma Ray (Jig - Bkg) GAPI	Value	Phase	Gamma Ray (Calibrated) GAPI	Value
Before		25.13	Before		177.4	Before		165.0
0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)	161.2 (Minimum)	177.4 (Nominal)	193.5 (Maximum)	150.0 (Minimum)	165.0 (Nominal)	180.0 (Maximum)

Before: 30-Jan-2003 12:54

High resolution Integrated Logging Tool-DTS Wellsite Calibration

Zero Measurement

Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value
Master		25.34	Master		27.65
Before		26.58	Before		31.72
5.000 (Minimum)	25.34 (Nominal)	40.00 (Maximum)	5.000 (Minimum)	27.65 (Nominal)	40.00 (Maximum)

Master: 19-Dec-2002 10:44 Before: 30-Jan-2003 13:26

High resolution Integrated Logging Tool-DTS Wellsite Calibration

Accelerometer Calibration

Phase	Z-Axis Acceleration M/S2	Value
Before		9.832
9.610 (Minimum)	9.810 (Nominal)	10.01 (Maximum)

Before: 4-Feb-2003 21:18

High resolution Integrated Logging Tool-DTS Master Calibration

Inversion results

Phase	Rho Aluminum K/M3	Value	Phase	Rho Magnesium K/M3	Value
Master		2601	Master		1685
2586 (Minimum)	2596 (Nominal)	2606 (Maximum)	1676 (Minimum)	1686 (Nominal)	1696 (Maximum)
Phase	Pe Aluminum	Value	Phase	Pe Magnesium	Value
Master		2.581	Master		2.630
2.470 (Minimum)	2.570 (Nominal)	2.670 (Maximum)	2.550 (Minimum)	2.650 (Nominal)	2.750 (Maximum)

Master: 14-Jan-2003 17:01

High resolution Integrated Logging Tool-DTS Master Calibration

Deviation Summary

Phase	BS Average Deviation %	Value	Phase	SS Average Deviation %	Value	Phase	LS Average Deviation %	Value
Master		0.2702	Master		0.2225	Master		0.6927
-0.6000	0	0.6000	-1.000	0	1.000	-1.500	0	1.500
Phase	BS Max Deviation %	Value	Phase	SS Max Deviation %	Value	Phase	LS Max Deviation %	Value
Master		1.263	Master		0.9580	Master		2.331
-1.600 (Minimum)	0 (Nominal)	1.600 (Maximum)	-2.500 (Minimum)	0 (Nominal)	2.500 (Maximum)	-3.500 (Minimum)	0 (Nominal)	3.500 (Maximum)

Master: 14-Jan-2003 17:01

High resolution Integrated Logging Tool-DTS Master Calibration

Tank Measurement

Phase	Thermal Near Corr. (Tank) CPS	Value	Phase	Thermal Far Corr. (Tank) CPS	Value	Phase	CNTC/CFTC (Tank)	Value
Master		5898	Master		2493	Master		2.366
5000 (Minimum)	6031 (Nominal)	7200 (Maximum)	2075 (Minimum)	2793 (Nominal)	3125 (Maximum)	2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)

Master: 19-Dec-2002 10:44

COMPANY: CANNAT RESOURCES INC.

WELL: CNRES BEHDZIAH YOUH 0-52

FIELD: UNDEFINED

Province: NORTHWEST TERRITORIES

BOTTOM LOG INTERVAL	1532 m
SCHLUMBERGER DEPTH	1533 m
DEPTH DRILLER	1540 m
KELLY BUSHING	265 m
DRILL FLOOR	264.7 m
GROUND LEVEL	258.9 m

Schlumberger

PLATFORM EXPRESS
LITHO-DENSITY
COMPENSATED NEUTRON

MICRO

COMPANY: CANNAT RESOURCES INC.

WELL: CNRES BEHDZIH YOUH 0-52

FIELD: UNDEFINED

Province: NORTHWEST TERRITORIES

Schlumberger

PLATFORM EXPRESS
MCFL MICRO LOG

LATITUDE: 64 050 51"
LONGITUDE: 124 0503 39"
UWI: LATITUDE: 64.050.51.00 LONGITUDE: 124.050.39.00

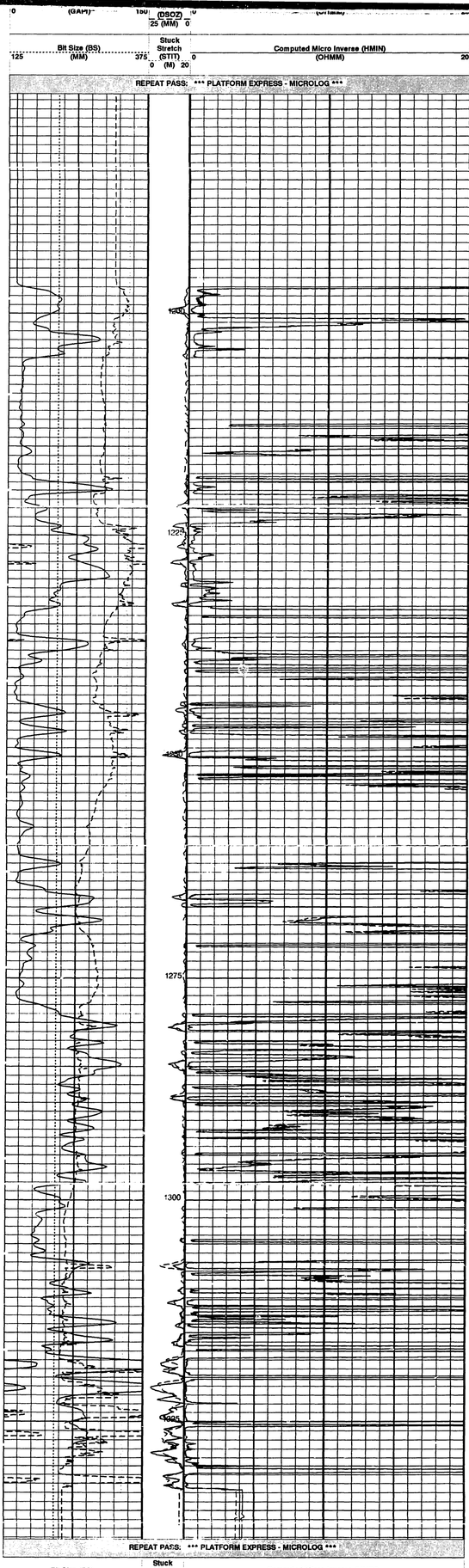
		Elev.	K.B. 465 m
		G.L.	458.6 m
		Perm. Datum	MSL
		Log Measured From:	KELLY BUSHING 6.1 m above Perm. Datum
		Drilling Measured From:	KELLY BUSHING

	Run 1	Run 2	Run 3	Run 4
Service Order				
Run Number				
Logging Date	4-Feb-2003			
Max Log Depth	1488 m			
Bottom Log Interval	1488 m			
Top Log Interval	200.000 m			
Casing Driller Size or Depth	244.500 mm @ 200 m			
Casing Schlumberger	200 m			
Bit Size	222.250 mm			
Type Fluid in Hole	WBM			
Density	1200 kg/m³			
Viscosity	50 s			
Fluid Loss	0 m³			
Source of Sample	FLOWLINE			
RM @ Measured Temperature	0.600 ohm.m @ 20 degC			
RMF @ Measured Temperature	0.600 ohm.m @ 20 degC			
RMC @ Measured Temperature	0.600 ohm.m @ 20 degC			
Source: RMF / RMC	RMS / RMS			
RM @ BHT	RMF @ BHT			
Time Circulation Stopped	4-Feb-2003 21:00			
Time Logger On Bottom	4-Feb-2003 23:45			
Logger On Bottom	Location			
Recorded By	SAFWAN MOUSA			
Witnessed By	CHAD DELISLEY			

	Run 1	Run 2	Run 3	Run 4
Service Order				
Run Number				
Logging Date				
Max Log Depth				
Bottom Log Interval				
Top Log Interval				
Casing Driller Size or Depth				
Casing Schlumberger				
Bit Size				
Type Fluid in Hole				
Density				
Viscosity				
Fluid Loss				
Source of Sample				
RM @ Measured Temperature				
RMF @ Measured Temperature				
RMC @ Measured Temperature				
Source: RMF / RMC				
RM @ BHT	RMF @ BHT			
Time Circulation Stopped				
Time Logger On Bottom				
Logger On Bottom	Location			
Recorded By				
Witnessed By				

EQUIPMENT / JOB SUPPORT RUN 1 RUN 2 RUN 3 RUN 4

CDR-A 1 CDR-A 2 CDR-A 3 CDR-A



PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
BS	Bit Size	215.000	MM
DFD	Drilling Fluid Density	1260.00	K/M3
DHC	Density Hole Correction	BS	
DO	Depth Offset for Playback	0.0	M
DORL	Depth Offset for Repeat Analysis	0.0	M
LSFR	Trigger for MAXIS First Reading Label	TDL	
MPOF	MCFL Processing Operation Mode	ON	
NAAC	HRDD APS Activation Correction	OFF	
NMT	HILT Nuclear Mud Type	NOBARITE	
NPRM	HRDD Processing Mode	HiRes	
NSAR	HRDD Depth Sampling Rate	25.4	MM
PP	Playback Processing	NORMAL	
SPVD	TVD of Starting Point	0	M
STKT	STI Stuck Threshold	1.524	M
TDD	Total Depth - Driller	1540.00	M
TDL	Total Depth - Logger	1350.00	M
TIMD	Along-hole depth of Tie-In Point	0	M
TIVD	TVD of Tie-In Point	0	M

Format: MLT_REPSECT Vertical Scale: 1:240 Graphics File Created: 05-Feb-2003 01:11

OP System Version: 9C2-303

MCM

HILTB-FTB	OP92-KP2	GPIT-C	SRPC-2149-OBMT
DTC-H	9C2-303	BSP	9C2-303

Input DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_016LUP	FN:25	PRODUCER	05-Feb-2003 00:33	1338.2 M	970.9 M

Output DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_017PUP	FN:28	PRODUCER	05-Feb-2003 01:11		
REDUCED	HALS_TLD_MCFL_CNL_017PUP	FN:29	PRODUCER	05-Feb-2003 01:11		

COMPANY	CANNAT RESOURCES INC.	BOTTOM LOG INTERVAL	1485 m
WELL	CNRES BEHDZIAH YOUH 0-52	SCHLUMBERGER DEPTH	1533 m
FIELD	UNDEFINED	DEPTH DRILLER	1540 m
Province	NORTHWEST TERRITORIES	KELLY BUSHING	265 m
		DRILL FLOOR	264.7 m
		GROUND LEVEL	258.9 m

Schlumberger

PLATFORM EXPRESS
MCFL MICRO LOG

DIPMETER/

CALIPER

Schlumberger

CANNAT RESOURCES INC.

CNRES BEHDZIAH YOUH O-52
UNDEFINED
NORTHWEST TERRITORIES

Company: CANNAT RESOURCES INC.
Well: CNRES BEHDZIAH YOUH O-52
Location: LATITUDE: 66 DEG 51'
Field: UNDEFINED
PROVINCE: NORTHWEST TERRITORIES

INCLINOMETRY LOG

N.E.B. COPY

LOCATION		Elev.:
LATITUDE: 66 DEG 51'		K.B. 265 m
LONGITUDE: 126 DEG 39'		G.L. 258.9 m
UWID: 300/O-52-67.00-126.300		D.F. 264.7 m

Permanent Datum:	GROUND LEVEL	Elev.: 258.9 m
Log Measured From:	KELLY BUSHING	6.1 m above Perm. Datum
Drilling Measured From:	KELLY BUSHING	

API Serial No.	LATITUDE:	LONGITUDE:
WID: 1960	66 DEG 51' N	126 DEG 39' W

Logging Date	19-Jan-2003			
Run Number	ONE			
Depth Driller	809 m			
Schlumberger Depth	808 m			
Bottom Log Interval	805.6 m			
Top Log Interval	193 m			
Casing Driller Size @ Depth	339.300 mm @ 193 m		@	
Casing Schlumberger	193 m			
Bit Size	311.000 mm			
Type Fluid In Hole	FRESH WATER			
MUD Density / Viscosity	1060 kg/m3	29 s		
Fluid Loss / PH				
Source Of Sample	FLOWLINE			
RM @ Measured Temperature	4.750 ohm.m @ 15 degC		@	
RMF @ Measured Temperature	@		@	
RMC @ Measured Temperature	@		@	
Source RMF / RMC	NOT AVAILABLE	NOT AVAILABLE		
RM @ MRT / RMF @ MRT	4.235 @ 20	@ 20	@	@
Maximum Recorded Temperatures	20 degC			
Circulation Stopped / Time	19-Jan-2003	18:00		
Logger On Bottom / Time	230-JAN-2003	00:15		
Unit Number / Location	3025	NORMAN WELLS		
Recorded By	K. RONCIN			
Witnessed By	NANCY SINNOTT			

	Run 1	Run 2	Run 3	Run 4
Logging Date				
Run Number				
Depth Driller				
Schlumberger Depth				
Bottom Log Interval				
Top Log Interval				
Casing Driller Size @ Depth	@		@	
Casing Schlumberger				
Bit Size				
Type Fluid In Hole				
MUD Density / Viscosity				
Fluid Loss / PH				
Source Of Sample				
RM @ Measured Temperature	@		@	
RMF @ Measured Temperature	@		@	
RMC @ Measured Temperature	@		@	
Source RMF / RMC				
RM @ MRT / RMF @ MRT	@	@	@	@
Maximum Recorded Temperatures				
Circulation Stopped / Time				
Logger On Bottom / Time				
Unit Number / Location				
Recorded By				
Witnessed By				

DEPTH SUMMARY LISTING

Date Created: 20-JAN-2003 1:03:22

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-B	Type:	CMTD-B/A	Type:	7-46P
Serial Number:	3770	Serial Number:	1083	Serial Number:	1009
Calibration Date:	27-NOV-2001	Calibration Date:	10-JAN-2002	Length:	3413.76 M
Calibrator Serial Number:	4	Calibrator Serial Number:	4	Conveyance Method:	Wireline
Calibration Cable Type:	7-46P	Calibration Gain:	0.93	Rig Type:	LAND
Wheel Correction 1:	-7	Calibration Offset:	244.00		
Wheel Correction 2:	-7				

Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	62.50 M
Rig Up Length At Bottom:	62.50 M
Rig Up Length Correction:	0.00 M
Stretch Correction:	0.20 M
Tool Zero Check At Surface:	0.00 M

Depth Control Remarks

1. CALIBREATED IDW WHEELS USED AS PRIMARY DEPTH CONTROL
2. TRUCK WAS SPOTTED ON LOCATION IN FALL - IDW AND CMTD CALS OUT OF DATE
3.
4.
5.
6.

DISCLAIMER
THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

OTHER SERVICES1	OTHER SERVICES2
OS1: PEX-AIT-GPIT-BHC	OS1:
OS2: HALS-BHC	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
AIT RAN ECCENTERED USING 2.50 MM STANDOFFS	
AIT RAN IN COMPUTE STANDOFF MODE WITH 4 FOOT VERTICAL RESOLUTION	
CNL RAN ECCENTERED USING 90 DEGREE OFFSET BOWSPRINGS	
BHC RAN CENTERED USING TWO CMEZ CENTRALIZERS	
CVL COMPUTED USING HILT CALIPER WITH FCD = 244.5 MM	
MUD SYSTEM WAS FRESH WATER - NO FILTRATE OR MUD CAKE AVAILABLE	
GPIT USED FOR INCLINOMETRY DATA	
CLIENT ALSO WANTED GPIT DATA FOR QUALITATIVE PYRITE/IRON ANALYSIS * 585 M	

PRINTS: 2 FIELD 7 FINAL
OPERATORS: PETER ROSS / KALVIN ELIAS
RIG: AKITA / SAHTU 51
MAX DEVIATION: ~1 DEGREE

RUN 1			RUN 2		
SERVICE ORDER #:	9193780		SERVICE ORDER #:		
PROGRAM VERSION:	10C0-306		PROGRAM VERSION:		
FLUID LEVEL:			FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

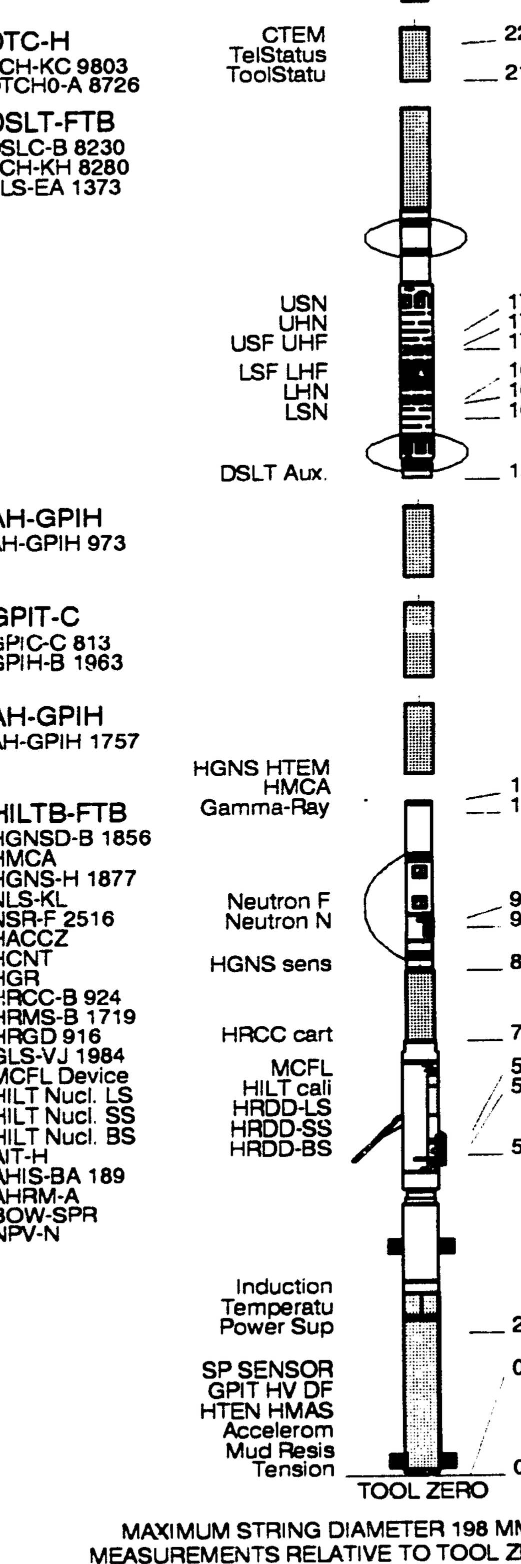
RUN 1 | RUN 2

SURFACE EQUIPMENT

WITM (DTS)-A

GSR-U/Y
NCT-B
CNB-AB
NCS-VB

DOWNHOLE EQUIPMENT



LEH-QT
LEH-QT — 23.23

DTC-H
ECH-KC 9803
DTCH0-A 8726
CTEM 22.06, TelStatus 21.42, ToolStatu — 22.34

DSLT-FTB
DSLC-B 8230
ECH-KH 8260
SLS-EA 1373 — 21.42
USN 17.62, UHN 17.38, USF UHF 17.32, LSF LHF 16.48, LHN 16.42, LSN 16.17
DSLT Aux. 15.13 — 15.13

AH-GPIH
AH-GPIH 973 — 13.91

GPIT-C
GPIC-C 813
GPIH-B 1963 — 12.69

AH-GPIH
AH-GPIH 1757

HILTB-FTB
HGNSD-B 1856
HMCA
HGNS-H 1877
NLS-KL
NSR-F 2516
HACCZ
HCNT
HGR
HRCC-B 924
HRMS-B 1719
HRGD 916
GLS-VJ 1984
MCFL Device
HILT Nucl. LS
HILT Nucl. SS
HILT Nucl. BS
AIT-H
AHIS-BA 189
AHRM-A
BOW-SPR
NPV-N

HGNS HTEM 11.48, HMCA 11.25, Gamma-Ray — 11.48
Neutron F 9.47, Neutron N 9.32
HGNS sens 8.61
HRCC cart 7.39
MCFL 5.73
HILT cali 5.59
HRDD-LS
HRDD-SS
HRDD-BS 5.47
50 MM Standoff
Induction
Temperatu
Power Sup 2.41
SP SENSOR
GPIT HV DF 0.03
HTEN HMAS
Accelerom
Mud Resis
Tension 0.00 — 50 MM Standoff
TOOL ZERO

MAXIMUM STRING DIAMETER 198 MM
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN METERS

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_012LUP	FN:21	PRODUCER	20-Jan-2003 00:31	810.2 M	144.0 M
CUST	AIT_TLD_MCFL_CNL_012LUP	FN:22	PRODUCER	20-Jan-2003 00:31	810.2 M	144.0 M
BACKUP	AIT_TLD_MCFL_CNL_012LUP	FN:23	PRODUCER	20-Jan-2003 00:31	810.2 M	144.0 M

OP System Version: 10C0-306

MCM

HILTB-FTB	OP10-KP1	GPIT-C	10C0-306
DSLT-FTB	OP10-KP1	DTC-H	10C0-306

PIP SUMMARY

Time Mark Every 60 S

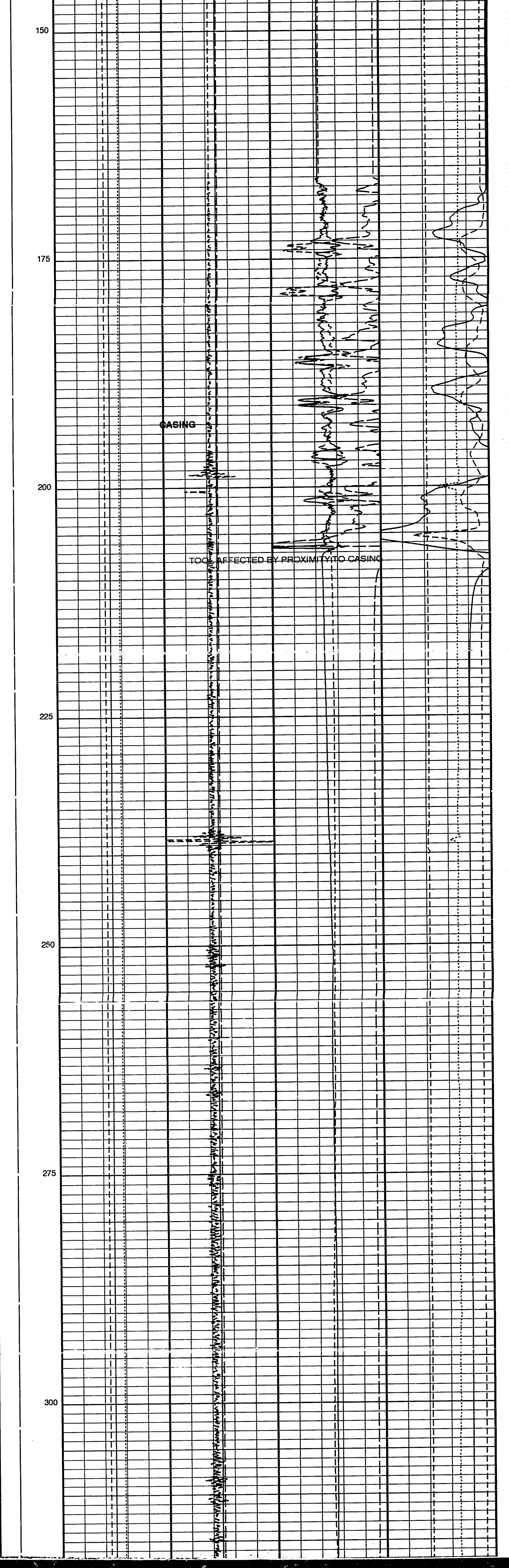
GPIT Magnetometer Temperature (GMT) (DEGC) 50 — 150 | Tension (TENS) (N) 20000 — 0

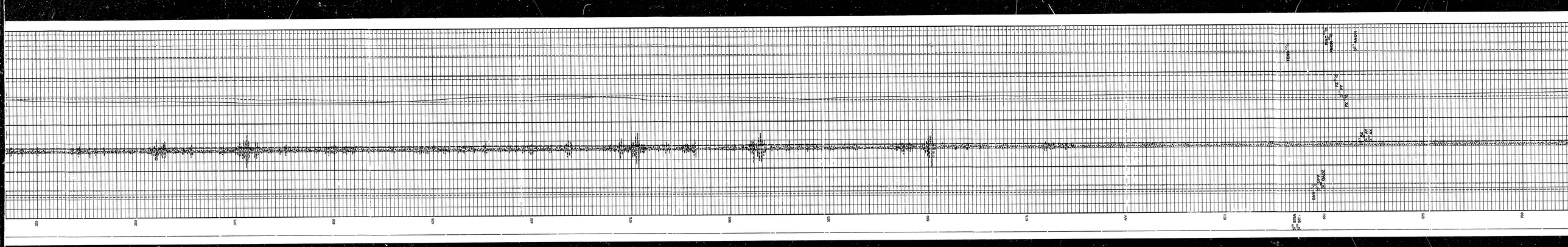
Tool/Tot. Drag From D4T to STIA | GPIT Negative Voltage (GNV) (V) -16 — -14.9 | Z-Axis Accelerometer (AZ) (M/S2) 11 — -11 | Z-Axis Magnetometer (FZ) (OER) -0.7 — 0.7 | Magnetic Field Inclination (FINC) (DEG) 0 — 90

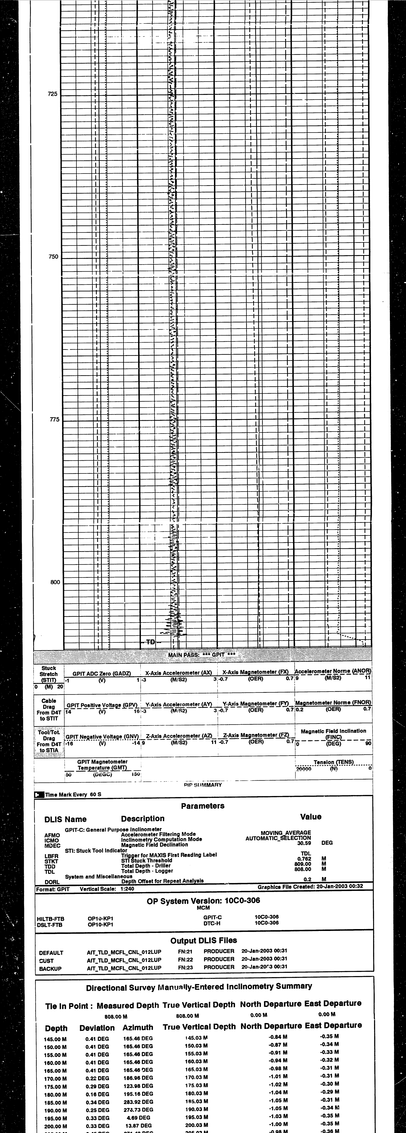
Cable Drag From D4T to STIT | GPIT Positive Voltage (GPV) (V) 14 — 16 | Y-Axis Accelerometer (AY) (M/S2) 3 — -3 | Y-Axis Magnetometer (FY) (OER) -0.7 — 0.7 | Magnetometer Norme (FNOR) (OER) 0.2 — 0.7

Stuck Stretch (STIT) (M) 0 — 20 | GPIT ADC Zero (GADZ) (V) -1 — 1 | X-Axis Accelerometer (AX) (M/S2) 3 — -3 | X-Axis Magnetometer (FX) (OER) -0.7 — 0.7 | Accelerometer Norme (ANOR) (M/S2) 9 — 11

MAIN PASS: *** GPIT ***




325
350
375
400
425
450
475
500
525
550
575
601
613
625
650
675
700
TEMP
FINC
RIGHT
MOVE
PE
AV
PE
AV
PE
AV
ORIENTATION
DEPTH
BETA
SET:



Stuck Stretch	GPIT ADC Zero (GADZ)	X-Axis Accelerometer (AX)	X-Axis Magnetometer (FX)	Accelerometer Norme (GNOR)
(STIT)	(V)	(M:02)	(DER)	(M:02)
1	1-3	3.-0.7	0.7 9	11
9 (M) 30				

Cable Speed From Dwt	GPIT Positive Voltage (GPV)	Y-Axis Accelerometer (AY)	Y-Axis Magnetometer (FY)	Magnetometer Norme (FNOR)
14	(V)	(M:02)	(DER)	(DER)
to STIT	15-3	3.-0.7	0.7 0.2	5.7

Tool/Tel. Drag From Dwt	GPIT Negative Voltage (GNV)	Z-Axis Accelerometer (AZ)	Z-Axis Magnetometer (FZ)	Magnetic Field Inclination (FINC)
-116	(V)	(M:02)	(DER)	(DEG)
to MTIA	-14 9	11 -0.7	0.7 0	40

GPIT Magnetometer Temperature (GMTM)	Tension (TENS)
(DEGC)	(V)
30	100

RP SHMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
	GPIT-C: General Purpose Inclinometer	
AFMO	Accelerometer Filtering Mode	MOVING_AVERAGE
ICMO	Accelerometer Combination Mode	AUTOMATIC_SELECTION
SDEC	Magnetic Field Declination	30.59 DEG
	STI: Stuck Tool Indicator	
LBFR	Trigger for MAXIS First Reading Label	TDL
TSTI	Total Depth - Tool	8,782 M
TDD	Total Depth - Driller	808.00 M
TDL	Total Depth - Logger	808.00 M
	System and Miscellaneous	
DOFF	Depth Offset for Repeat Analysis	0.2 M

Format: GPIT Vertical Scale: 1:240 Graphics File Created: 20-Jan-2003 00:32

OP System Version: 10C0-306

MCM

HLTB-FTB	OP10-KP1	GPIT-C 10C0-306
DSLT-FTB	OP10-KP1	DTC-H 10C0-306

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_012LUP	FN:21	PRODUCER	20-Jan-2003 00:31
CUST	AIT_TLD_MCFL_CNL_012LUP	FN:22	PRODUCER	20-Jan-2003 00:31
BACKUP	AIT_TLD_MCFL_CNL_012LUP	FN:23	PRODUCER	20-Jan-20^3 00:31

Directional Survey Manually-Entered Inclinometry Summary

Tie in Point : Measured Depth True Vertical Depth North Departure East Departure

	808.00 M	808.00 M	0.00 M	0.00 M
Depth	**Deviation**	**Azimuth**	**True Vertical Depth**	**North Departure**	**East Departure**
140.00 M	0.41 DEG	165.48 DEG	140.00 M	-0.84 M	-0.35 M
150.00 M	0.41 DEG	165.48 DEG	150.00 M	-0.87 M	-0.34 M
155.00 M	0.41 DEG	165.48 DEG	155.00 M	-0.91 M	-0.33 M
160.00 M	0.41 DEG	165.48 DEG	160.00 M	-0.94 M	-0.32 M
165.00 M	0.41 DEG	165.48 DEG	165.00 M	-0.98 M	-0.31 M
170.00 M	0.22 DEG	186.98 DEG	170.00 M	-1.01 M	-0.31 M
175.00 M	0.29 DEG	186.98 DEG	175.03 M	-1.02 M	-0.30 M
180.00 M	0.18 DEG	195.16 DEG	180.03 M	-1.04 M	-0.29 M
185.00 M	0.34 DEG	283.92 DEG	185.03 M	-1.05 M	-0.31 M
190.00 M	0.25 DEG	272.72 DEG	190.03 M	-1.05 M	-0.34 M
195.00 M	0.33 DEG	4.89 DEG	195.03 M	-1.03 M	-0.35 M
200.00 M	0.33 DEG	13.87 DEG	200.03 M	-1.00 M	-0.33 M
205.00 M	0.46 DEG	271.46 DEG	205.03 M	-0.98 M	-0.36 M
210.00 M	0.58 DEG	275.95 DEG	210.03 M	-0.97 M	-0.41 M
215.00 M	0.80 DEG	297.03 DEG	215.03 M	-0.93 M	-0.48 M
220.00 M	0.69 DEG	284.59 DEG	220.03 M	-0.84 M	-0.51 M
225.00 M	0.74 DEG	304.82 DEG	225.03 M	-0.91 M	-0.57 M
230.00 M	0.70 DEG	312.60 DEG	230.03 M	-0.87 M	-0.61 M
235.00 M	0.69 DEG	315.97 DEG	235.03 M	-0.83 M	-0.66 M
240.00 M	0.72 DEG	332.33 DEG	240.03 M	-0.78 M	-0.69 M
245.00 M	0.72 DEG	336.16 DEG	245.03 M	-0.72 M	-0.72 M
250.00 M	0.72 DEG	343.54 DEG	250.03 M	-0.67 M	-0.74 M
255.00 M	0.72 DEG	348.91 DEG	255.03 M	-0.60 M	-0.75 M
260.00 M	0.83 DEG	339.76 DEG	260.03 M	-0.54 M	-0.77 M
265.00 M	0.88 DEG	339.28 DEG	265.03 M	-0.47 M	-0.80 M
270.00 M	0.85 DEG	349.22 DEG	270.03 M	-0.39 M	-0.82 M
275.00 M	0.78 DEG	351.47 DEG	275.02 M	-0.32 M	-0.83 M
280.00 M	0.78 DEG	355.77 DEG	280.02 M	-0.25 M	-0.84 M
285.00 M	0.78 DEG	1.55 DEG	285.02 M	-0.18 M	-0.84 M
290.00 M	0.72 DEG	5.41 DEG	290.02 M	-0.11 M	-0.84 M
295.00 M	0.72 DEG	7.60 DEG	295.02 M	-0.05 M	-0.83 M
300.00 M	0.66 DEG	6.13 DEG	300.02 M	0.01 M	-0.82 M
305.00 M	0.62 DEG	7.14 DEG	305.02 M	0.06 M	-0.81 M
310.00 M	0.64 DEG	3.97 DEG	310.02 M	0.12 M	-0.81 M
315.00 M	0.66 DEG	356.54 DEG	315.02 M	0.17 M	-0.81 M
320.00 M	0.67 DEG	338.16 DEG	320.02 M	0.23 M	-0.82 M
325.00 M	0.64 DEG	315.01 DEG	325.02 M	0.28 M	-0.85 M
330.00 M	0.65 DEG	307.87 DEG	330.02 M	0.31 M	-0.89 M
335.00 M	0.64 DEG	306.48 DEG	335.02 M	0.35 M	-0.94 M
340.00 M	0.68 DEG	302.09 DEG	340.02 M	0.38 M	-0.99 M
345.00 M	0.69 DEG	294.56 DEG	345.02 M	0.41 M	-1.04 M
350.00 M	0.73 DEG	295.47 DEG	350.02 M	0.44 M	-1.10 M
355.00 M	0.78 DEG	299.19 DEG	355.02 M	0.47 M	-1.15 M
360.00 M	0.80 DEG	293.44 DEG	360.02 M	0.49 M	-1.21 M
365.00 M	0.88 DEG	285.79 DEG	365.02 M	0.51 M	-1.27 M
370.00 M	0.84 DEG	282.00 DEG	370.02 M	0.53 M	-1.33 M
375.00 M	0.84 DEG	281.81 DEG	375.02 M	0.53 M	-1.38 M
380.00 M	0.88 DEG	288.97 DEG	380.02 M	0.51 M	-1.44 M
385.00 M	0.89 DEG	297.80 DEG	385.02 M	0.47 M	-1.49 M
390.00 M	0.80 DEG	295.58 DEG	390.02 M	0.44 M	-1.53 M
395.00 M	0.82 DEG	295.43 DEG	395.02 M	0.41 M	-1.57 M
400.00 M	0.87 DEG	292.65 DEG	400.02 M	0.38 M	-1.61 M
405.00 M	0.84 DEG	287.73 DEG	405.02 M	0.34 M	-1.65 M
410.00 M	0.84 DEG	289.84 DEG	410.02 M	0.27 M	-1.68 M
415.00 M	0.84 DEG	290.54 DEG	415.01 M	0.22 M	-1.68 M
420.00 M	0.55 DEG	157.20 DEG	420.01 M	0.17 M	-1.68 M
425.00 M	0.62 DEG	138.84 DEG	425.01 M	0.12 M	-1.68 M
430.00 M	0.59 DEG	112.61 DEG	430.01 M	0.09 M	-1.61 M
435.00 M	0.55 DEG	85.77 DEG	435.01 M	0.09 M	-1.54 M
440.00 M	0.50 DEG	83.23 DEG	440.01 M	0.10 M	-1.51 M
445.00 M	0.59 DEG	71.27 DEG	445.01 M	0.11 M	-1.47 M
450.00 M	0.53 DEG	73.79 DEG	450.01 M	0.13 M	-1.43 M
455.00 M	0.49 DEG	44.78 DEG	455.01 M	0.15 M	-1.39 M
460.00 M	0.58 DEG	28.16 DEG	460.01 M	0.19 M	-1.37 M
465.00 M	0.63 DEG	359.49 DEG	465.01 M	0.24 M	-1.35 M
470.00 M	0.63 DEG	330.23 DEG	470.01 M	0.29 M	-1.37 M
475.00 M	0.63 DEG	313.38 DEG	475.01 M	0.33 M	-1.40 M
480.00 M	0.53 DEG	287.61 DEG	480.01 M	0.35 M	-1.45 M
485.00 M	0.53 DEG	264.19 DEG	485.01 M	0.34 M	-1.51 M
490.00 M	0.55 DEG	249.26 DEG	490.01 M	0.34 M	-1.54 M
495.00 M	0.53 DEG	241.13 DEG	495.01 M	0.32 M	-1.58 M
500.00 M	0.50 DEG	244.53 DEG	500.01 M	0.30 M	-1.62 M
505.00 M	0.53 DEG	225.05 DEG	505.01 M	0.27 M	-1.66 M
510.00 M	0.54 DEG	213.43 DEG	510.01 M	0.24 M	-1.69 M
515.00 M	0.49 DEG	201.34 DEG	515.01 M	0.20 M	-1.72 M
520.00 M	0.49 DEG	188.48 DEG	520.01 M	0.16 M	-1.72 M
525.00 M	0.49 DEG	135.33 DEG	525.01 M	0.12 M	-1.70 M
530.00 M	0.52 DEG	115.15 DEG	530.01 M	0.10 M	-1.67 M
535.00 M	0.56 DEG	116.19 DEG	535.01 M	0.08 M	-1.62 M
540.00 M	0.53 DEG	102.61 DEG	540.01 M	0.06 M	-1.58 M
545.00 M	0.48 DEG	122.88 DEG	545.01 M	0.04 M	-1.54 M
550.00 M	0.46 DEG	120.29 DEG	550.01 M	0.02 M	-1.50 M
555.00 M	0.38 DEG	128.85 DEG	555.01 M	-0.00 M	-1.47 M
560.00 M	0.42 DEG	118.17 DEG	560.01 M	-0.02 M	-1.44 M
565.00 M	0.41 DEG	185.31 DEG	565.01 M	-0.03 M	-1.41 M
570.00 M	0.41 DEG	111.83 DEG	570.01 M	-0.05 M	-1.38 M
575.00 M	0.41 DEG	104.80 DEG	575.01 M	-0.06 M	-1.34 M
580.00 M	0.41 DEG	105.52 DEG	580.01 M	-0.07 M	-1.31 M
585.00 M	0.47 DEG	120.86 DEG	585.01 M	-0.08 M	-1.27 M
590.00 M	0.46 DEG	119.18 DEG	590.01 M	-0.10 M	-1.24 M
595.00 M	0.41 DEG	109.16 DEG	595.01 M	-0.12 M	-1.21 M
600.00 M	0.43 DEG	104.20 DEG	600.01 M	-0.13 M	-1.17 M
605.00 M	0.44 DEG	101.57 DEG	605.01 M	-0.14 M	-1.13 M
610.00 M	0.47 DEG	101.45 DEG	610.01 M	-0.15 M	-1.10 M
615.00 M	0.47 DEG	107.45 DEG	615.01 M	-0.17 M	-1.06 M
620.00 M	0.48 DEG	117.91 DEG	620.01 M	-0.18 M	-1.02 M
625.00 M	0.48 DEG	116.71 DEG	625.01 M	-0.20 M	-0.98 M
630.00 M	0.46 DEG	113.99 DEG	630.01 M	-0.22 M	-0.94 M
635.00 M	0.50 DEG	113.20 DEG	635.01 M	-0.23 M	-0.91 M
640.00 M	0.49 DEG	117.16 DEG	640.01 M	-0.25 M	-0.87 M
645.00 M	0.49 DEG	127.02 DEG	645.01 M	-0.28 M	-0.83 M
650.00 M	0.50 DEG	130.40 DEG	650.01 M	-0.30 M	-0.80 M
655.00 M	0.52 DEG	130.48 DEG	655.01 M	-0.33 M	-0.76 M
660.00 M	0.54 DEG	134.17 DEG	660.01 M	-0.36 M	-0.73 M
665.00 M	0.53 DEG	134.47 DEG	665.01 M	-0.40 M	-0.69 M
670.00 M	0.53 DEG	134.48 DEG	670.00 M	-0.43 M	-0.66 M
675.00 M	0.53 DEG	132.66 DEG	675.00 M	-0.46 M	-0.63 M
680.00 M	0.51 DEG	125.07 DEG	680.00 M	-0.49 M	-0.59 M
685.00 M	0.50 DEG	121.48 DEG	685.00 M	-0.51 M	-0.55 M
690.00 M	0.46 DEG	112.47 DEG	690.00 M	-0.53 M	-0.52 M
695.00 M	0.45 DEG	102.82 DEG	695.00 M	-0.55 M	-0.48 M
700.00 M	0.44 DEG	105.91 DEG	700.00 M	-0.56 M	-0.44 M
705.00 M	0.45 DEG	104.20 DEG	705.00 M	-0.58 M	-0.40 M
710.00 M	0.45 DEG	88.82 DEG	710.00 M	-0.58 M	-0.36 M
715.00 M	0.46 DEG	76.93 DEG	715.00 M	-0.58 M	-0.32 M
720.00 M	0.48 DEG	76.62 DEG	720.00 M	-0.55 M	-0.28 M
725.00 M	0.48 DEG	71.21 DEG	725.00 M	-0.54 M	-0.24 M
730.00 M	0.45 DEG	73.60 DEG	730.00 M	-0.53 M	-0.21 M
735.00 M	0.44 DEG	63.77 DEG	735.00 M	-0.51 M	-0.17 M
740.00 M	0.46 DEG	63.24 DEG	740.00 M	-0.50 M	-0.13 M
745.00 M	0.47 DEG	55.57 DEG	745.00 M	-0.48 M	-0.10 M
750.00 M	0.48 DEG	51.34 DEG	750.00 M	-0.45 M	-0.07 M
755.00 M	0.46 DEG	41.29 DEG	755.00 M	-0.42 M	-0.04 M
760.00 M	0.48 DEG	39.11 DEG	760.00 M	-0.39 M	-0.01 M
765.00 M	0.49 DEG	26.33 DEG	765.00 M	-0.35 M	0.01 M
770.00 M	0.48 DEG	21.45 DEG	770.00 M	-0.32 M	0.03 M
775.00 M	0.50 DEG	25.38 DEG	775.00 M	-0.28 M	0.05 M
780.00 M	0.50 DEG	6.31 DEG	780.00 M	-0.23 M	0.06 M
785.00 M	0.49 DEG	2.99 DEG	785.00 M	-0.19 M	0.06 M
790.00 M	0.50 DEG	351.17 DEG	790.00 M	-0.14 M	0.06 M
795.00 M	0.51 DEG	348.52 DEG	795.00 M	-0.10 M	0.05 M
800.00 M	0.52 DEG	334.22 DEG	800.00 M	-0.06 M	0.03 M
805.00 M	0.50 DEG	330.74 DEG	805.00 M	-0.02 M	0.01 M
810.00 M	0.52 DEG	322.88 DEG	810.00 M	0.01 M	-0.01 M

Wireline Log and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
High resolution Integrated Logging Tool-DTS Wireline Calibration - Electronics Calibration Check - Thru Cal Mag. & Phase							
Master: 1-Jan-2003 15:19 Before: 16-Jan-2003 19:09							
Thru Cal Magnitude - 0	0	0.9128	0.9137	N/A	N/A	N/A	V
Thru Cal Magnitude - 1	0	1.258	1.257	N/A	N/A	N/A	V
Thru Cal Magnitude - 2	0	0.6244	0.6247	N/A	N/A	N/A	V
Thru Cal Magnitude - 3	0	0.7083	0.7084	N/A	N/A	N/A	V
Thru Cal Magnitude - 4	0	0.9128	0.9137	N/A	N/A	N/A	V
Thru Cal Magnitude - 5	0	1.912	1.913	N/A	N/A	N/A	V
Thru Cal Magnitude - 6	0	1.921	1.924	N/A	N/A	N/A	V
Thru Cal Magnitude - 7	0	0.7499	0.7501	N/A	N/A	N/A	V
Phase - 0	0	14.69	14.22	N/A	N/A	N/A	DEG
Phase - 1	0	54.61	53.05	N/A	N/A	N/A	DEG
Phase - 2	0	49.52	49.24	N/A	N/A	N/A	DEG
Phase - 3	0	48.77	48.48	N/A	N/A	N/A	DEG
Phase - 4	0	14.69	14.22	N/A	N/A	N/A	DEG
Phase - 5	0	41.40	40.42	N/A	N/A	N/A	DEG
Phase - 6	0	41.52	40.40	N/A	N/A	N/A	DEG
Phase - 7	0	37.99	37.00	N/A	N/A	N/A	DEG
High resolution Integrated Logging Tool-DTS Wireline Calibration - Electronics Calibration Check - Auxiliary							
Master: 1-Jan-2003 15:19 Before: 16-Jan-2003 19:09							
Array Induction DFA Plus	100 %	[illegible]	99.9	N/A	N/A	N/A	MV
Array Induction SFA Zero	0	0.0267	0.0267	N/A	N/A	N/A	V
Array Induction Temperature Pr	0.9 °C	0.0025	0.0025	N/A	N/A	N/A	V
Array Induction Temperature Ze	0	0.0000153	0.0000812	N/A	N/A	N/A	V
High resolution Integrated Logging Tool-DTS Wireline Calibration - Test Loop Gain Correction							
Master: 1-Jan-2003 15:19							
Test Loop Gain Magnitude - 0	0	1.013	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 1	0	1.018	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 2	0	1.018	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 3	0	1.013	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 4	0	1.013	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 5	0	0.9053	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 6	0	0.9974	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 7	0	0.9974	N/A	N/A	N/A	N/A	V
Phase - 0	0	0.004	N/A	N/A	N/A	N/A	DEG
Phase - 1	0	0.2892	N/A	N/A	N/A	N/A	DEG
Phase - 2	0	0.2819	N/A	N/A	N/A	N/A	DEG
Phase - 3	0	0.0057	N/A	N/A	N/A	N/A	DEG
Phase - 4	0	0.0057	N/A	N/A	N/A	N/A	DEG
Phase - 5	0	0.0421	N/A	N/A	N/A	N/A	DEG
Phase - 6	0	0.3686	N/A	N/A	N/A	N/A	DEG
Phase - 7	0	0.1703	N/A	N/A	N/A	N/A	DEG
High resolution Integrated Logging Tool-DTS Wireline Calibration - Bridle Error Correction							
Master: 1-Jan-2003 15:19							
R Bridle Error Correction - 0	0	5.197	N/A	N/A	N/A	N/A	MMM
R Bridle Error Correction - 1	0	10.17	N/A	N/A	N/A	N/A	MMM
R Bridle Error Correction - 2	0	10.1	N/A	N/A	N/A	N/A	MMM
R Bridle Error Correction - 3	0	64.1	N/A	N/A	N/A	N/A	MMM
R Bridle Error Correction - 4	0	24.71	N/A	N/A	N/A	N/A	MMM
R Bridle Error Correction - 5	0	14.18	N/A	N/A	N/A	N/A	MMM
R Bridle Error Correction - 6	0	14.16	N/A	N/A	N/A	N/A	MMM
R Bridle Error Correction - 7	0	5.504	N/A	N/A	N/A	N/A	MMM
X Bridle Error Correction - 0	0	353.7	N/A	N/A	N/A	N/A	MMM
X Bridle Error Correction - 1	0	349.8	N/A	N/A	N/A	N/A	MMM
X Bridle Error Correction - 2	0	349.6	N/A	N/A	N/A	N/A	MMM
X Bridle Error Correction - 3	0	0.196	N/A	N/A	N/A	N/A	MMM
X Bridle Error Correction - 4	0	1.251	N/A	N/A	N/A	N/A	MMM
X Bridle Error Correction - 5	0	4.133	N/A	N/A	N/A	N/A	MMM
X Bridle Error Correction - 6	0	4.128	N/A	N/A	N/A	N/A	MMM
X Bridle Error Correction - 7	0	7.481	N/A	N/A	N/A	N/A	MMM
High resolution Integrated Logging Tool-DTS Wireline Calibration - Mud Cell Correction							
Master: 1-Jan-2003 15:19							
Coarse - Mag. Real, Imag - 0	0	1.157	N/A	N/A	N/A	N/A	V
Coarse - Mag. Real, Imag - 1	0	1.148	N/A	N/A	N/A	N/A	V
Fine - Mag. Real, Imag - 0	0	1.157	N/A	N/A	N/A	N/A	V
Fine - Mag. Real, Imag - 1	0	1.148	N/A	N/A	N/A	N/A	V
High resolution Integrated Logging Tool-DTS Wireline Calibration - Stab Measurement Summary							
Master: 1-Jan-2003 15:19							
SB Window Ratio	0.8795	N/A	0.8823	N/A	N/A	N/A	CPS
SB Window Sum	9305	N/A	9408	N/A	N/A	N/A	CPS
SB Window Ratio	0.8716	N/A	0.8802	N/A	N/A	N/A	CPS

LS Window Sum	1158	N/A	1155	N/A	N/A	N/A	CPS

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Photo-multiplier High Voltages Calibrations
Before: 16-Jan-2003 19:13

BS PM High Voltage (Command)	1670	N/A	1670	N/A	N/A	N/A	V
SS PM High Voltage (Command)	1813	N/A	1847	N/A	N/A	N/A	V
LS PM High Voltage (Command)	1678	N/A	1705	N/A	N/A	N/A	V

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Crystal Quality Resolutions Calibration
Before: 16-Jan-2003 19:13

BS Crystal Resolution	11.64	N/A	11.70	N/A	N/A	N/A	%
SS Crystal Resolution	10.21	N/A	10.62	N/A	N/A	N/A	%
LS Crystal Resolution	9.789	N/A	9.763	N/A	N/A	N/A	%

High resolution Integrated Logging Tool-DTS Wellsite Calibration - MCFL Calibration
Before: 16-Jan-2003 19:14

Raw B0 Resistivity	3875	N/A	3852	N/A	N/A	N/A	OHMM
Raw B1 Resistivity	3830	N/A	3821	N/A	N/A	N/A	OHMM
Raw B2 Resistivity	3830	N/A	3837	N/A	N/A	N/A	OHMM

High resolution Integrated Logging Tool-DTS Wellsite Calibration - HILT Caliper Calibration
Before: 16-Jan-2003 19:11

HILT Caliper Zero Measurement	203.2	N/A	197.8	N/A	N/A	N/A	MM
HILT Caliper Plus Measurement	304.8	N/A	304.1	N/A	N/A	N/A	MM

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Detector Calibration
Before: 16-Jan-2003 19:08

Gamma Ray Background	30.00	N/A	57.52	N/A	N/A	N/A	GAPI
Gamma Ray (Jig - Bkg)	171.7	N/A	171.7	N/A	N/A	15.61	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	N/A	15.00	GAPI

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Zero Measurement
Master: 19-Dec-2002 10:44 Before: 16-Jan-2003 19:09

CNTC Background	25.34	25.34	27.74	N/A	N/A	3.801	CPS
CFTC Background	27.65	27.65	30.51	N/A	N/A	4.148	CPS

High resolution Integrated Logging Tool-DTS Wellsite Calibration - Accelerometer Calibration
Before: 19-Jan-2003 23:43

Z-Axis Acceleration	9.810	N/A	9.833	N/A	N/A	N/A	M/S2

High resolution Integrated Logging Tool-DTS Master Calibration - Inversion results
Master: 14-Jan-2003 17:01

Rho Aluminum	2596	2601	--	--	--	--	K/M3
Rho Magnesium	1686	1685	--	--	--	--	K/M3
Pe Aluminum	2.570	2.581	--	--	--	--	
Pe Magnesium	2.650	2.630	--	--	--	--	

High resolution Integrated Logging Tool-DTS Master Calibration - Deviation Summary
Master: 14-Jan-2003 17:01

BS Average Deviation	0	0.2702	--	--	--	--	%
BS Max Deviation	0	1.263	--	--	--	--	%
SS Average Deviation	0	0.2225	--	--	--	--	%
SS Max Deviation	0	0.9580	--	--	--	--	%
LS Average Deviation	0	0.6927	--	--	--	--	%
LS Max Deviation	0	2.331	--	--	--	--	%

High resolution Integrated Logging Tool-DTS Master Calibration - Tank Measurement
Master: 19-Dec-2002 10:44

Thermal Near Corr. (Tank)	6031	5898	--	--	--	--	CPS
Thermal Far Corr. (Tank)	2793	2493	--	--	--	--	CPS
CNTC/CFTC (Tank)	2.159	2.365	--	--	--	--	

General Purpose Inclinometer Wellsite Calibration - CROUZET ACCELEROMETER PROM HAS BEEN READ CORRECTLY
Before: 16-Jan-2003 21:16

TEMPERATURE REFERENCE :	N/A	N/A	20	N/A	N/A	N/A	DEGC
YEAR OF CALIBRATION :	N/A	N/A	0	N/A	N/A	N/A	
MONTH OF CALIBRATION :	N/A	N/A	11	N/A	N/A	N/A	
SERIAL NUMBER :	N/A	N/A	748	N/A	N/A	N/A	

General Purpose Inclinometer Wellsite Calibration - CROUZET MAGNETOMETER PROM HAS BEEN READ CORRECTLY
Before: 16-Jan-2003 21:16

TEMPERATURE REFERENCE :	N/A	N/A	21	N/A	N/A	N/A	DEGC
YEAR OF CALIBRATION :	N/A	N/A	0	N/A	N/A	N/A	
MONTH OF CALIBRATION :	N/A	N/A	11	N/A	N/A	N/A	
SERIAL NUMBER :	N/A	N/A	437	N/A	N/A	N/A	

The GLS-VJ source activity is acceptable.

The HGNS Neutron Master Calibration was done with the following parameters

NCT-B Water Temperature 16.5 DEGC
Thermal Housing Size 85.7?? MM.

High resolution Integrated Logging Tool-DTS / Equipment Identification

Primary Equipment:

Array Induction Tool - H	AIT - H	
Rm/SP Bottom Nose	AHRM - A	
Array Induction Sonde	AHIS - BA	189
HILT high-Resolution Mechanical Sonde	HRMS - B	1719
HILT Rxo Gamma-ray Device	HRGD -	916
HILT Nuclear Back-Scatter Detector	HILT -	
HILT Nuclear Short-Spacing Detector	HILT -	
HILT Nuclear Long-Spacing Detector	HILT -	

Auxiliary Equipment:

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Electronics Calibration Check - Thru Cal Mag. & Phase

Idx	Phase	Value	Thru Cal Magnitude V Nominal	Value	Phase DEG Nominal
0	Master	0.6128	0.6050	54.41	71.00
	Before	0.6137		54.07	
1	Master	1.256	1.270	53.32	70.00
	Before	1.257		53.00	
2	Master	0.6244	0.6230	49.57	66.00
	Before	0.6247		49.28	
3	Master	0.7083	0.7040	48.77	65.00
	Before	0.7094		48.48	
4	Master	1.322	1.337	42.47	59.00
	Before	1.322		42.26	
5	Master	1.912	1.955	40.60	57.00
	Before	1.915		40.43	
6	Master	1.921	1.955	40.57	57.00
	Before	1.924		40.40	
7	Master	1.369	1.415	36.94	53.00
	Before	1.376		37.20	
		60.00 % (Minimum)	(Nominal) 140.0 % (Maximum)	Nom -60.00 (Minimum)	(Nominal) Nom + 60.00 (Maximum)

Master: 1-Jan-2003 15:19 Before: 16-Jan-2003 19:09

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Electronics Calibration Check - Auxilliary

Phase	Array Induction SPA Plus MV	Value	Phase	Array Induction SPA Zero MV	Value
Master		995.0	Master		0.1004
Before		995.9	Before		0.08047
	941.0 (Minimum) 990.5 (Nominal) 1040 (Maximum)			-50.00 (Minimum) 0 (Nominal) 50.00 (Maximum)	
Phase	Array Induction Temperature Plus V	Value	Phase	Array Induction Temperature Zero V	Value
Master		0.9219	Master		0.0001053
Before		0.9227	Before		8.712E-00
	0.8700 (Minimum) 0.9150 (Nominal) 0.9600 (Maximum)			-0.05000 (Minimum) 0 (Nominal) 0.05000 (Maximum)	

Master: 1-Jan-2003 15:19 Before: 16-Jan-2003 19:09

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Test Loop Gain Correction

Idx	Value	Test Loop Gain Magnitude V (Minimum / Nominal / Maximum)	Value	Phase DEG (Minimum / Nominal / Maximum)
0	1.013	0.9500 / 1.000 / 1.050	-2.564	-3.000 / 0 / 3.000
1	1.018	0.9500 / 1.000 / 1.050	0.2992	-3.000 / 0 / 3.000
2	1.019	0.9500 / 1.000 / 1.050	-0.3819	-3.000 / 0 / 3.000
3	1.015	0.9500 / 1.000 / 1.050	0.09587	-3.000 / 0 / 3.000
4	1.003	0.9500 / 1.000 / 1.050	0.03403	-3.000 / 0 / 3.000
5	0.9853	0.9500 / 1.000 / 1.050	-0.08211	-3.000 / 0 / 3.000
6	0.9974	0.9500 / 1.000 / 1.050	0.3688	-3.000 / 0 / 3.000
7	1.005	0.9500 / 1.000 / 1.050	-0.1723	-3.000 / 0 / 3.000

Master: 1-Jan-2003 15:19

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Sonde Error Correction

Idx	Value	R Sonde Error Correction MM/M (Minimum / Nominal / Maximum)	Value	X Sonde Error Correction MM/M (Minimum / Nominal / Maximum)
0	-5.197	-231.0 / -58.00 / 119.0	353.7	-2250 / 0 / 2250
1	178.4	114.0 / 159.0 / 204.0	-379.0	-625.0 / 0 / 625.0
2	103.7	66.00 / 111.0 / 156.0	-165.6	-350.0 / 0 / 350.0
3	64.44	39.00 / 64.00 / 89.00	-63.96	-250.0 / 0 / 250.0
4	24.81	15.00 / 25.00 / 35.00	1.251	-63.00 / 0 / 63.00
5	14.18	4.000 / 14.00 / 24.00	-4.939	-50.00 / 0 / 50.00
6	9.598	5.000 / 10.00 / 15.00	-4.702	-30.00 / 0 / 30.00
7	-0.5064	-5.000 / 0 / 5.000	7.468	-30.00 / 0 / 30.00

Master: 1-Jan-2003 15:19

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Mud Gain Correction

Idx	Value	Coarse - Mag. Real, Imag (Minimum / Nominal / Maximum)	Value	Fine - Mag. Real, Imag (Minimum / Nominal / Maximum)
0	1.157	0.8000 / 1.000 / 1.200	1.148	0.8000 / 1.000 / 1.200
1	1.157	0.8000 / 1.000 / 1.200	1.148	0.8000 / 1.000 / 1.200
2	1.157	0.8000 / 1.000 / 1.200	1.148	0.8000 / 1.000 / 1.200

Master: 1-Jan-2003 15:19

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Stab Measurement Summary

Phase	Measurement	Value	Minimum	Nominal	Maximum
Before	BS Window Ratio	0.6823	0.6455	0.6795	0.7135
Before	SS Window Ratio	0.4862	0.4670	0.4916	0.5162
Before	LS Window Ratio	0.3039	0.2825	0.2974	0.3122
Before	BS Window Sum CPS	9406	8918	9388	9857
Before	SS Window Sum CPS	10020	9515	10020	10520
Before	LS Window Sum CPS	1155	1101	1158	1216

Before: 16-Jan-2003 19:13

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Photo-multiplier High Voltages Calibrations

Phase	Measurement	Value	Minimum	Nominal	Maximum
Before	BS PM High Voltage (Command) V	1670	1570	1670	1770
Before	SS PM High Voltage (Command) V	1847	1713	1813	1913
Before	LS PM High Voltage (Command) V	1705	1578	1678	1778

Before: 16-Jan-2003 19:13

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Crystal Quality Resolutions Calibration

Phase	Measurement	Value	Minimum	Nominal	Maximum
Before	BS Crystal Resolution %	11.70	10.64	11.64	12.64
Before	SS Crystal Resolution %	10.62	9.208	10.21	11.21
Before	LS Crystal Resolution %	9.763	8.789	9.789	10.79

Before: 16-Jan-2003 19:13

High resolution Integrated Logging Tool-DTS Wellsite Calibration
MCFL Calibration

Phase	Measurement	Value	Minimum	Nominal	Maximum
Before	Raw B0 Resistivity OHMM	3852	3565	3875	4185
Before	Raw B1 Resistivity OHMM	3821	3524	3830	4136
Before	Raw B2 Resistivity OHMM	3837	3524	3830	4136

Before: 16-Jan-2003 19:14

High resolution Integrated Logging Tool-DTS Wellsite Calibration
HILT Caliper Calibration

Phase	Measurement	Value	Minimum	Nominal	Maximum
Before	HILT Caliper Zero Measurement MM	197.8	152.4	203.2	254.0
Before	HILT Caliper Plus Measurement MM	304.1	228.6	304.8	381.0

Before: 16-Jan-2003 19:11

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Detector Calibration

Phase	Measurement	Value	Minimum	Nominal	Maximum
Before	Gamma Ray Background GAPI	57.52	0	30.00	120.0
Before	Gamma Ray (Jig - Bkg) GAPI	171.7	158.1	171.7	187.3
Before	Gamma Ray (Calibrated) GAPI	165.0	150.0	165.0	180.0

Before: 16-Jan-2003 19:08

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Zero Measurement

Phase	Measurement	Value	Minimum	Nominal	Maximum
Master	CNTC Background CPS	25.34			
Before	CNTC Background CPS	27.74	5.000	25.34	40.00
Master	CFTC Background CPS	27.65			
Before	CFTC Background CPS	30.51	5.000	27.65	40.00

Master: 19-Dec-2002 10:44 Before: 16-Jan-2003 19:09

High resolution Integrated Logging Tool-DTS
Wellsite Calibration
Accelerometer Calibration

Phase	Z-Axis Acceleration M/S2	Value
Before	9.610 (Minimum) 9.810 (Nominal) 10.01 (Maximum)	9.833

Before: 19-Jan-2003 23:43

High resolution Integrated Logging Tool-DTS Master Calibration
Electronics Calibration Check - Thru Cal Mag. & Phase

Idx	Phase	Value	Thru Cal Magnitude V Nominal	Value	Phase DEG Nominal
0	Master	0.6128	0.6050	54.41	71.00
1	Master	1.256	1.270	53.32	70.00
2	Master	0.6244	0.6230	49.57	66.00
3	Master	0.7083	0.7040	48.77	65.00
4	Master	1.322	1.337	42.47	59.00
5	Master	1.912	1.955	40.60	57.00
6	Master	1.921	1.955	40.57	57.00
7	Master	1.369	1.415	36.94	53.00
		60.00 % (Minimum)	(Nominal) 140.0 % (Maximum)	Nom -60.00 (Minimum)	(Nominal) Nom + 60.00 (Maximum)

Master: 1-Jan-2003 15:19

High resolution Integrated Logging Tool-DTS Master Calibration
Electronics Calibration Check - Auxilliary

Phase	Array Induction SPA Plus MV	Value	Phase	Array Induction SPA Zero MV	Value
Master	941.0 (Minimum) 990.5 (Nominal) 1040 (Maximum)	995.0	Master	-50.00 (Minimum) 0 (Nominal) 50.00 (Maximum)	0.1004
Phase	Array Induction Temperature Plus V	Value	Phase	Array Induction Temperature Zero V	Value
Master	0.8700 (Minimum) 0.9150 (Nominal) 0.9600 (Maximum)	0.9219	Master	-0.05000 (Minimum) 0 (Nominal) 0.05000 (Maximum)	0.0001053

Master: 1-Jan-2003 15:19

High resolution Integrated Logging Tool-DTS Master Calibration
Test Loop Gain Correction

Idx	Value	Test Loop Gain Magnitude V (Minimum / Nominal / Maximum)	Value	Phase DEG (Minimum / Nominal / Maximum)
0	1.013	0.9500 / 1.000 / 1.050	-2.564	-3.000 / 0 / 3.000
1	1.018	0.9500 / 1.000 / 1.050	0.2992	-3.000 / 0 / 3.000
2	1.019	0.9500 / 1.000 / 1.050	-0.3819	-3.000 / 0 / 3.000
3	1.015	0.9500 / 1.000 / 1.050	0.09587	-3.000 / 0 / 3.000
4	1.003	0.9500 / 1.000 / 1.050	0.03403	-3.000 / 0 / 3.000
5	0.9853	0.9500 / 1.000 / 1.050	-0.08211	-3.000 / 0 / 3.000
6	0.9974	0.9500 / 1.000 / 1.050	0.3688	-3.000 / 0 / 3.000
7	1.005	0.9500 / 1.000 / 1.050	-0.1723	-3.000 / 0 / 3.000

Master: 1-Jan-2003 15:19

High resolution Integrated Logging Tool-DTS Master Calibration
Sonde Error Correction

Idx	Value	R Sonde Error Correction MM/M (Minimum / Nominal / Maximum)	Value	X Sonde Error Correction MM/M (Minimum / Nominal / Maximum)
0	-5.197	-231.0 / -58.00 / 119.0	353.7	-2250 / 0 / 2250
1	178.4	114.0 / 159.0 / 204.0	-379.0	-625.0 / 0 / 625.0
2	103.7	66.00 / 111.0 / 156.0	-165.6	-350.0 / 0 / 350.0
3	64.44	39.00 / 64.00 / 89.00	-63.96	-250.0 / 0 / 250.0
4	24.81	15.00 / 25.00 / 35.00	1.251	-63.00 / 0 / 63.00
5	14.18	4.000 / 14.00 / 24.00	-4.939	-50.00 / 0 / 50.00
6	9.598	5.000 / 10.00 / 15.00	-4.702	-30.00 / 0 / 30.00
7	-0.5064	-5.000 / 0 / 5.000	7.468	-30.00 / 0 / 30.00

Master: 1-Jan-2003 15:19

High resolution Integrated Logging Tool-DTS Master Calibration
Mud Gain Correction

Idx	Value	Coarse - Mag. Real, Imag (Minimum / Nominal / Maximum)	Value	Fine - Mag. Real, Imag (Minimum / Nominal / Maximum)
0	1.157	0.8000 / 1.000 / 1.200	1.148	0.8000 / 1.000 / 1.200
1	1.157	0.8000 / 1.000 / 1.200	1.148	0.8000 / 1.000 / 1.200
2	1.157	0.8000 / 1.000 / 1.200	1.148	0.8000 / 1.000 / 1.200

Master: 1-Jan-2003 15:19

High resolution Integrated Logging Tool-DTS Master Calibration
Inversion results

Phase	Measurement	Value	Minimum	Nominal	Maximum
Master	Rho Aluminum K/M3	2601	2586	2596	2606
Master	Rho Magnesium K/M3	1685	1676	1686	1696
Master	Pe Aluminum	2.581	2.470	2.570	2.670
Master	Pe Magnesium	2.630	2.550	2.650	2.750

Master: 14-Jan-2003 17:01

High resolution Integrated Logging Tool-DTS Master Calibration
Deviation Summary

Phase	Measurement	Value	Minimum	Nominal	Maximum
Master	BS Average Deviation %	0.2702	-0.6000	0	0.6000
Master	SS Average Deviation %	0.2225	-1.000	0	1.000
Master	LS Average Deviation %	0.6927	-1.500	0	1.500
Master	BS Max Deviation %	1.263	-1.600	0	1.600
Master	SS Max Deviation %	0.9580	-2.500	0	2.500
Master	LS Max Deviation %	2.331	-3.500	0	3.500

Master: 14-Jan-2003 17:01

High resolution Integrated Logging Tool-DTS Master Calibration
Tank Measurement

Phase	Measurement	Value	Minimum	Nominal	Maximum
Master	Thermal Near Corr. (Tank) CPS	5898	5000	6031	7200
Master	Thermal Far Corr. (Tank) CPS	2493	2075	2793	3125
Master	CNTC/CFTC (Tank)	2.365	2.120	2.159	2.540

Master: 19-Dec-2002 10:44

General Purpose Inclinometer / Equipment Identification

Primary Equipment:		
GPIT Cartridge - C	GPIC - C	813
Auxiliary Equipment:		
GPIT Housing	GPIH - B	1963

Company CANNAT RESOURCES INC.

Schlumberger

Well CNRES BEHDZIAH YOUH O-52
Field UNDEFINED
PROVINCE NORTHWEST TERRITORIES

INCLINOMETRY LOG

COMPANY: CANNAT RESOURCES INC.

WELL: CNRES BEHDZIAH YOUH 0-52

FIELD: UNDEFINED

Province: NORTHWEST TERRITORIES

Schlumberger

PLATFORM EXPRESS
DIRECTIONAL SURVEY

LATITUDE: 66 DEG 51'		Elev.: K.B.	265 m
LONGITUDE: 126 DEG 39'		G.L.	258.9 m
UWID: 300/O-51'-67.00-126.300		D.F.	264.7 m
Permanent Datum:	GROUND LEVEL	Elev.:	258.9 m
Log Measured From:	KELLY BUSHING	6.1 m	above Perm. Datum
Drilling Measured From:	KELLY BUSHING		

API Serial No.	LATITUDE:	LONGITUDE:
1990	66 DEG 51' N	126 DEG 39' W

Logging Date				4-Feb-2003					
Run Number				TWC					
Depth Driller				1540 m					
Schlumberger Depth				1533 m					
Bottom Log Interval				1530 m					
Top Log Interval				809 m					
Casing Driller Size @ Depth				244.500 mm @	809 m				
Casing Schlumberger				809 m					
Bit Size				215.000 mm					
Type Fluid in Hole				SALT MUD					
Density	Viscosity			1260 kg/m3	60 s				
Fluid Loss	PH			10.5 cm3	10				
Source Of Sample				FLOWLINE					
RM @ Measured Temperature				0.040 ohm.m	@	20	deqC		
RMF @ Measured Temperature				0.026 ohm.m	@	20	deqC		
RMC @ Measured Temperature				0.118 ohm.m	@	17	deqC		
Source: RMF		RMC		PRESS	PRESS				
RM @ MRT		RMF @ MRT		0.044 @ 21	0.037 @ 21				
Maximum Recorded Temperatures				21 deqC					
Circulation Stopped		Time		4-Feb-2003	16:30				
Logger On Bottom		Time		5-Feb-2003	22:00				
Unit Number		Location		8416	NORMAN WELLS				
Recorded By				DEVIN BEAN					
Witnessed By				CRAIG SKURLEWY					

	Run 1	Run 2	Run 3	Run 4
Logging Date				
Run Number				
Depth Driller				
Schlumberger Depth				
Bottom Log Interval				
Top Log Interval				
Casing Driller Size @ Depth				
Casing Schlumberger				
Bit Size				
Type Fluid in Hole				
Density	Viscosity			
Fluid Loss	PH			
Source Of Sample				
RM @ Measured Temperature	@	@	@	@
RMF @ Measured Temperature	@	@	@	@
RMC @ Measured Temperature	@	@	@	@
Source: RMF	RMC			
RM @ MRT	RMF @ MRT			
Maximum Recorded Temperatures				
Circulation Stopped	Time			
Logger On Bottom	Time			
Unit Number	Location			
Recorded By				
Witnessed By				

DISCLAIMER

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OWNER: CANNAT RESOURCES INC.
DS1: 8HC SONIC
DS2: CDR RESISTIVITY
DS3: CDN2 NEUTRON
DS4: HALS
DS5:
REMARKS: RUN 1 LOGGED WITH 2 DETECTORS
REMARKS: RUN 2 LOGGED WITH 1 DETECTOR
REMARKS: RUN 3 LOGGED WITH 1 DETECTOR

RUN 1 | RUN 2
SERVICE ORDER #: 9197780 | 9421 XC3
PROGRAM VERSION: 5.0 | 5.0
LOGGED INTERVAL: START | STOP | START | STOP

RUN 1 DESCRIPTION | RUN 2

EQUIPMENT

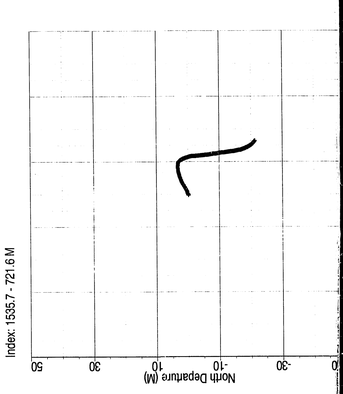
SURFACE EQUIPMENT
GSLM1* 1984
NCS*B
NCS-WB
WTM*DTR-A

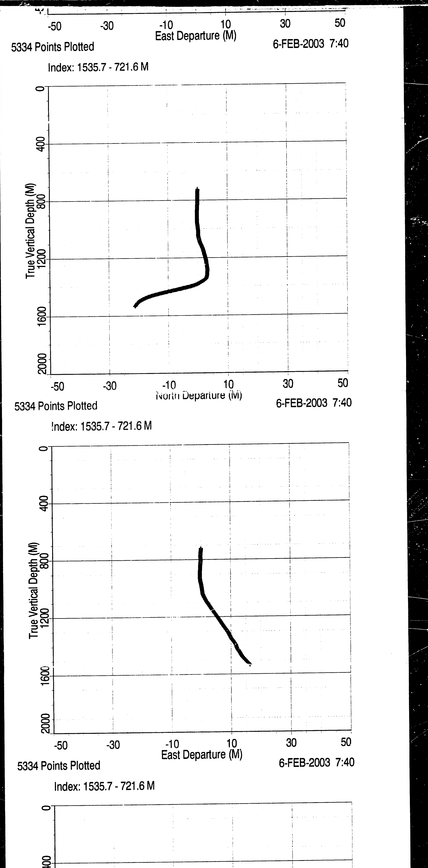
DOWNHOLE EQUIPMENT

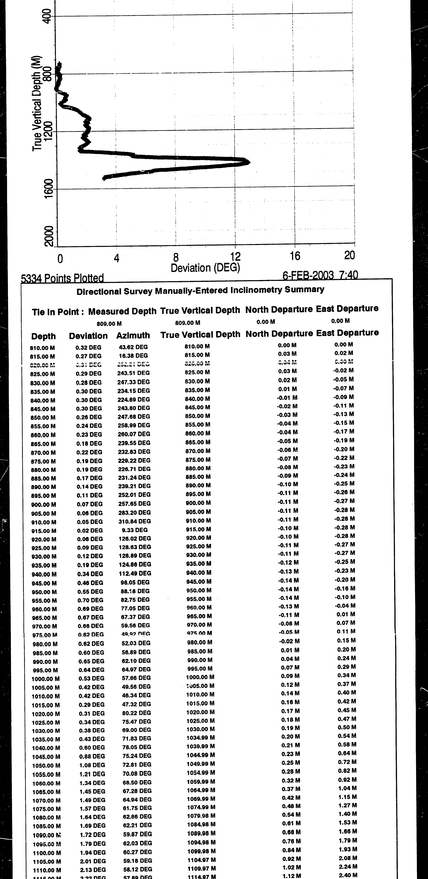
LEH-QT LEH-C			27.42		
DSP BRT-B	SP-SPARC		23 m	26.53	
DTC-H DTCC-A DTCH-A	CTEM TCM-B TCDSR-D		17.11 16.48	17.39 16.48	
DSLT-FTB DSLT-HTB ECS-A ECS-B		LSN SSN LSR LSR SSR	10.84 10.35 11.53 11.23		
AH-NONAMAG AH-NONAMAG	DSLI_Aux		10.19	10.19	
GPIT-C GPIT-CB				6.97	
HLTB-FTB HLTB-HTB	HDNS-HTEM Gamma Ray		7.75 7.62	7.75	
HDNS-B 1877 HDNS-B 2516 NDNS-B 2516 HDNS-HTZ HDNS-HTZ HDNS-A-B HDNS-A-B	Neutron F Neutron N		5.74 5.59		
HDNS-A-B	HDNS-sens		4.88	38 MM Sandstone	
HALS-B			2.79		
SRTY-HAAS HTEN-HAAS ACCE-A				38 MM Standoff	

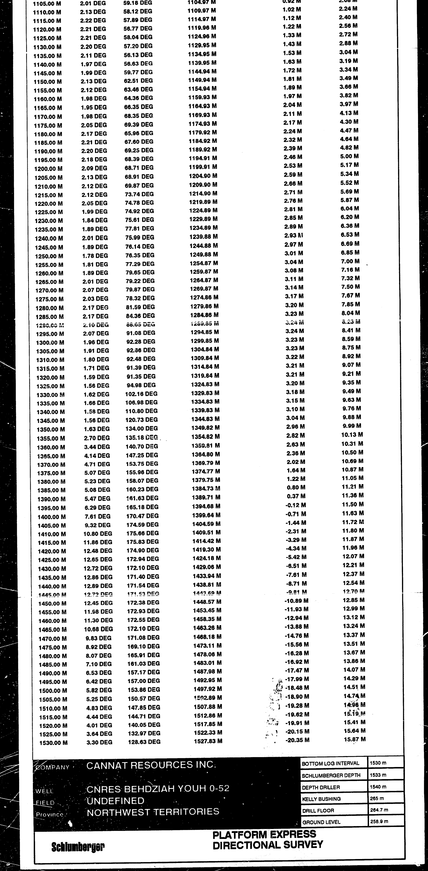
TOOL ZERO: 0.00

MAXIMUM STRING DIAMETER 168 MM
MEASURE POINT IS 0.00 m ABOVE ZERO
MEASUREMENTS IN METERS









Directional Survey Manually-Entered Inclinometry Summary

Tie in Point : Measured Depth 809.00 M | **True Vertical Depth** 809.00 M | **North Departure** 0.00 M | **East Departure** 0.00 M

Depth	Deviation	Azimuth	True Vertical Depth	North Departure	East Departure
810.00 M	0.32 DEG	43.62 DEG	810.00 M	0.00 M	0.00 M
815.00 M	0.37 DEG	16.38 DEG	815.00 M	0.03 M	0.02 M
820.00 M	0.31 DEG	352.21 DEG	820.00 M	0.04 M	0.00 M
825.00 M	0.29 DEG	243.51 DEG	825.00 M	0.03 M	-0.02 M
830.00 M	0.28 DEG	247.33 DEG	830.00 M	0.02 M	-0.05 M
835.00 M	0.30 DEG	234.15 DEG	835.00 M	0.01 M	-0.07 M
840.00 M	0.30 DEG	224.89 DEG	840.00 M	-0.01 M	-0.09 M
845.00 M	0.30 DEG	243.90 DEG	845.00 M	-0.02 M	-0.11 M
850.00 M	0.26 DEG	247.66 DEG	850.00 M	-0.03 M	-0.13 M
855.00 M	0.24 DEG	258.99 DEG	855.00 M	-0.04 M	-0.15 M
860.00 M	0.23 DEG	260.07 DEG	860.00 M	-0.04 M	-0.17 M
865.00 M	0.18 DEG	239.55 DEG	865.00 M	-0.05 M	-0.19 M
870.00 M	0.22 DEG	232.83 DEG	870.00 M	-0.06 M	-0.20 M
875.00 M	0.19 DEG	229.22 DEG	875.00 M	-0.07 M	-0.22 M
880.00 M	0.19 DEG	236.71 DEG	880.00 M	-0.08 M	-0.23 M
885.00 M	0.17 DEG	231.24 DEG	885.00 M	-0.09 M	-0.24 M
890.00 M	0.14 DEG	239.21 DEG	890.00 M	-0.10 M	-0.26 M
895.00 M	0.11 DEG	252.01 DEG	895.00 M	-0.11 M	-0.26 M
900.00 M	0.07 DEG	257.65 DEG	900.00 M	-0.11 M	-0.27 M
905.00 M	0.06 DEG	283.20 DEG	905.00 M	-0.11 M	-0.28 M
910.00 M	0.05 DEG	316.84 DEG	910.00 M	-0.11 M	-0.28 M
915.00 M	0.02 DEG	9.33 DEG	915.00 M	-0.10 M	-0.28 M
920.00 M	0.06 DEG	126.92 DEG	920.00 M	-0.10 M	-0.28 M
925.00 M	0.09 DEG	128.83 DEG	925.00 M	-0.11 M	-0.27 M
930.00 M	0.12 DEG	128.89 DEG	930.00 M	-0.11 M	-0.27 M
935.00 M	0.18 DEG	124.68 DEG	935.00 M	-0.12 M	-0.25 M
940.00 M	0.34 DEG	112.49 DEG	940.00 M	-0.13 M	-0.23 M
945.00 M	0.46 DEG	98.05 DEG	945.00 M	-0.14 M	-0.20 M
950.00 M	0.55 DEG	88.16 DEG	950.00 M	-0.14 M	-0.16 M
955.00 M	0.70 DEG	82.75 DEG	955.00 M	-0.14 M	-0.10 M
960.00 M	0.69 DEG	77.55 DEG	960.00 M	-0.13 M	-0.04 M
965.00 M	0.67 DEG	67.37 DEG	965.00 M	-0.11 M	0.01 M
970.00 M	0.66 DEG	59.58 DEG	970.00 M	-0.08 M	0.07 M
975.00 M	0.62 DEG	49.40 DEG	975.00 M	-0.05 M	0.11 M
980.00 M	0.62 DEG	52.03 DEG	980.00 M	-0.02 M	0.15 M
985.00 M	0.60 DEG	56.89 DEG	985.00 M	0.01 M	0.20 M
990.00 M	0.65 DEG	62.19 DEG	990.00 M	0.04 M	0.24 M
995.00 M	0.64 DEG	64.97 DEG	995.00 M	0.07 M	0.29 M
1000.00 M	0.53 DEG	57.86 DEG	1000.00 M	0.09 M	0.34 M
1005.00 M	0.42 DEG	49.56 DEG	1005.00 M	0.12 M	0.37 M
1010.00 M	0.42 DEG	46.34 DEG	1010.00 M	0.14 M	0.40 M
1015.00 M	0.29 DEG	47.32 DEG	1015.00 M	0.16 M	0.42 M
1020.00 M	0.31 DEG	80.22 DEG	1020.00 M	0.17 M	0.45 M
1025.00 M	0.34 DEG	75.47 DEG	1025.00 M	0.18 M	0.47 M
1030.00 M	0.38 DEG	69.00 DEG	1030.00 M	0.19 M	0.50 M
1035.00 M	0.43 DEG	71.83 DEG	1034.99 M	0.20 M	0.54 M
1040.00 M	0.60 DEG	78.00 DEG	1039.99 M	0.21 M	0.58 M
1045.00 M	0.88 DEG	75.24 DEG	1044.99 M	0.23 M	0.64 M
1050.00 M	1.08 DEG	72.81 DEG	1049.99 M	0.25 M	0.72 M
1055.00 M	1.21 DEG	70.08 DEG	1054.98 M	0.28 M	0.82 M
1060.00 M	1.34 DEG	68.50 DEG	1059.99 M	0.32 M	0.92 M
1065.00 M	1.45 DEG	67.28 DEG	1064.98 M	0.37 M	1.04 M
1070.00 M	1.49 DEG	64.94 DEG	1069.99 M	0.42 M	1.16 M
1075.00 M	1.57 DEG	61.75 DEG	1074.99 M	0.48 M	1.27 M
1080.00 M	1.66 DEG	62.86 DEG	1079.98 M	0.54 M	1.40 M
1085.00 M	1.69 DEG	62.21 DEG	1084.98 M	0.61 M	1.53 M
1090.00 M	1.72 DEG	59.87 DEG	1089.98 M	0.68 M	1.66 M
1095.00 M	1.79 DEG	62.03 DEG	1094.98 M	0.76 M	1.79 M
1100.00 M	1.94 DEG	60.27 DEG	1099.98 M	0.84 M	1.93 M
1105.00 M	2.01 DEG	59.16 DEG	1104.97 M	0.92 M	2.08 M
1110.00 M	2.12 DEG	58.12 DEG	1109.97 M	1.02 M	2.24 M
1115.00 M	2.22 DEG	57.89 DEG	1114.97 M	1.12 M	2.40 M
1120.00 M	2.21 DEG	56.77 DEG	1119.96 M	1.32 M	2.56 M
1125.00 M	2.21 DEG	58.04 DEG	1124.96 M	1.33 M	2.72 M
1130.00 M	2.20 DEG	57.20 DEG	1129.95 M	1.43 M	2.88 M
1135.00 M	2.11 DEG	56.13 DEG	1134.95 M	1.53 M	3.04 M
1140.00 M	1.97 DEG	56.63 DEG	1139.95 M	1.63 M	3.19 M
1145.00 M	1.89 DEG	57.21 DEG	1144.94 M	1.72 M	3.34 M
1150.00 M	2.13 DEG	62.51 DEG	1149.94 M	1.81 M	3.49 M
1155.00 M	2.12 DEG	63.46 DEG	1154.94 M	1.89 M	3.66 M
1160.00 M	1.98 DEG	64.34 DEG	1159.93 M	1.97 M	3.82 M
1165.00 M	1.95 DEG	66.35 DEG	1164.93 M	2.04 M	3.97 M
1170.00 M	1.98 DEG	68.35 DEG	1169.93 M	2.11 M	4.13 M
1175.00 M	2.05 DEG	69.39 DEG	1174.93 M	2.17 M	4.30 M
1180.00 M	2.17 DEG	65.98 DEG	1179.92 M	2.24 M	4.47 M
1185.00 M	2.21 DEG	67.60 DEG	1184.92 M	2.32 M	4.64 M
1190.00 M	2.20 DEG	69.25 DEG	1189.92 M	2.39 M	4.82 M
1195.00 M	2.18 DEG	68.39 DEG	1194.91 M	2.46 M	5.00 M
1200.00 M	2.09 DEG	68.71 DEG	1199.91 M	2.53 M	5.17 M
1205.00 M	2.13 DEG	68.91 DEG	1204.90 M	2.59 M	5.34 M
1210.00 M	2.12 DEG	69.87 DEG	1209.90 M	2.66 M	5.52 M
1215.00 M	2.12 DEG	73.74 DEG	1214.90 M	2.71 M	5.69 M
1220.00 M	2.05 DEG	74.79 DEG	1219.89 M	2.76 M	5.87 M
1225.00 M	1.99 DEG	74.92 DEG	1224.89 M	2.81 M	6.04 M
1230.00 M	1.84 DEG	75.61 DEG	1229.89 M	2.85 M	6.20 M
1235.00 M	1.89 DEG	77.81 DEG	1234.89 M	2.89 M	6.36 M
1240.00 M	2.01 DEG	75.99 DEG	1239.88 M	2.93 M	6.53 M
1245.00 M	1.89 DEG	76.14 DEG	1244.88 M	2.97 M	6.69 M
1250.00 M	1.78 DEG	76.35 DEG	1249.88 M	3.01 M	6.85 M
1255.00 M	1.81 DEG	77.29 DEG	1254.87 M	3.04 M	7.00 M
1260.00 M	1.89 DEG	79.65 DEG	1259.87 M	3.08 M	7.16 M
1265.00 M	2.01 DEG	79.22 DEG	1264.87 M	3.11 M	7.32 M
1270.00 M	2.07 DEG	79.87 DEG	1269.87 M	3.14 M	7.50 M
1275.00 M	2.03 DEG	78.32 DEG	1274.86 M	3.17 M	7.67 M
1280.00 M	2.17 DEG	81.59 DEG	1279.86 M	3.20 M	7.85 M
1285.00 M	2.17 DEG	84.36 DEG	1284.86 M	3.23 M	8.04 M
1290.00 M	2.10 DEG	86.66 DEG	1289.86 M	3.24 M	8.23 M
1295.00 M	2.07 DEG	91.08 DEG	1294.85 M	3.24 M	8.41 M
1300.00 M	1.96 DEG	92.28 DEG	1299.85 M	3.23 M	8.59 M
1305.00 M	1.91 DEG	92.98 DEG	1304.84 M	3.23 M	8.75 M
1310.00 M	1.80 DEG	92.45 DEG	1309.84 M	3.22 M	8.92 M
1315.00 M	1.71 DEG	91.39 DEG	1314.84 M	3.21 M	9.07 M
1320.00 M	1.59 DEG	91.36 DEG	1319.84 M	3.21 M	9.21 M
1325.00 M	1.56 DEG	94.98 DEG	1324.83 M	3.20 M	9.35 M
1330.00 M	1.62 DEG	102.16 DEG	1329.83 M	3.18 M	9.49 M
1335.00 M	1.66 DEG	106.98 DEG	1334.83 M	3.15 M	9.63 M
1340.00 M	1.58 DEG	110.80 DEG	1339.83 M	3.10 M	9.76 M
1345.00 M	1.58 DEG	120.73 DEG	1344.83 M	3.04 M	9.88 M
1350.00 M	1.63 DEG	134.00 DEG	1349.82 M	2.96 M	9.99 M
1355.00 M	2.70 DEG	135.18 DEG	1354.82 M	2.82 M	10.13 M
1360.00 M	3.44 DEG	140.79 DEG	1359.81 M	2.63 M	10.31 M
1365.00 M	4.14 DEG	147.25 DEG	1364.80 M	2.36 M	10.50 M
1370.00 M	4.71 DEG	153.75 DEG	1369.78 M	2.02 M	10.69 M
1375.00 M	5.07 DEG	155.96 DEG	1374.77 M	1.64 M	10.87 M
1380.00 M	5.23 DEG	158.07 DEG	1379.75 M	1.22 M	11.05 M
1385.00 M	5.08 DEG	160.23 DEG	1384.73 M	0.80 M	11.21 M
1390.00 M	5.47 DEG	161.63 DEG	1389.71 M	0.37 M	11.38 M
1395.00 M	6.29 DEG	165.18 DEG	1394.68 M	-0.12 M	11.55 M
1400.00 M	7.61 DEG	170.47 DEG	1399.64 M	-0.71 M	11.63 M
1405.00 M	9.32 DEG	174.59 DEG	1404.59 M	-1.44 M	11.72 M
1410.00 M	10.80 DEG	175.68 DEG	1409.51 M	-2.31 M	11.80 M
1415.00 M	11.88 DEG	175.83 DEG	1414.42 M	-3.29 M	11.87 M
1420.00 M	12.48 DEG	174.90 DEG	1419.30 M	-4.34 M	11.98 M
1425.00 M	12.65 DEG	172.94 DEG	1424.18 M	-5.42 M	12.07 M
1430.00 M	12.72 DEG	172.10 DEG	1429.06 M	-6.51 M	12.21 M
1435.00 M	12.88 DEG	171.40 DEG	1433.94 M	-7.61 M	12.37 M
1440.00 M	12.99 DEG	171.54 DEG	1438.81 M	-8.71 M	12.54 M
1445.00 M	13.10 DEG	171.53 DEG	1443.69 M	-9.81 M	12.70 M
1450.00 M	12.46 DEG	172.38 DEG	1448.57 M	-10.89 M	12.85 M
1455.00 M	11.58 DEG	172.93 DEG	1453.45 M	-11.93 M	12.99 M
1460.00 M	11.30 DEG	172.55 DEG	1458.35 M	-12.94 M	13.12 M
1465.00 M	10.88 DEG	172.19 DEG	1463.26 M	-13.88 M	13.24 M
1470.00 M	9.83 DEG	171.08 DEG	1468.18 M	-14.76 M	13.37 M
1475.00 M	8.92 DEG	169.10 DEG	1473.11 M	-15.56 M	13.51 M
1480.00 M	8.07 DEG	165.91 DEG	1478.08 M	-16.28 M	13.67 M
1485.00 M	7.19 DEG	161.03 DEG	1483.01 M	-16.92 M	13.85 M
1490.00 M	6.53 DEG	157.17 DEG	1487.98 M	-17.47 M	14.07 M
1495.00 M	6.42 DEG	157.00 DEG	1492.95 M	-17.99 M	14.29 M
1500.00 M	5.82 DEG	153.88 DEG	1497.92 M	-18.48 M	14.51 M
1505.00 M	5.28 DEG	150.57 DEG	1502.89 M	-18.90 M	14.74 M
1510.00 M	4.83 DEG	147.85 DEG	1507.88 M	-19.28 M	14.96 M
1515.00 M	4.40 DEG	144.71 DEG	1512.88 M	-19.62 M	15.16 M
1520.00 M	4.01 DEG	140.05 DEG	1517.85 M	-19.91 M	15.41 M
1525.00 M	3.64 DEG	132.97 DEG	1522.33 M	-20.15 M	15.64 M
1530.00 M	3.30 DEG	128.63 DEG	1527.83 M	-20.35 M	15.87 M

COMPANY	CANNAT RESOURCES INC.
WELL	CNRES BEHDZIAH YOUH 0-52
FIELD	UNDEFINED
Province	NORTHWEST TERRITORIES

BOTTOM LOG INTERVAL	1530 m
SCHLUMBERGER DEPTH	1533 m
DEPTH DRILLER	1540 m
KELLY BUSHING	265 m
DRILL FLOOR	264.7 m
GROUND LEVEL	258.9 m

Schlumberger

PLATFORM EXPRESS
DIRECTIONAL SURVEY

MISCELLANEOUS

CANNAT RESOURCES INC.
CNRES BEHDZIAH YOUH O-52
UNDEFINED
FRANKLIN, NORTHWEST TERRITORIES

Schlumberger

CEMENT VOLUME LOG

PROVINCE:NORTHWEST TERRITORIES
Field: UNDEFINED
Location: LATITUDE: 66 DEG 51'
Well: CNRES BEHDZIAH YOUH O-52
Company: CANNAT RESOURCES INC.

LOCATION
STRUCTURE: 0 DEG 0'
SURFACE: NWD: 30000-24-07.00-135300
DRILLING MEASURED FROM: KELLY BUSHING
ELEVATION: KB: 269.8 m DF: 264.7 m GL: 238.9 m
LATITUDE: 66 DEG 51' N
LONGITUDE: 123 DEG 38' W
Other Services: CBL-VDL-GR-CCL
Permanent Datum: KELLY BUSHING
Log Measured From: KB 5.1 m Above Perm. Datum

Logging Date	20-JAN-2003
Run Number	ONE
Depth Driller	809.0 m
Schlumberger Depth	809.0 m
Bottom Log Interval	809.0 m
Top Log Interval	193.0 m
Casing Driller @ Depth	193.0 m @
Casing Schlumberger	193.0 m @
Bit Size	311.1 MM
MUD Type	FRESH WATER
Density	1000 Kg/m3
PH	7
Viscosity	295
Fluid Loss	
Source of Sample	
Rm @ Measured Temperature	NOT AVAILABLE
Rmf @ Measured Temperature	
Rmc @ Measured Temperature	
Source Rmf / Rmc	
Rm @ BHT	
Time Since Circulation	20 HRS
Time Since Circulation	20 HRS
Maximum Recorded Temperatures	15 DEGC
Equipment Number	0913
Location	KOMAKUK BEACH
Recorded By	KOMAKUK BEACH
Witnessed By	NANCY SINCOTT

Logging Date	
Run Number	
Depth Driller	
Schlumberger Depth	
Bottom Log Interval	
Top Log Interval	
Casing Driller @ Depth	
Casing Schlumberger	
Bit Size	
MUD Type	
Density	
PH	
Viscosity	
Fluid Loss	
Source of Sample	
Rm @ Measured Temperature	
Rmf @ Measured Temperature	
Rmc @ Measured Temperature	
Source Rmf / Rmc	
Rm @ BHT	
Time Since Circulation	
Time Since Circulation	
Maximum Recorded Temperatures	
Equipment Number	
Location	
Recorded By	
Witnessed By	

Run 1 | Run 2 | Run 3 | Run 4

DEPTH SUMMARY LISTING

Date Created: 20-JAN-2003 1:03:22

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	CSN-B	Type:	CMTD-B/A	Type:	7-46P
Serial Number:	3770	Serial Number:	1083	Serial Number:	1009
Calibration Date:	27-NOV-2001	Calibration Date:	10-JAN-2002	Length:	3413.76 M
Calibrator Serial Number:	4	Calibrator Serial Number:	4	Conveyance Method:	Wireline
Calibration Cable Type:	7-46P	Calibration Gain:	0.93	Rig Type:	LAND
Wheel Correction 1:	-7	Calibration Offset:	244.00		
Wheel Correction 2:	-7				

Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	62.50 M
Rig Up Length At Bottom:	62.50 M
Rig Up Length Correction:	0.00 M
Stretch Correction:	0.20 M
Tool Zero Check At Surface	0.00 M

Depth Control Remarks

1. CALIBREATED IDW WHEELS USED AS PRIMARY DEPTH CONTROL
2. TRUCK WAS SPOTTED ON LOCATION IN FALL - IDW AND CMTD CALS OUT OF DATE
3.
4.
5.
6.

DISCLAIMER
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OTHER SERVICES1	OTHER SERVICES2
OS1: PEX-AIT-GPIT-BHC	OS1:
OS2: HALS	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
AIT RAN ECCENTERED USING 2.50 MM STANDOFFS	
AIT RAN IN COMPLETE STANDOFF MODE WITH 4 FOOT VERTICAL RESOLUTION	
CNL RAN ECCENTERED USING 90 DEGREE OFFSET BOWSPRINGS	
BHC RAN CENTERED USING TWO ICM02 CENTRALIZERS	
CVL COMPUTED USING RILT CALIPER WITH ITCO = 244.5 MM	
MUD SYSTEM WAS FRESH WATER - NO FILTRATE OR MUD CAKE AVAILABLE	
SONIC WILL BE RUN AS A SECOND RUN - UNABLE TO CENTRALIZE TOOL	
FORMATION RESISTIVITY OUT OF AIT RANGE FOR MOST OF WELL	
HALS TO BE RUN WITH SONIC ON SECOND RUN	

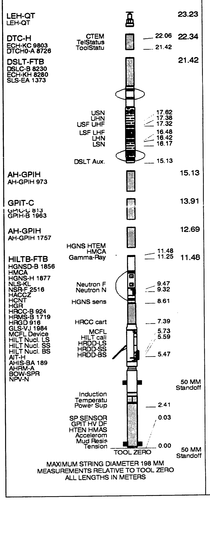
PRINTS: 2 FIELD 7 FINAL
OPERATORS: PETER ROSS / KALVIN ELIAS
RIG: ANTA / SAHTU 51
MAX DEVIATION: 1 DEGREE

RUN 1			RUN 2		
SERVICE ORDER #:		9153760	SERVICE ORDER #:		
PROGRAM VERSION:		1CO-306	PROGRAM VERSION:		
FLUID LEVEL			FLUID LEVEL		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

RUN 1	RUN 2
SURFACE EQUIPMENT WITM (DTS)-A QSR-UV HOT-B QSG-AB NCS-VB	

DOWNHOLE EQUIPMENT



MAXIMUM STRING DIAMETER 198 MM
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN METERS

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_012LUP	FN:21	PRODUCER	20-Jan-2003 00:31	810.2 M	144.0 M
CUST	AIT_TLD_MCFL_CNL_012LUP	FN:22	PRODUCER	20-Jan-2003 00:31	810.2 M	144.0 M
BACKUP	AIT_TLD_MCFL_CNL_012LUP	FN:23	PRODUCER	20-Jan-2003 00:31	810.2 M	144.0 M

Integrated Hole/Cement Volume Summary

Hole Volume = 55.33 M3
Cement Volume = 26.41 M3 (assuming 244.50 MM casing O.D.)
Computed from 809.9 M to 193.1 M using data channel(s) HCAL

OP System Version: 10C0-306

		MCM	
HILTB-FTB	OP10-KF1	GPIT-C	10C0-306
DSLT-FTB	OP10-KP1	DTC-H	10C0-306

PIP SUMMARY
- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

Formation Between LHTZ and HCAL_1	Formation Between HCAL_2 and RHT3
Washout From HCAL_1 to BS2	Washout From BS3 to HCAL_2

Tight Spot From BS2 to HCAL_1	Tight Spot From HCAL_2 to BS3
Annulus From BS2 to FCD2	Annulus From FCD3 to BS3
Future Casing	

Tension (TENS) 20000 (N) 0

PRIMARY CALIPER (HCAL1) (MM) 250 900

Gamma Ray (GR) (GAPI) 0 150

Bit Size (BS) (MM) 250 900

PRIMARY CALIPER (HCAL2) (MM) 250 900

FCD2 (FCD) (MM) 900 600

Bit Size (BS) (MM) 600 900

PRIMARY CALIPER (HCAL1) (MM) 100 500

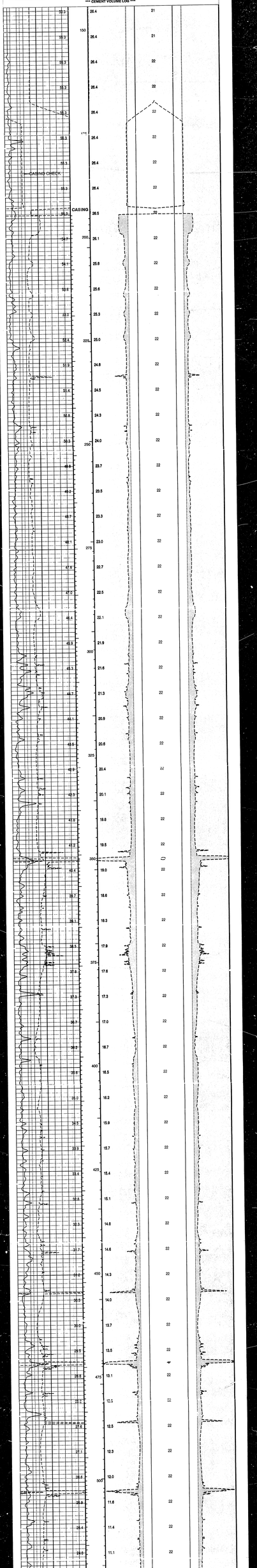
FCD3 (FCD) (MM) 100 600

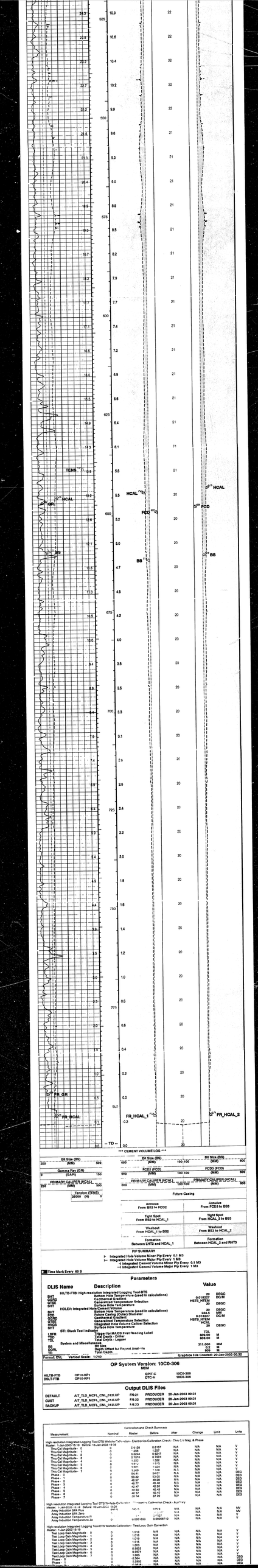
Bit Size (BS) (MM) 100 500

*** CEMENT VOLUME LOG ***

CASING CHECK

CASING





PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Caosed Volume Minor Pip Every 0.1 M3
- Integrated Caosed Volume Major Pip Every 1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	HLTB-FTB: High resolution Integrated Logging Tool-DTB		
BHT	Borehole Temperature (used in calculations)	20	DEGC
GTEM	Geothermal Gradient	0.018227	DC/M
GTSE	Geothermal Temperature Selection	HSTB_HTEM	
BHT	Surface Hole Temperature	HCAL	DEGC
	HOLEV: Integrated Hole Volume Caliber		
BHT	Borehole Temperature (used in calculations)	20	DEGC
FCD	Future Casing (Outer) Diameter	244.5	MM
GDFD	Geothermal Gradient	0.018227	DC/M
GTSE	Geothermal Temperature Selection	HSTB_HTEM	
HVSE	Integrated Hole Volume Caliber Selection	HCAL	
BHT	Surface Hole Temperature	20	DEGC
	STI: Stuck Tool Indicator		
LBFR	Trigger for MAXIS First Reading Label	TDL	
TDD	Total Depth - Driller	800.00	M
TDL	Total Depth - Logger	803.00	M
	System and Miscellaneous		
BS	Bit Size	311.000	MM
DFD	Depth Offset for Repeat Analysis	0.0	M
TD	Total Depth	803	M

Format: CYL Vertical Scale: 1:240 — Graphics File Created: 20-Jan-2003 00:32

OP System Version: 10C0-306

MCM

HLTB-FTB	OP10-XP1	GPIT-C	10C0-306
DSLT-FTB	OP10-XP1	GTC-H	10C0-306

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_912LUP	FN:21	PRODUCER	20-Jan-2003 00:31
CUST	AIT_TLD_MCFL_CNL_912LUP	FN:22	PRODUCER	20-Jan-2003 00:31
BACKUP	AIT_TLD_MCFL_CNL_912LUP	FN:23	PRODUCER	20-Jan-2003 00:31

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
High resolution Integrated Logging Tool-DTB Website Calibration - Electronics Calibration Check - Thru Cal Mag. & Phase							
Master Calibration: 10-Sep-2002 13:28 Before: 16-Jan-2003 13:28 After: 16-Jan-2003 13:28							
Thru Cal Magnitude - 1	0	0.4109	0.4137	N/A	N/A	N/A	V
Thru Cal Magnitude - 2	0	.206	1.257	N/A	N/A	N/A	V
Thru Cal Magnitude - 3	0	0.5044	0.5084	N/A	N/A	N/A	V
Thru Cal Magnitude - 4	0	1.2991	1.3284	N/A	N/A	N/A	V
Thru Cal Magnitude - 5	0	1.307	1.302	N/A	N/A	N/A	V
Thru Cal Magnitude - 6	0	1.912	1.915	N/A	N/A	N/A	V
Thru Cal Magnitude - 7	0	1.901	1.924	N/A	N/A	N/A	V
Thru Cal Magnitude - 8	0	1.911	1.924	N/A	N/A	N/A	V
Phase - 1	0	14.41	14.07	N/A	N/A	N/A	DEG
Phase - 2	0	53.20	53.00	N/A	N/A	N/A	DEG
Phase - 3	0	48.57	48.28	N/A	N/A	N/A	DEG
Phase - 4	0	48.77	48.48	N/A	N/A	N/A	DEG
Phase - 5	0	40.60	40.40	N/A	N/A	N/A	DEG
Phase - 6	0	40.57	40.40	N/A	N/A	N/A	DEG
Phase - 7	0	28.54	27.30	N/A	N/A	N/A	DEG
High resolution Integrated Logging Tool-DTB Website Calibration - Electronics Calibration Check - Auxiliary							
Master: 10-Sep-2002 13:28 Before: 16-Jan-2003 13:28 After: 16-Jan-2003 13:28							
Array Induction SFA Plus	0	0.0015	0.0015	N/A	N/A	N/A	MV
Array Induction SFA Zero	0	0.0027	0.0027	N/A	N/A	N/A	MV
Array Induction Temperature Pr	0	0.000153	0.000153	N/A	N/A	N/A	Y
Array Induction Temperature Zx	0	0.000153	0.000067	N/A	N/A	N/A	Y
High resolution Integrated Logging Tool-DTB Website Calibration - Test Loop Gain Correction							
Master: 10-Sep-2002 13:28 Before: 16-Jan-2003 13:28 After: 16-Jan-2003 13:28							
Test Loop Gain Magnitude - 0	0	1.013	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 1	0	1.018	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 2	0	1.015	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 3	0	1.015	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 4	0	1.003	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 5	0	0.9953	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 6	0	0.9974	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 7	0	0.984	N/A	N/A	N/A	N/A	V
Phase - 1	0	2.564	N/A	N/A	N/A	N/A	DEG
Phase - 2	0	2.0992	N/A	N/A	N/A	N/A	DEG
Phase - 3	0	2.0992	N/A	N/A	N/A	N/A	DEG
Phase - 4	0	2.0992	N/A	N/A	N/A	N/A	DEG
Phase - 5	0	2.0992	N/A	N/A	N/A	N/A	DEG
Phase - 6	0	2.0992	N/A	N/A	N/A	N/A	DEG
Phase - 7	0	2.0992	N/A	N/A	N/A	N/A	DEG

Phase - 3	0	0.09587	N/A	N/A	N/A	N/A	DEG
Phase - 4	0	0.03403	N/A	N/A	N/A	N/A	DEG
Phase - 5	0	-0.0821	N/A	N/A	N/A	N/A	DEG
Phase - 6	0	0.3688	N/A	N/A	N/A	N/A	DEG
Phase - 7	0	-0.1723	N/A	N/A	N/A	N/A	DEG
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Sonde Error Correction							
Master: 1-Jan-2003 15:19							
R Sonde Error Correction - 0	-5.197	N/A	N/A	N/A	N/A		MM/M
R Sonde Error Correction - 1	178.4	N/A	N/A	N/A	N/A		MM/M
R Sonde Error Correction - 2	103.7	N/A	N/A	N/A	N/A		MM/M
R Sonde Error Correction - 3	64.44	N/A	N/A	N/A	N/A		MM/M
R Sonde Error Correction - 4	24.81	N/A	N/A	N/A	N/A		MM/M
R Sonde Error Correction - 5	14.18	N/A	N/A	N/A	N/A		MM/M
R Sonde Error Correction - 6	9.598	N/A	N/A	N/A	N/A		MM/M
R Sonde Error Correction - 7	-0.5064	N/A	N/A	N/A	N/A		MM/M
X Sonde Error Correction - 0	353.7	N/A	N/A	N/A	N/A		MM/M
X Sonde Error Correction - 1	-379.0	N/A	N/A	N/A	N/A		MM/M
X Sonde Error Correction - 2	-165.6	N/A	N/A	N/A	N/A		MM/M
X Sonde Error Correction - 3	-63.96	N/A	N/A	N/A	N/A		MM/M
X Sonde Error Correction - 4	1.251	N/A	N/A	N/A	N/A		MM/M
X Sonde Error Correction - 5	-4.939	N/A	N/A	N/A	N/A		MM/M
X Sonde Error Correction - 6	-4.702	N/A	N/A	N/A	N/A		MM/M
X Sonde Error Correction - 7	7.468	N/A	N/A	N/A	N/A		MM/M
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Mud Gain Correction							
Master: 1-Jan-2003 15:19							
Coarse - Mag, Real, Imag - 0	0	1.157	N/A	N/A	N/A	N/A	
Coarse - Mag, Real, Imag - 1	0	1.157	N/A	N/A	N/A	N/A	
Coarse - Mag, Real, Imag - 2	0	1.157	N/A	N/A	N/A	N/A	
Fine - Mag, Real, Imag - 0	0	1.148	N/A	N/A	N/A	N/A	
Fine - Mag, Real, Imag - 1	0	1.148	N/A	N/A	N/A	N/A	
Fine - Mag, Real, Imag - 2	0	1.148	N/A	N/A	N/A	N/A	
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Stab Measurement Summary							
Before: 16-Jan-2003 19:13							
BS Window Ratio	0.6795	N/A	0.6823	N/A	N/A	N/A	
BS Window Sum	9388	N/A	9406	N/A	N/A	N/A	CPS
SS Window Ratio	0.4916	N/A	0.4862	N/A	N/A	N/A	
SS Window Sum	10020	N/A	10020	N/A	N/A	N/A	CPS
LS Window Ratio	0.2974	N/A	0.3039	N/A	N/A	N/A	
LS Window Sum	1158	N/A	1155	N/A	N/A	N/A	CPS
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Photo-multiplier High Voltages Calibrations							
Before: 16-Jan-2003 19:13							
BS PM High Voltage (Command)	1670	N/A	1670	N/A	N/A		V
SS PM High Voltage (Command)	1813	N/A	1847	N/A	N/A		V
LS PM High Voltage (Command)	1678	N/A	1705	N/A	N/A		V
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Crystal Quality Resolutions Calibration							
Before: 16-Jan-2003 19:13							
BS Crystal Resolution	11.64	N/A	11.70	N/A	N/A		%
SS Crystal Resolution	10.21	N/A	10.62	N/A	N/A		%
LS Crystal Resolution	9.789	N/A	9.763	N/A	N/A		%
High resolution Integrated Logging Tool-DTS Wellsite Calibration - MCFL Calibration							
Before: 16-Jan-2003 19:14							
Raw B0 Resistivity	3675	N/A	3852	N/A	N/A		OHMM
Raw B1 Resistivity	3830	N/A	3821	N/A	N/A		OHMM
Raw B2 Resistivity	3830	N/A	3837	N/A	N/A		OHMM
High resolution Integrated Logging Tool-DTS Wellsite Calibration - HILT Caliper Calibration							
Before: 16-Jan-2003 19:11							
HILT Caliper Zero Measurement	203.2	N/A	197.8	N/A	N/A		MM
HILT Caliper Plus Measurement	304.8	N/A	304.1	N/A	N/A		MM
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Detector Calibration							
Before: 16-Jan-2003 19:08							
Gamma Ray Background	30.00	N/A	57.52	N/A	N/A	N/A	GAPI
Gamma Ray (Jig - Bkg)	171.7	N/A	171.7	N/A	N/A	15.61	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	N/A	15.00	GAPI
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Zero Measurement							
Master: 19-Dec-2002 10:44 Before: 16-Jan-2003 19:09							
CNTC Background	25.34	N/A	25.34	27.74	N/A	3.801	CPS
CFTC Background	27.65	N/A	27.65	30.51	N/A	4.148	CPS
High resolution Integrated Logging Tool-DTS Wellsite Calibration - Accelerometer Calibration							
Before: 19-Jan-2003 23:43							
Z-Axis Acceleration	9.810	N/A	9.833	N/A	N/A	N/A	M/S2
High resolution Integrated Logging Tool-DTS Master Calibration - Inversion results							
Master: 14-Jan-2003 17:01							
Rho Aluminum	2586	2601	--	--	--		K/M3
Rho Magnesium	1686	1695	--	--	--		K/M3
Pe Aluminum	2.570	2.581	--	--	--		
Pe Magnesium	2.650	2.630	--	--	--		
High resolution Integrated Logging Tool-DTS Master Calibration - Deviation Summary							
Master: 14-Jan-2003 17:01							
BS Average Deviation	0	0.2702	--	--	--		%
BS Max Deviation	0	1.263	--	--	--		%
SS Average Deviation	0	0.2225	--	--	--		%
SS Max Deviation	0	0.9580	--	--	--		%
LS Average Deviation	0	0.6927	--	--	--		%
LS Max Deviation	0	2.331	--	--	--		%
High resolution Integrated Logging Tool-DTS Master Calibration - Tank Measurement							
Master: 19-Dec-2002 10:44							
Thermal Near Corr. (Tank)	6031	5898	--	--	--		CPS
Thermal Far Corr. (Tank)	2793	2493	--	--	--		CPS
CNTC/CFTC (Tank)	2.159	2.365	--	--	--		
General Purpose Inclinometer Wellsite Calibration - CROUZET ACCELEROMETER PROM HAS BEEN READ CORRECTLY							
Before: 16-Jan-2003 21:16							
TEMPERATURE REFERENCE :	N/A	20	N/A	N/A	N/A		DEGC
YEAR OF CALIBRATION :	N/A	0	N/A	N/A	N/A		
MONTH OF CALIBRATION :	N/A	11	N/A	N/A	N/A		
SERIAL NUMBER :	N/A	748	N/A	N/A	N/A		
General Purpose Inclinometer Wellsite Calibration - CROUZET MAGNETOMETER PROM HAS BEEN READ CORRECTLY							
Before: 16-Jan-2003 21:16							
TEMPERATURE REFERENCE :	N/A	21	N/A	N/A	N/A		DEGC
YEAR OF CALIBRATION :	N/A	0	N/A	N/A	N/A		
MONTH OF CALIBRATION :	N/A	11	N/A	N/A	N/A		
SERIAL NUMBER :	N/A	437	N/A	N/A	N/A		

The GLS-VJ source activity is acceptable.

The HGNS Neutron Master Calibration was done with the following parameters:

NCT-B Water Temperature 16.5 DEGC
Thermal Housing Size 85.700 MM

High resolution Integrated Logging Tool-DTS / Equipment Identification

Primary Equipment:	
Array Induction Tool - H	AIT - H
Rm/SP Bottom Nose	AHRM - A
Array Induction Sonde	AHIS - BA 189
HILT High-Resolution Mechanical Sonde	HRMS - B 1719
HILT Rxo Gamma-ray Device	HRGD - 916
HILT Nuclear Back-Scatter Detector	HILT -
HILT Nuclear Short-Spacing Detector	HILT -
HILT Nuclear Long-Spacing Detector	HILT -
Auxiliary Equipment:	

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Electronics Calibration Check - Thru Cal Mag & Phase

Idx	Phase	Value	Thru Cal Magnitude V	Nominal	Value	Phase DEG	Nominal
0	Master	0.6128		0.6050	54.41		71.00
	Before	0.6137			54.07		
1	Master	1.256		1.270	53.32		70.00
	Before	1.257			53.22		
2	Master	0.6244		0.6230	49.57		66.00
	Before	0.6247			49.26		
3	Master	0.7083		0.7040	48.77		65.00
	Before	0.7094			48.46		
4	Master	1.322		1.337	42.47		59.00
	Before	1.322			42.26		
5	Master	1.912		1.955	40.60		57.00
	Before	1.915					
6	Master	1.921		1.955	40.57		57.00
	Before	1.924			40.40		
7	Master	1.369		1.415	36.94		53.00
	Before	1.376			37.20		
		60.00 % (Minimum)		140.0 % (Maximum)	Nom -60.00 (Minimum)		Nom + 60.00 (Maximum)

Master: 1-Jan-2003 15:19 Before: 16-Jan-2003 19:09

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Test Loop Gain Correction

Idx	Value	Test Loop Gain Magnitude V	Value	Phase DEG
0	1.013	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	-2.564	-3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)
1	1.018	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	0.2992	-3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)
2	1.019	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	-0.3819	-3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)
3	1.015	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	0.09587	-3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)
4	1.003	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	0.03403	-3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)
5	0.9853	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	-0.0821	-3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)
6	0.9974	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	0.3688	-3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)
7	1.005	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	-0.1723	-3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)

Master: 1-Jan-2003 15:19

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Sonde Error Correction

Idx	Value	R Sonde Error Correction MM/M	Value	X Sonde Error Correction MM/M
0	-5.197	-231.0 (Minimum) -56.00 (Nominal) 119.0 (Maximum)	353.7	-2250 (Minimum) 0 (Nominal) 2250 (Maximum)
1	178.4	114.0 (Minimum) 159.0 (Nominal) 204.0 (Maximum)	-379.0	-625.0 (Minimum) 0 (Nominal) 625.0 (Maximum)
2	103.7	66.00 (Minimum) 111.0 (Nominal) 156.0 (Maximum)	-165.6	-350.0 (Minimum) 0 (Nominal) 350.0 (Maximum)
3	64.44	39.00 (Minimum) 64.00 (Nominal) 89.00 (Maximum)	-63.96	-250.0 (Minimum) 0 (Nominal) 250.0 (Maximum)
4	24.81	15.00 (Minimum) 25.00 (Nominal) 35.00 (Maximum)	1.251	-63.00 (Minimum) 0 (Nominal) 63.00 (Maximum)
5	14.18	4.000 (Minimum) 14.00 (Nominal) 24.00 (Maximum)	-4.939	-50.00 (Minimum) 0 (Nominal) 50.00 (Maximum)
6	9.598	5.000 (Minimum) 10.00 (Nominal) 15.00 (Maximum)	-4.702	-30.00 (Minimum) 0 (Nominal) 30.00 (Maximum)
7	-0.5064	-5.000 (Minimum) 0 (Nominal) 5.000 (Maximum)	7.468	-30.00 (Minimum) 0 (Nominal) 30.00 (Maximum)

Master: 1-Jan-2003 15:19

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Mud Gain Correction

Idx	Value	Coarse - Mag, Real, Imag	Value	Fine - Mag, Real, Imag
0	1.157	0.8000 (Minimum) 1.000 (Nominal) 1.200 (Maximum)	1.148	0.8000 (Minimum) 1.000 (Nominal) 1.200 (Maximum)
1	1.157	0.8000 (Minimum) 1.000 (Nominal) 1.200 (Maximum)	1.148	0.8000 (Minimum) 1.000 (Nominal) 1.200 (Maximum)
2	1.157	0.8000 (Minimum) 1.000 (Nominal) 1.200 (Maximum)	1.148	0.8000 (Minimum) 1.000 (Nominal) 1.200 (Maximum)

Master: 1-Jan-2003 15:19

High resolution Integrated Logging Tool-DTS Wellsite Calibration
Stab Measurement Summary

Phase	BS Window Ratio	Value	Phase	SS Window Ratio	Value	Phase	LS Window Ratio	Value
Before	0.6455 (Minimum) 0.6795 (Nominal) 0.7135 (Maximum)	0.6823	Before	0.4670 (Minimum) 0.4916 (Nominal) 0.5162 (Maximum)	0.4862	Before	0.2825 (Minimum) 0.2974 (Nominal) 0.3122 (Maximum)	0.3039
Phase	BS Window Sum CPS	Value	Phase	SS Window Sum CPS	Value	Phase	LS Window Sum CPS	Value
Before	8916 (Minimum) 9386 (Nominal) 9857 (Maximum)	9406	Before	9515 (Minimum) 10020 (Nominal) 10520 (Maximum)	10020	Before	1101 (Minimum) 1158 (Nominal) 1216 (Maximum)	1155

Before: 16-Jan-2003 19:13

High resolution Integrated Logging Tool-DTS Master Calibration
Electronics Calibration Check - Thru Cal Mag & Phase

Idx	Phase	Value	Thru Cal Magnitude V	Nominal	Value	Phase DEG	Nominal
0	Master	0.6128		0.6050	54.41		71.00
1	Master	1.256		1.270	53.32		70.00
2	Master	0.6244		0.6230	49.57		66.00
3	Master	0.7083		0.7040	48.77		65.00
4	Master	1.322		1.337	42.47		59.00
5	Master	1.912		1.955	40.60		57.00
6	Master	1.921		1.955	40.57		57.00
7	Master	1.369		1.415	36.94		53.00
		60.00 % (Minimum)		140.0 % (Maximum)	Nom -60.00 (Minimum)		Nom + 60.00 (Maximum)

General Purpose Inclinometer / Equipment Identification

Primary Equipment:
GPIT Cartridge - C — GPIC - C 813
Auxiliary Equipment:
GPIT Housing — GPIH - B 1963

Company: CANNAT RESOURCES INC.
Well: CNRES BEHDZIAH YOUH O-52
Field: UNDEFINED
PROVINCE: NORTHWEST TERRITORIES

Schlumberger

CEMENT VOLUME LOG

COMPANY: CANNAT RESOURCES INC.

WELL: CNRES BEHDZIAH YOUH 0-52

FIELD: UNDEFINED

Province: NORTHWEST TERRITORIES

Schlumberger

PLATFORM EXPRESS
CEMENT VOLUME LOG

Province:	NORTHWEST TERRITORIES
Field:	UNDEFINED
Location:	LATITUDE: 66 DEG 51'
Well:	CNRES BEHDZIAH YOUH 0-52
Company:	CANNAT RESOURCES INC.

LOCATION
LATITUDE: 66 DEG 51' 0.000"
LONGITUDE: 126 DEG 0' 0.000"

Permanent Datum:	GROUND LEVEL	Elev.:	K.B. 295 m
Log Measured From:	KELLY BUSHING	6.1 m above Perm. Datum	D.F. 294.7 m
Drilling Measured From:	KELLY BUSHING		G.L. 289 m

API Serial No.	4-526-2003	Elev.:	K.B. 295 m
Permanent Datum:	GROUND LEVEL		D.F. 294.7 m
Log Measured From:	KELLY BUSHING	6.1 m above Perm. Datum	G.L. 289 m
Drilling Measured From:	KELLY BUSHING		

Logging Date	4-526-2003	MUD	
Run Number	TWO	Type Fluid in Hole	LIGNOSULFONATE
Depth-Driller	1533 m	Density	1.2 kg/m3
Schlumberger Depth	1533 m	Viscosity	50 s
Bottom Log Interval	1527 m	PH	10
Top Log Interval	809 m	Fluid Loss	10.5 cm3
Casing Driller Size @ Depth	244.500 mm @ 809 m	Source of Sample	SAU MUD
Casing Schlumberger	809 m	RM @ Measured Temperature	0.045 ohmm @ 21 degC
Bit Size	215.900 mm	RMF @ Measured Temperature	0.036 ohmm @ 21 degC
Type Fluid	LSND	RMC @ Measured Temperature	0.054 ohmm @ 21 degC
Density	1.2 kg/m3	Source RMF	PRESS
Viscosity	50 s	Source RMC	PRESS
PH	10	RM @ BHT	0.027 ohmm @ 21 degC
Fluid Loss	10.5 cm3	Time Circulation Stopped	16:30
Source of Sample	SAU MUD	Time Logger On Bottom	2:00
RM @ Measured Temperature	0.045 ohmm @ 21 degC	Maximum Recorded Temperatures	
RMF @ Measured Temperature	0.036 ohmm @ 21 degC	Equipment Number	8418
RMC @ Measured Temperature	0.054 ohmm @ 21 degC	Location	NORMAN WELLS
Source RMF	PRESS	Recorded By	DEVIN BEAN
Source RMC	PRESS	Witnessed By	CHRIS SKIBELENY
RM @ BHT	0.027 ohmm @ 21 degC		
Time Circulation Stopped	16:30		
Time Logger On Bottom	2:00		
Maximum Recorded Temperatures			
Equipment Number	8418		
Location	NORMAN WELLS		
Recorded By	DEVIN BEAN		
Witnessed By	CHRIS SKIBELENY		

	Run 1	Run 2	Run 3	Run 4
Logging Date				
Run Number				
Depth-Driller				
Schlumberger Depth				
Bottom Log Interval				
Top Log Interval				
Casing Driller Size @ Depth				
Casing Schlumberger				
Bit Size				
MUD				
Type Fluid in Hole				
Density				
Viscosity				
PH				
Fluid Loss				
Source of Sample				
RM @ Measured Temperature				
RMF @ Measured Temperature				
RMC @ Measured Temperature				
Source RMF				
Source RMC				
RM @ BHT				
Time Circulation Stopped				
Time Logger On Bottom				
Maximum Recorded Temperatures				
Equipment Number				
Location				
Recorded By				
Witnessed By				

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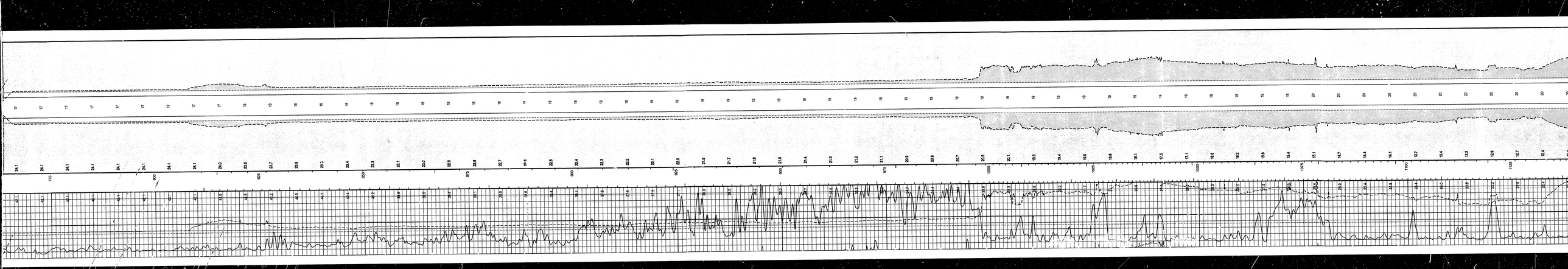

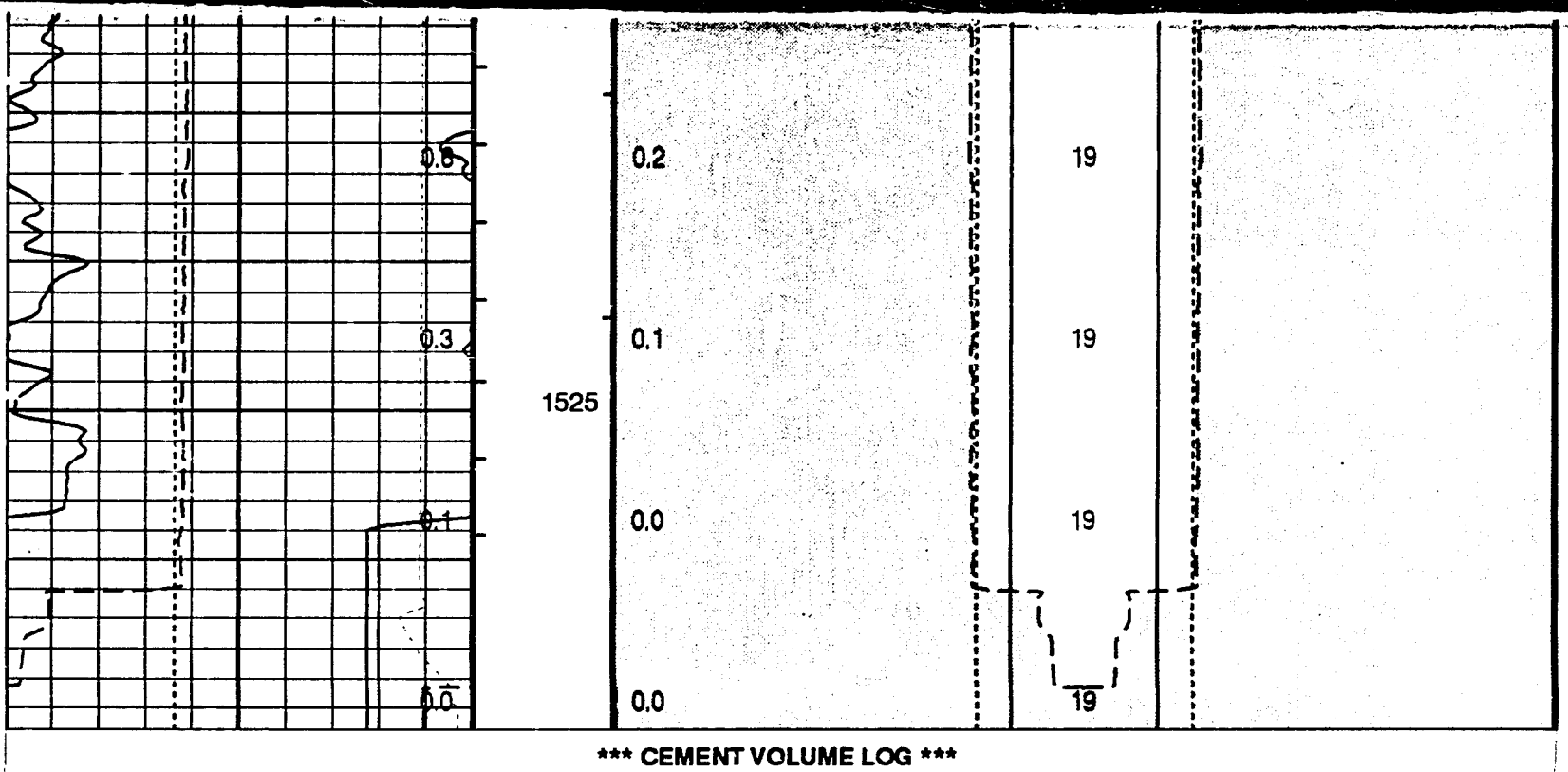

*** CEMENT VOLUME LOG ***

Bit Size (BS)		
125	(MM)	375

Gamma Ray (GR)		
0	(GAPI)	150

PRIMARY CALIPER (HCAL)		
125	(MM)	375

Tension (TENS)		
25000	(N)	0

Bit Size (BS)		
600	(MM)	100

FCD2 (FCD)		
600	(MM)	100

PRIMARY CALIPER (HCAL)		
600	(MM)	100

Bit Size (BS)		
100	(MM)	600

FCD3 (FCD)		
100	(MM)	600

PRIMARY CALIPER (HCAL)		
100	(MM)	600

Future Casing

Annulus From BS2 to FCD2	Annulus From FCD3 to BS3
Tight Spot From BS2 to HCAL_1	Tight Spot From HCAL_2 to BS3
Washout From HCAL_1 to BS2	Washout From BS3 to HCAL_2
Formation Between LHT2 and HCAL_1	Formation Between HCAL_2 and RHT3

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
BHT	Bottom Hole Temperature (used in calculations)	22	DEGC
BS	Bit Size	215.000	MM
DO	Depth Offset for Playback	0.0	M
FCD	Future Casing (Outer) Diameter	177.8	MM
GGRD	Geothermal Gradient	0.018227	DC/M
GTSE	Generalized Temperature Selection	HSTS_HTEM	
HVCS	Integrated Hole Volume Caliper Selection	HCAL	
PP	Playback Processing	RECOMPUTE	
SHT	Surface Hole Temperature	20	DEGC
SPVD	TVD of Starting Point	0	M
TD	Total Depth	1533	M
TIMD	Along-hole depth of Tie-in Point	0	M
TIVD	TVD of Tie-in Point	0	M

Format: CVL Vertical Scale: 1:240 Graphics File Created: 06-Feb-2003 05:34

OP System Version: 9C2-303

MCM

HILTB-FTB	OP92-KP2	GPIT-C	SRPC-2149-OBMT
DSLT-FTB	OP92-KP2	DTC-H	9C2-303
BSP	9C2-303		

Input DLIS Files

DEFAULT	SPLICE_HALS_TLD_006	FN:1	PRODUCER	06-Feb-2003 05:26	1535.7 M	690.8 M

Output DLIS Files

DEFAULT	HALS_TLD_MCFL_CNL_007PUP	FN:4	PRODUCER	06-Feb-2003 05:34

COMPANY	CANNAT RESOURCES INC.
WELL	CNRES BEHDZIAH YOUH 0-52
FIELD	UNDEFINED
Province	NORTHWEST TERRITORIES

BOTTOM LOG INTERVAL	1520 m
SCHLUMBERGER DEPTH	1533 m
DEPTH DRILLER	1540 m
KELLY BUSHING	265 m
DRILL FLOOR	264.7 m
GROUND LEVEL	258.9 m

Schlumberger

PLATFORM EXPRESS
CEMENT VOLUME LOG

COMPANY: CANNAT RESOURCES INC.

WELL: CNRES BEHDZIAH YOUH 0-52

FIELD: UNDEFINED

Province: NORTHWEST TERRITORIES

Province:	NORTHWEST TERRITORIES
Field:	UNDEFINED
Location:	LATITUDE: 66 DEG 51'
Well:	CNRES BEHDZIAH YOUH 0-52
Company:	CANNAT RESOURCES INC.

Schlumberger

COMPENSATED CEMENT BOND LOG

LOCATION		Elev.:	
LATITUDE: 66 DEG 51'		K.B.	265 m
LONGITUDE: 126 DEG 39'		G.L.	258.9 m
UWID: 300/O-52-67.00-126.300		D.F.	264.7 m
Permanent Datum:	GROUND LEVEL	Elev.:	258.9 m
Log Measured From:	KELLY BUSHING	6.1 m	above Perm. Datum
Drilling Measured From:	KELLY BUSHING		

API Serial No.	LATITUDE:	LONGITUDE:
1960	66 DEG 51' N	126 DEG 39' W

Logging Date	8-Feb-2003		
Run Number	ONE		
Depth Driller	1540 m		
Schlumberger Depth	1503 m		
Bottom Log Interval	1490 m		
Top Log Interval	1282 m		
Casing Fluid Type	FRESH WATER		
Salinity	190000 ppm		
Density	1000 kg/m3		
Fluid Level			
BIT/CASING/TUBING STRING			
Bit Size	215.000 mm		
From	258.9 m		
To	1540 m		
Casing/Tubing Size	177.800 mm		
Weight	38.7 kg/m		
Grade	L-80		
From	258.9 m		
To	1534 m		
Maximum Recorded Temperatures	70 degC		
Logger On Bottom / Time	8-Feb-2003	18:52	
Unit Number / Location	8416	NORMAN WELLS	
Recorded By	PETER ROOS		
Witnessed By	CRAIG SKUBLENY		

	Run 1	Run 2	Run 3	Run 4
PVT DATA				
Oil Density				
Water Salinity	190000 ppm			
Gas Gravity				
Bo				
Bw				
1/Bg				
Bubble Point Pressure				
Bubble Point Temperature				
Solution GOR				
Maximum Deviation				
CEMENTING DATA				
Primary/Squeeze	Primary			
Casing String No				
Lead Cement Type				
Volume				
Density				
Water Loss				
Additives				
Tail Cement Type				
Volume				
Density				
Water Loss				
Additives				
Expected Cement Top				

Logging Date			
Run Number			
Depth Driller			
Schlumberger Depth			
Bottom Log Interval			
Top Log Interval			
Casing Fluid Type			
Salinity			
Density			
Fluid Level			
BIT/CASING/TUBING STRING			
Bit Size			
From			
To			
Casing/Tubing Size			
Weight			
Grade			
From			
To			
Maximum Recorded Temperatures			
Logger On Bottom / Time			
Unit Number / Location			
Recorded By			
Witnessed By			

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OTHER SERVICES1
OS1: TCP
OS2:
OS3:
OS4:
OS5:

REMARKS: RUN NUMBER 1
CORRELATED TO SCHLUMBERGER COMPENSATED NEUTRON
LOG DATED 4-FEB-2003
SURFACE CASING 244.4 M, SET 609 MKB TO SURFACE
PRODUCTION CASING 177.8 MM, 38.9KG/M, L-80, LT&C
CASING RUN FROM SURFACE TO 1504 MKB
WELL CEMENTED WITH 26,600 KG CLASS G CEMENT WITH
ADDITIVES.

RIG AKITA/SAHTU 51
CREW: CARL BAKER/KALVIN ELIAS

RUN 1		
SERVICE ORDER #:	9193783	
PROGRAM VERSION:	9C2-303	
FLUID LEVEL:		
LOGGED INTERVAL	START	STOP

OTHER SERVICES2
OS1:
OS2:
OS3:
OS4:
OS5:

REMARKS: RUN NUMBER 2

RUN 2		
SERVICE ORDER #:		
PROGRAM VERSION:		
FLUID LEVEL:		
LOGGED INTERVAL	START	STOP

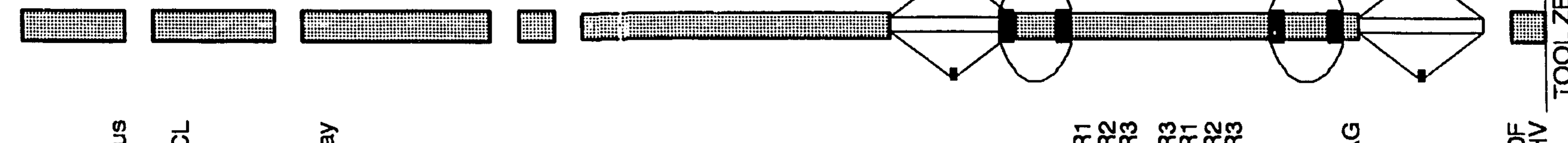
EQUIPMENT DESCRIPTION

RUN 1

SURFACE EQUIPMENT

WDM-AB
STM-C
GSR-U/Y
WITM (CTS)-A

DOWNHOLE EQUIPMENT



MAXIMUM STRING DIAMETER 191 MM
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN METERS

RUN 2

Input DLIS Files

DEFAULT	Flip_CBT_018LUP	PRODUCER	08-Feb-2003 23:01	1493.5 M	320.0 M

Output DLIS Files

DEFAULT	CBT_019PUP	FN:17	PRODUCER	08-Feb-2003 23:04	1493.5 M	320.5 M

OP System Version: 9C2-303

		MCM		
CBT-EB	9C2-303	SGT-L	OP92-KP2	
CAL-Y	OP92-KP2	TCC-BF	OP92-KP2	

PIP SUMMARY

FAST DOWN LOG

Time Mark Every 60 S

Cable Tension (TENS) (N) 25000 — 0

Transit Time 2 (TT2C) (US) 350 — 150

Gamma Ray (GR) (GAPI) 0 — 100

Transit Time 6 (TT6C) (US) 250 — 50

Casing Collar Locator (CCL) (----) -19 — 1

DBI > 80% BOND

SBI > 80% BOND

Short Bond Index (SBI) (----) 1 — 0.5

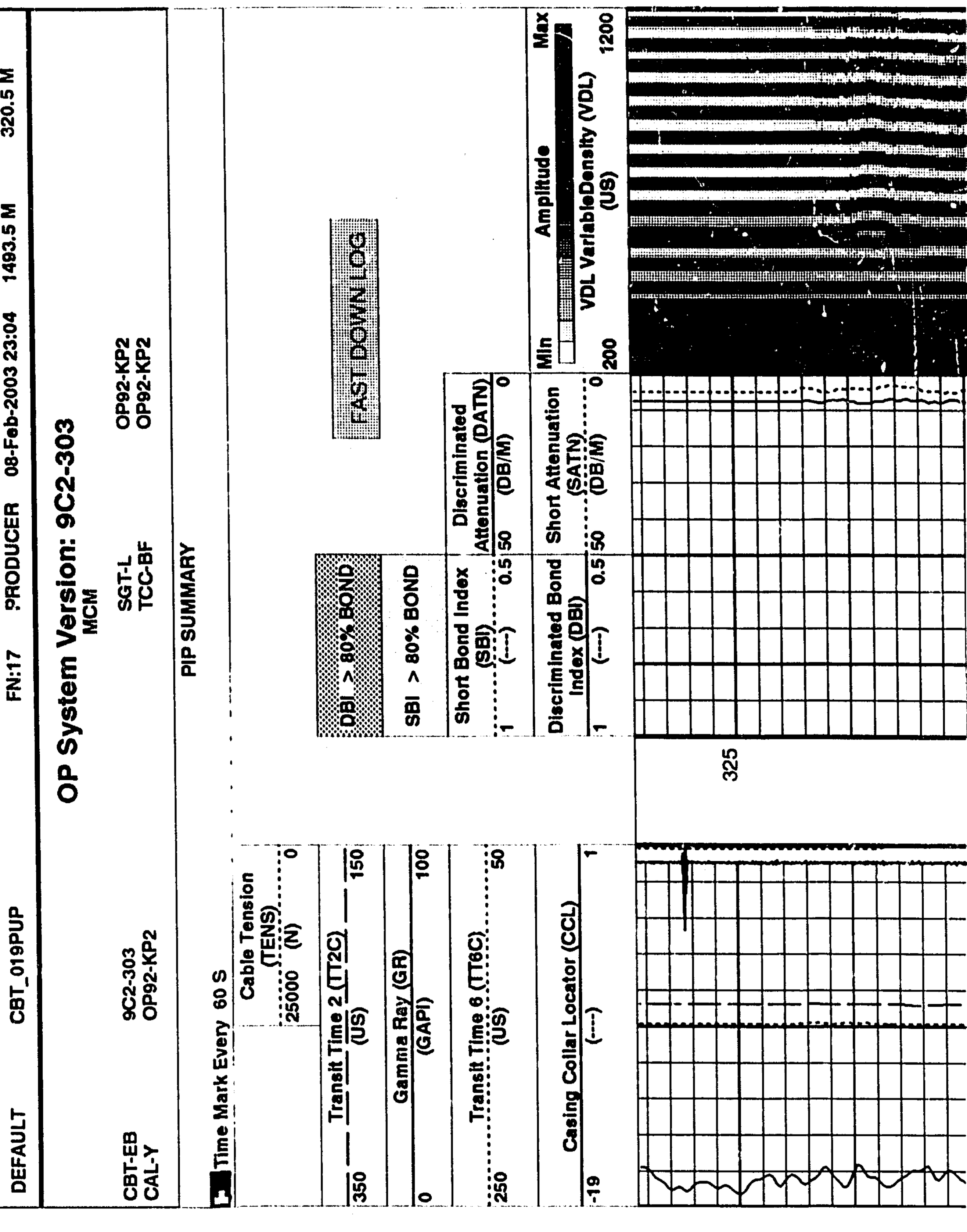
Discriminated Bond Index (DBI) (----) 1 — 0.5

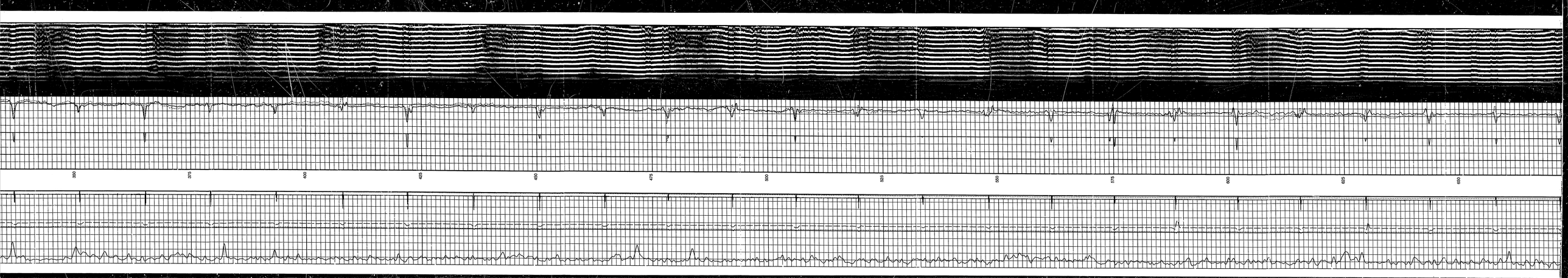
Discriminated Attenuation (DATN) (DB/M) 50 — 0

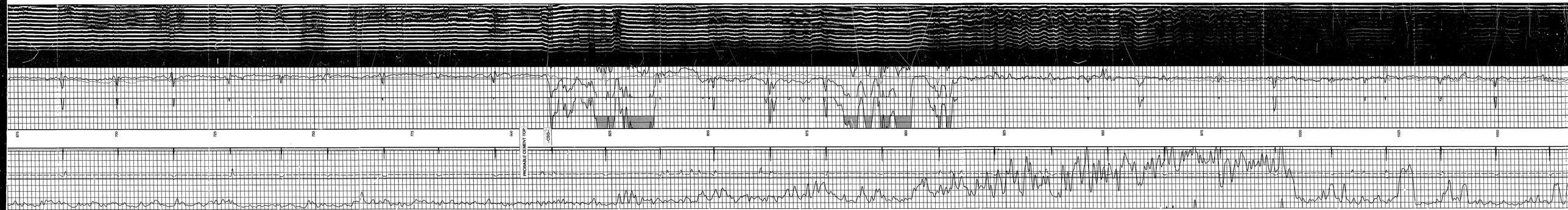
Short Attenuation (SATN) (DB/M) 50 — 0

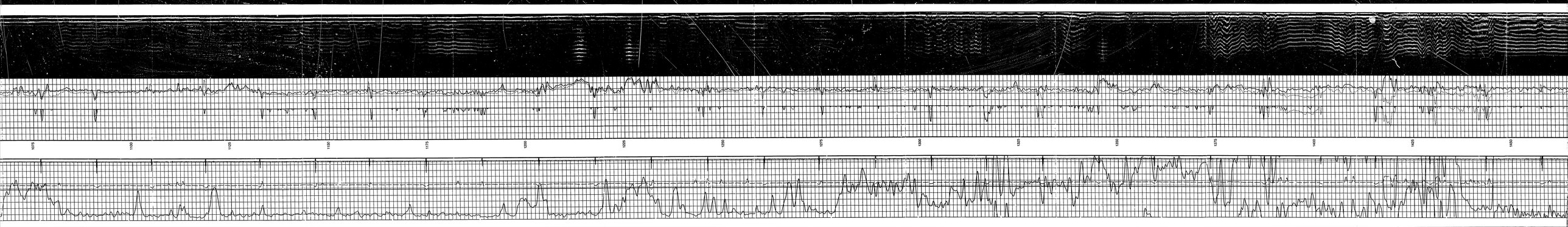
Amplitude Min — Max

VDL VariableDensity (VDL) (US) 200 — 1200




350
375
400
425
450
475
500
525
550
575
600
625
650


675
700
725
750
775
800
825
850
875
900
925
950
975
1000
1025
1050
CCL
PROBABLE CEMENT TOP


1075
1100
1125
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1175
1200
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1250
1275
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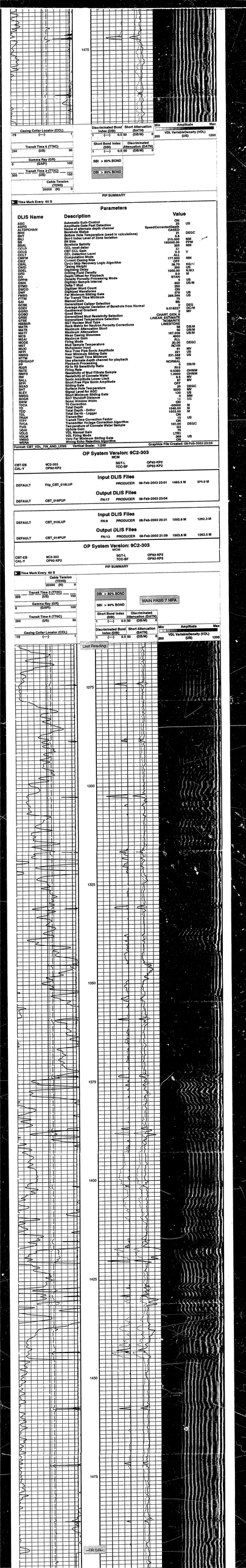
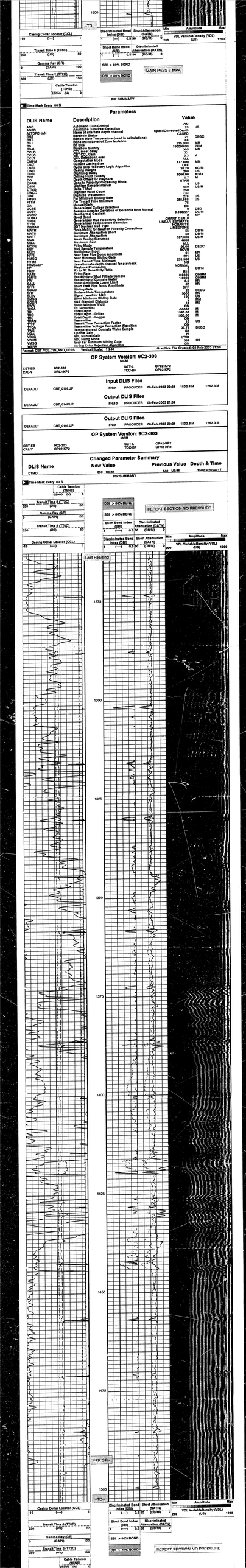
1325
1350
1375
1400
1425
1450


Casing Collar Locator (CCL)
Transit Time 4 (TT4C)
Gamma Ray (GR)
Transit Time 2 (TT2C)
Cable Tension (TENS)
Discriminated Bond Index (DBI)
Short Attenuation (SATN)
Short Bond Index (SBI)
Discriminated Attenuation (DATN)
SBI > 80% BOND
DBI > 80% BOND
Min
Amplitude
Max
VDL VariableDensity (VDL)
Time Mark Every 60 S
PIP SUMMARY
Parameters
DLIS Name
Description
Value
Format: CBT_VDL_YIN_AND_LESS
Vertical Scale: 1:240
Graphics File Created: 08-Feb-2003 23:04
OP System Version: 9C2-303
Input DLIS Files
Output DLIS Files
PIP SUMMARY
Time Mark Every 60 S
Last Reading
MAIN PASS 7 MPA
FR GR



DLIS Name	Description	Value
ASC	Automatic Gain Control	ON
ASPD	Amplitude Gate Peak Detection	US
ALTCHAN	Alternate Depth channel	SpeedCorrectedDepth
BHT	Borehole Status	CASED
BHT	Bottom Hole Temperature (used in calculations)	0 DEGC
BHT	Bond Index Level of Zone Isolation	0.5
BS	Bit Size	215.000 MM
CABS	Cable Strength	1900000.00 DAN
CCLD	CCL reset delay	300 MM
CCLO	CBT CCL Gain	0.3 V
CCLT	CCL Threshold Level	0.2 V
CMPM	Computation Point	177.800 MM
CBIZ	Current Casing Size	7.000
CBRL	Cycle Skip Recovery Logic Algorithm	1.79 KG/M
CWEI	Depth Step Size	38.10
DFD	Digitizing Delay	300
DFD	Drilling Fluid Density	1000.00 KG/M3
DO	Depth Offset for Playback	0.7 M
DPRM	Digitizer Sample Processing Mode	STAT
DSIN	Digitizer Sample Interval	5 US
DTMD	Delta-T Mode	650 US/M
DWFC	Digitized Word Count	220
DWFO	Digitized Waveforms	ON
FMBG	Far Minimum Sliding Gate	255.528 US
FTIM	Far Transit Time Minimum	75
GAI	Manual Gain	0 DB
GDEF	Generalized Caliper Selection	DEG
GDEI	Average Angular Deviation of Borehole from Normal	0.018227 DCYM
GGRD	Geothermal Gradient	0 MV
GMSD	Gamma Ray	CHART_GEN_2
GRID	Generalized Mud Resistivity Selection	LINEAR_SENSATE
GTSD	Generalized Temperature Selection	NOBAINTS
HBSAR	Hole Bias Source	LIMESTONE
MATR	Rock Matrix for Neutron Porosity Corrections	55 DB/M
MATT	Maximum Attenuation Short	80 DB/M
MATT	Maximum Attenuation	187.000 US/M
MCS	Mean Casing Slowness	4000
MDEF	Mud Density	1000
MDSE	Fitting Mode	20.00 DEGC
MST	Mud Sample Temperature	RCVR
MUD	Mud Resistivity	81 MV
NFBG	Near Fine Pipe Sonic Amplitude	0 US
NFMG	Near Minimum Sliding Gate	231.564 US
NTTS	Near Transit Time Channel	NO
PBVSADP	Playback Waveform channel for playback	NORMAL
RDB	Log Bit Processing	0 DB/M
RGRI	RG to RI Sensitivity Ratio	RIG
RATE	Firing Rate	0.0300 OHMM
RMF	Resistivity of Mud Filtrate Sample	1.0000 OHMM
RMF	Resistivity of Connate Water	0 MV
SALL	Sonic Amplitude Lower Limit	87 MV
SFPL	Sonic Pipe Sonic Amplitude	OFF
SGAD	Sliding Gate	0 DEGC
SGTD	Surface Hole Temperature	5000 MV
SLEV	Signal Level Index	130 US
SMSG	Slow Minimum Sliding Gate	0 MM
SSTD	SGT Standoff Distance	19
SWW	Sonic Window Width	ON
TDCA	To Correction	-50000 M
TDD	Total Depth	1640.00 M
TDL	Total Depth - Driller	1633.00 M
TDL	Total Depth - Logger	0 M
TRIN	Transit Time	72 US
TTCF	Transit Time Correction Factor	0.76
TTCA	Transmitter Voltage Correction Algorithm	3700 DEGC
TWS	Temperature of Connate Water Sample	83
UGAI	Uphole Gain	0
VDLG	VDL Fixed Gain	1.778
VDLM	VDL Firing Mode	200 US
VMSG	Very Far Minimum Sliding Gate	ON
WSNA	Waveform Noise Reduction Algorithm	0

Format: CBT_VDL_TIN_AND_LESS Vertical Scale: 1:240 Graphics File Created: 08-Feb-2003 21:09

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
AGC	Automatic Gain Control	ON
AGPD	Amplitude Gate Past Detection	25 US
ALTDPCHAN	Name of alternate depth channel	SpeedCorrected(Cable)
BHCO	Borehole Code	CASED
BHT	Bottom Hole Temperature (used in calculations)	23 DEGC
BIU	Baud Index Level of Zone Isolation	1
BSAL	Bit Size	215.0000 MM
BSAL	Bit whole Salinity	190000.00 PPM
CCLD	CCL read delay	305 MM
CCLG	CBT CCL Gain	8
CCLT	CCL Threshold Level	0.3 V
CDIST	Computation Mode	ALL
CIPZ	Current Casing Size	177.800 MM
CSEL	Cycle Skip Recovery Logic Algorithm	0
DFD	Depth Delay	38.70 KG/M
DINC	Digitizing Interp	305 US
DPD	Drilling Fluid Density	1060.00 K/M3
DPRN	Digitizer Pulse Processing Mode	STAT
DWIN	Digitizer Sample Interval	5 US
DWOD	Delta-T Mod	840 US/M
DWOO	Digitizer Word Count	256
DWF	Digitized Waveform	ON
ETMG	Early Time Marking Gate	277 US
FTTM	Far Transit Time Minimum	287.25 US
GAI	Manual Gain	0
GDEV	Gamma Ray Caliper Selection	6 DEG
GDIP	Average Angular Deviation of Borehole from Normal	0.018327 DC/M
GGRD	Geothermal Gradient	0 MV
GGSD	Good Side	
GHSE	Generalized Mud Resistivity Selection	CHART_GEN_E
GHSE	Generalized Temperature Selection	LINEAR_ESTIMATE
GSGAR	GGT Nuclear Mud Type	BARITE
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE
MATT	Maximum Attenuation Gate Short	50 DB/M
MATT	Maximum Attenuation	50 DB/M
MCS	Mean Casing Slowness	187.008 US/M
MDIG	Mud Digitizer	0.0000
MDIG	Fitting Mode	ALL
MST	Mud Sample Temperature	20.00 DEGC
MVO	Multisensor Vo	4.267
NFD	Near Minimum Sonic Amplitude	20 MV
NSWD	Near Minimum Sliding Gate	220 US
NTTM	Near Transit Time Minimum	230.25 US
PBVBADP	Use alternate depth channel for playback	NO
RATR	Fixing Ratio	0 DB/M
RATS	Fixing Ratio	.015
RMFS	Resistivity of Mud Filtrate Sample	0.0380 OHMM
RMS	Resistivity of Mud Sample	0.0380 OHMM
SIE	Sonic Amplitude Lower Limit	0.5 MV
SPA	Short Free Pipe Sonic Amplitude	47 MV
SSAD	Sliding Gate	2
SHT	Surface Hole Temperature	20 DEGC
SWD	Short Sonic Delay	5000 US
SWSG	Short Minimum Sliding Gate	125 US
SOGR	SGT Standoff Distance	13 MM
SWOI	Sonic Window Width	512
TC	TD Correction	0.0000 M
TD	Total Depth	1500.00 M
TDD	Total Depth - Driller	1533.00 M
TDL	Total Depth - Logger	1533.00 M
TMCN	Transmitter	ON
TTFF	Transit Time Correction Factor	1.000 US
TVCB	Transmitter Voltage Correction Algorithm	ON
TWGT	Temperature Estimate Water Sample	37.78 DEGC
UGAI	Uphole Gain	63
VDLG	VDL Manual Gain	0
VDLS	VDL Sample Rate	LTR1
VMSG	Very Far Minimum Sliding Gate	300 US
WERA	Wrong Echo Rejection Algorithm	ON

Format: CBT_VDL_7IN_AND_LESS Vertical Scale: 1:240 Graphics File Created: 08-Feb-2003 20:31

OP System Version: 9C2-303

MCM

		SGT-L	OP92-KP2
CBT-EB	9C2-303	TCC-BF	OP92-KP2
CAL-Y	OP92-KP2		

Output DLIS Files

DEFAULT	CBT_010LUP	FN:9	PRODUCER	08-Feb-2003 20:31

Input DLIS Files

DEFAULT	CBT_010LUP	FN:9	PRODUCER	08-Feb-2003 20:31	1502.8 M / 1262.3 M

Output DLIS Files

DEFAULT	CBT_014PUP	FN:13	PRODUCER	08-Feb-2003 21:59

OP System Version: 9C2-303

MCM

		SGT-L	OP92-KP2
CBT-EB	9C2-303	TCC-BF	OP92-KP2
CAL-Y	OP92-KP2		

Cable Tension (TENS) — 25000 (lb) 0

MAIN PASS 7 MPA

Gamma Ray (GR) (GAPI) 0 — 100

Short Attenuation (SATN) (DB/M) 100 — 0

Casing Collar Locator (CCL) -10 — 1 (---)

Near Attenuation (NATN) (DB/M) 100 — 0

Transit Time 6 (TTTC) (US) 250 — 50

Borehole Compensated Attenuation (BATT) (DB/M) 100 — 0

VDL Waveforms (VDL) (US) 200 — 1200

Transit Time 1 (TTTC) (US) 300 — 150

Last Reading

1275

1300

1325

1350

1375

1400

1425

1450

1475

-FR GR-

-TD-

1500

Transit Time 1 (TTTC) (US) 300 — 150

Transit Time 6 (TTTC) (US) 250 — 50

Casing Collar Locator (CCL) -10 — 1 (---)

Gamma Ray (GR) (GAPI) 0 — 100

Cable Tension (TENS) — 25000 (lb) 0

Borehole Compensated Attenuation (BATT) (DB/M) 100 — 0

Near Attenuation (NATN) (DB/M) 100 — 0

Short Attenuation (SATN) (DB/M) 100 — 0

VDL Waveforms (VDL) (US) 200 — 1200

MAIN PASS 7 MPA

Format: CBT_WAVE_7IN_AND_LESS Vertical Scale: 1:240 Graphics File Created: 08-Feb-2003 21:59

OP System Version: 9C2-303

MCM

		SGT-L	OP92-KP2
CBT-EB	9C2-303	TCC-BF	OP92-KP2
CAL-Y	OP92-KP2		

Input DLIS Files

DEFAULT	CBT_010LUP	FN:9	PRODUCER	08-Feb-2003 20:31	1502.8 M / 1262.3 M

Output DLIS Files

DEFAULT	CBT_014PUP	FN:13	PRODUCER	08-Feb-2003 21:59

Input DLIS Files

DEFAULT	CBT_009LUP	FN:8	PRODUCER	08-Feb-2003 19:45	1503.9 M / 1260.8 M

Output DLIS Files

DEFAULT	CBT_016PUP	FN:15	PRODUCER	08-Feb-2003 22:16	1504.3 M / 1261.7 M

OP System Version: 9C2-303

MCM

		SGT-L	OP92-KP2
CBT-EB	9C2-303	TCC-BF	OP92-KP2
CAL-Y	OP92-KP2		

Cable Tension (TENS) — 25000 (lb) 0

MAIN PASS 7 MPA

REPEAT SECTION NO PRESSURE

Gamma Ray (GR) (GAPI) 0 100
Casing Collar Locator (CCL) (---) 19 1
Transit Time 6 (TTTC) (US) 250 50
Transit Time 1 (TT1C) (US) 350 150
Short Attenuation (SATN) (DB/M) 100 0
Near Attenuation (NATN) (DB/M) 100 0
Borehole Compensated Attenuation (BATT) (DB/M) 100 0
VDL Waveforme (VDL) (US) 200 1200

Lact Reading

1300
1325
1350
1375
1400
1425
1450
1475
FR GR
1500
TD

Transit Time 1 (TT1C) (US) 350 150
Transit Time 6 (TTTC) (US) 250 50
Casing Collar Locator (CCL) (---) 19 1
Gamma Ray (GR) (GAPI) 0 100
Cable Tension (TENS) 20000 (N) 0
Borehole Compensated Attenuation (BATT) (DB/M) 100 0
VDL Waveforme (VDL) (US) 200 1200
Near Attenuation (NATN) (DB/M) 100 0
Short Attenuation (SATN) (DB/M) 100 0

REPEAT SECTION NO PRESSURE

Format: CBT_WAVE_TIN_AND_LESS | Vertical Scale: 1:240 | Graphics File Created: 08-Feb-2003 22:16

OP System Version: 9C2-303
MCM

CBT-EB	9C2-303	SGT-L	OP92-KP2
CAL-Y	OP92-KP2	TCC-BF	OP92-KP2

Input DLIS Files

DEFAULT	CBT_009LUP	FN:8	PRODUCER	08-Feb-2003 19:45	1503.9 M	1280.8 M

Output DLIS Files

DEFAULT	CBT_016PUP	FN:15	PRODUCER	08-Feb-2003 22:16		

Input DLIS Files

DEFAULT	CBT_009LUP	FN:8	PRODUCER	08-Feb-2003 19:45	1503.9 M	1280.8 M

Output DLIS Files

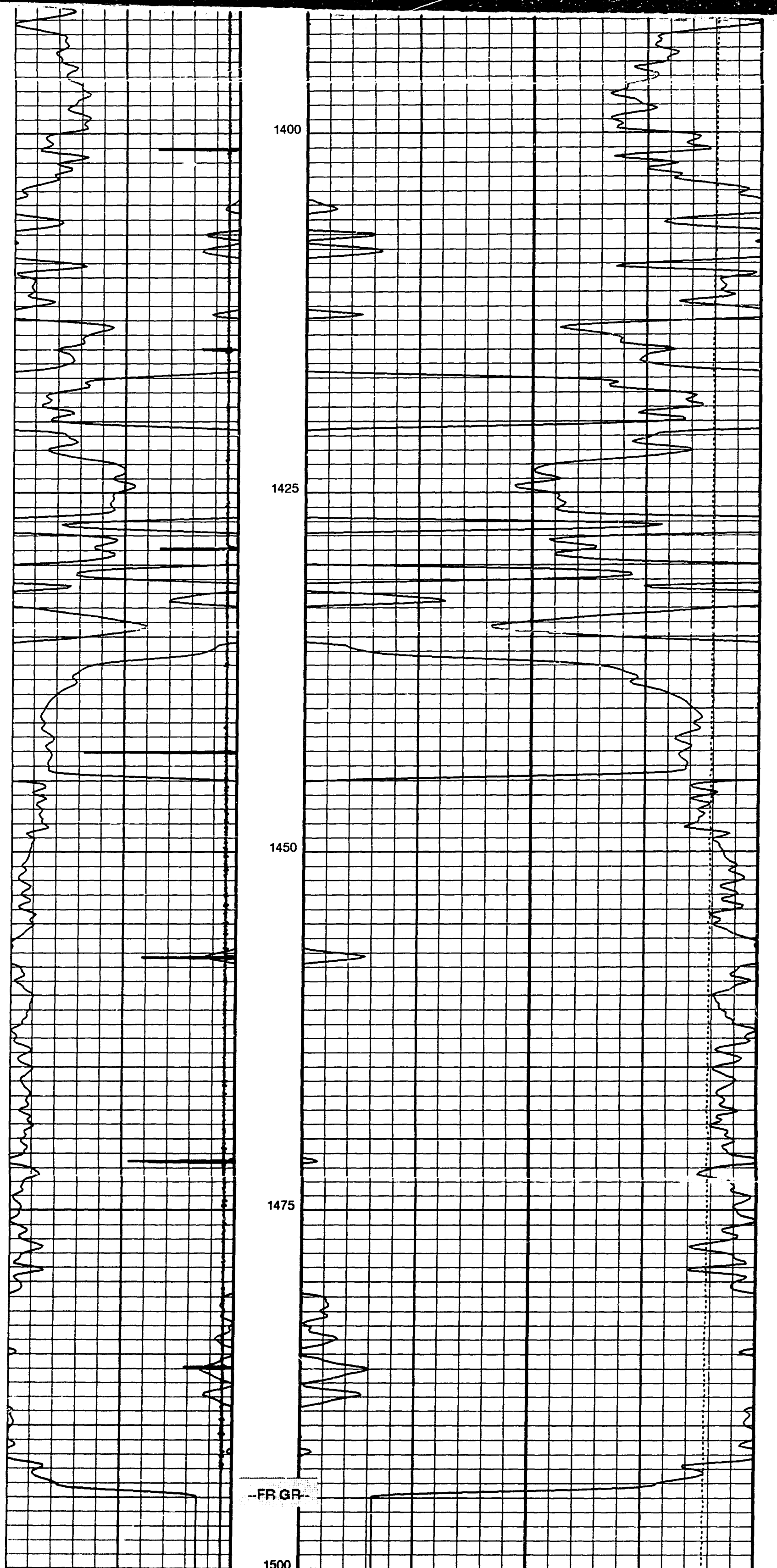
DEFAULT	CBT_016PUP	FN:15	PRODUCER	08-Feb-2003 22:16	1504.3 M	1281.7 M

OP System Version: 9C2-303
MCM

CBT-EB	9C2-303	SGT-L	OP92-KP2
CAL-Y	OP92-KP2	TCC-BF	OP92-KP2

Casing Collar Locator (CCL) (---) -19 1
CORRELATION PASS NO PRESSURE
Tension (TENS) (N) 35000 0
Gamma Ray (GR) (GAPI) 0 100
Gamma Ray (GR) (GAPI) 100 0

1300
1325
1350
1375



Gamma Ray (GR)		
0	(GAPI)	100

Gamma Ray (GR)		
100	(GAPI)	0

Casing Collar Locator (CCL)		
-19	(----)	1

CORRELATION PASS NO PRESSURE

Tension (TENS)		
25000	(N)	0

Parameters

DLIS Name	Description	Value	
CCLD	CCL reset delay	305	MM
CCLT	CCL Detection Level	0.3	V
DO	Depth Offset for Playback	0.4	M
PP	Playback Processing	NORMAL	

Format: CORRELATION Vertical Scale: 1:240 Graphics File Created: 08-Feb-2003 22:16

OP System Version: 9C2-303

MCM

CBT-EB	9C2-303	SGT-L	OP92-KP2
CAL-Y	OP92-KP2	TCC-BF	OP92-KP2

Input DLIS Files

DEFAULT	CBT_009LUP	FN:8	PRODUCER	08-Feb-2003 19:45	1503.9 M	1280.8 M

Output DLIS Files

DEFAULT	CBT_016PUP	FN:15	PRODUCER	08-Feb-2003 22:16

COMPANY	CANNAT RESOURCES INC.
WELL	CNRES BEHDZIAH YOUH 0-52
FIELD	UNDEFINED
Province	NORTHWEST TERRITORIES

BOTTOM LOG INTERVAL	1490 m
SCHLUMBERGER DEPTH	1503 m
DEPTH DRILLER	1540 m
KELLY BUSHING	265 m
DRILL FLOOR	264.7 m
GROUND LEVEL	258.9 m

Schlumberger

COMPENSATED CEMENT BOND LOG

COMPANY: CANNAT RESOURCES INC.

WELL: CNRES BEHDZIAH YOUH 0-52

FIELD: UNDEFINED

Province: NORTHWEST TERRITORIES

Schlumberger — TCP CORRELATION AND CONFIRMATION LOG

N.E.B. COPY

LATITUDE: 66 DEG 51'	Elev.:	K.B.	265 m
LONGITUDE: 126 DEG 39'		G.L.	258.9 m
UWID: 300/O-52-67.00-126.300		D.F.	264.7 m
Permanent Datum: GROUND LEVEL	Elev.: 258.9 m		
Log Measured From: KELLY BUSHING	6.1 m above Perm. Datum		
Drilling Measured From: KELLY BUSHING			

API Serial No.	LATITUDE:	LONGITUDE:
1960	66 DEG 51' N	126 DEG 39' W

Logging Date	9-Feb-2003
Run Number	TWO
Depth Driller	1540 m
Schlumberger Depth	1435 m
Bottom Log Interval	1435 m
Top Log Interval	1370 m
Casing Fluid Type	FRESH WATER
Salinity	0 ppm
Density	1000 kg/m3
Fluid Level	
BIT/CASING/TUBING STRING	
Bit Size	215.000 mm
From	258.9 m
To	1540 m
Casing/Tubing Size	177.800 mm
Weight	38.7 kg/m
Grade	L-80
From	258.9 m
To	1534 m
Maximum Recorded Temperatures	0 degC
Logger On Bottom / Time	9-Feb-2003 / 20:25
Unit Number / Location	8416 / NORMAN WELLS
Recorded By	PETER ROOS
Witnessed By	CRAIG SKUBLENY

	Run 1	Run 2	Run 3	Run 4
PVT DATA				
Oil Density				
Water Salinity	0 ppm			
Gas Gravity				
Bo				
Bw				
1/Bg				
Bubble Point Pressure				
Bubble Point Temperature				
Solution GOR				
Maximum Deviation				
CEMENTING DATA				
Primary/Squeeze	Primary			
Casing String No				
Lead Cement Type				
Volume				
Density				
Water Loss				
Additives				
Tail Cement Type				
Volume				
Density				
Water Loss				
Additives				
Expected Cement Top				
Logging Date				
Run Number				
Depth Driller				
Schlumberger Depth				
Bottom Log Interval				
Top Log Interval				
Casing Fluid Type				
Salinity				
Density				
Fluid Level				
BIT/CASING/TUBING STRING				
Bit Size				
From				
To				
Casing/Tubing Size				
Weight				
Grade				
From				
To				
Maximum Recorded Temperatures				
Logger On Bottom / Time				
Unit Number / Location				
Recorded By				
Witnessed By				

DISCLAIMER
THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

OTHER SERVICES1
OS1: CBT
OS2:
OS3:
OS4:
OS5:

REMARKS: RUN NUMBER 1
CORRELATED TO SCHLUMBERGER COMPENSATED NEUTRON LOG DATED 4-FEB-2003
SURFACE CASING 244.4 M, SET 609 MKB TO SURFACE
PRODUCTION CASING 177.8 MM, 38.9KG/M, L-80, LT&C
CASING RUN FROM SURFACE TO 1504 MKB
WELL CEMENTED WITH 28,600 KG CLASS G CEMENT WITH ADDITIVES.
TCP PERF GUNS, 114.3 MM HSD, 17 SPM, 72 DEG. PHASING
38.8 GRAM POWERJET CHARGES.
FEBUARY-9-2003

RIG AKITA/SAHTU 51
CREW: KARL BAKER/KALVIN ELIAS

RUN 1
SERVICE ORDER #: 9193783
PROGRAM VERSION: 9C2-303
FLUID LEVEL:
LOGGED INTERVAL — START — STOP

OTHER SERVICES2
OS1:
OS2:
OS3:
OS4:
OS5:
REMARKS: RUN NUMBER 2

RUN 2
SERVICE ORDER #:
PROGRAM VERSION:
FLUID LEVEL:
LOGGED INTERVAL — START — STOP

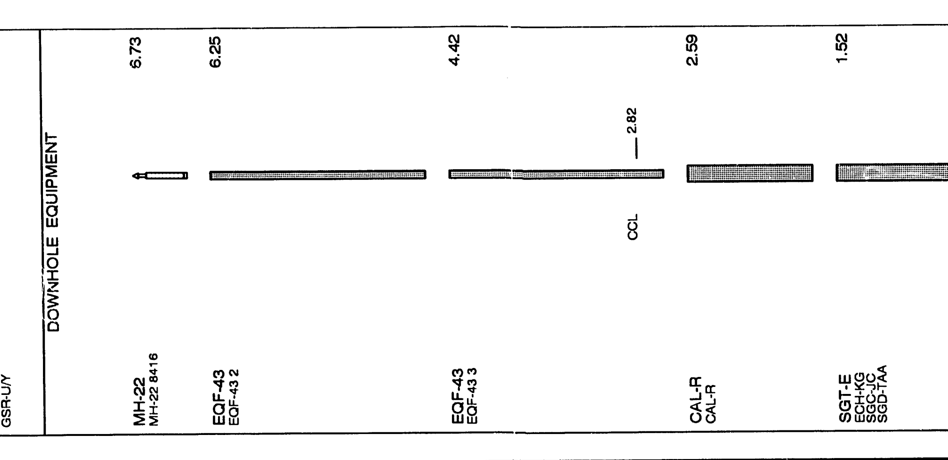
EQUIPMENT DESCRIPTION

RUN 1 — RUN 2

SURFACE EQUIPMENT

NLM-BC 1012
GSR-UY

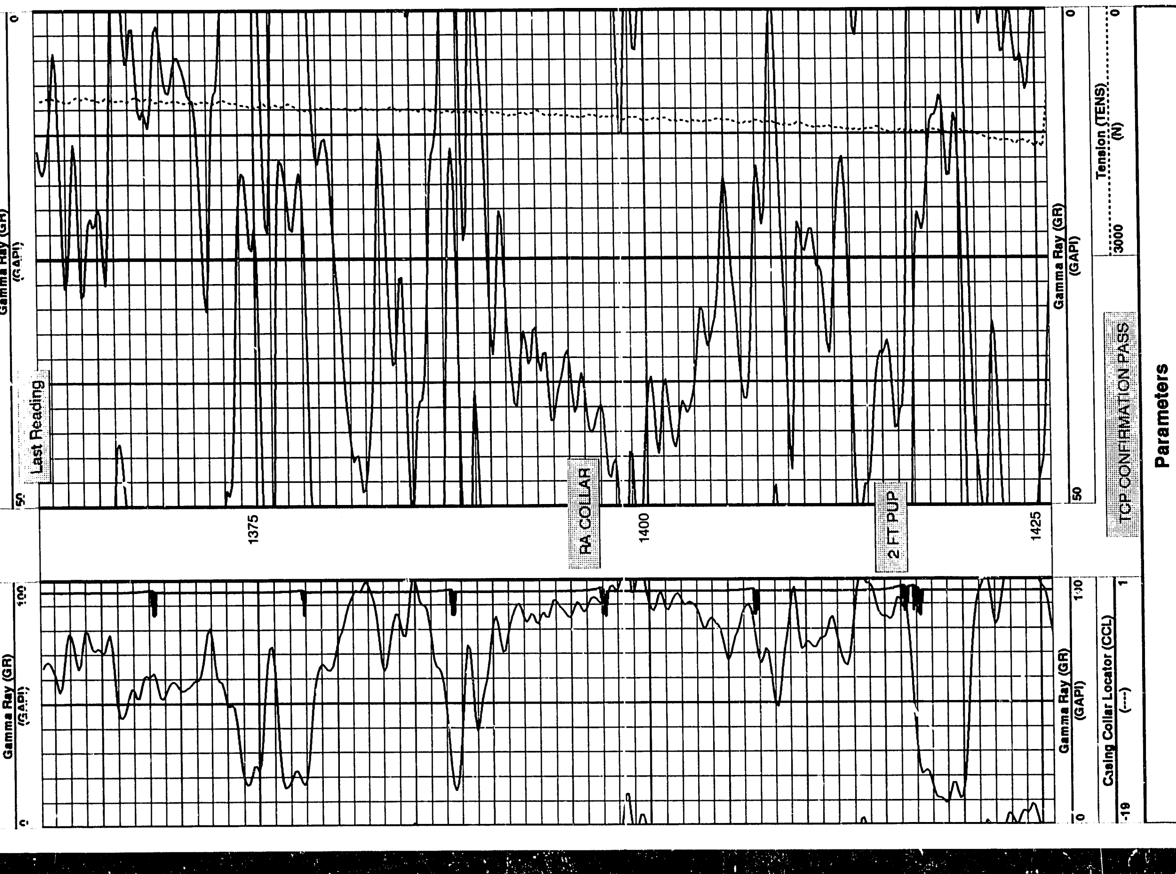
DOWNHOLE EQUIPMENT



MAXIMUM STRING DIAMETER 86 MM
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN METERS

DEFAULT	GR_CCL_028LUP	**Input DLIS Files** FN:27 PRODUCER	09-Feb-2003 22:51	1425.5 M 1360.5 M
DEFAULT	GR_CCL_030PUP	**Output DLIS Files** FN:29 PRODUCER	09-Feb-2003 23:05	1425.7 M 1361.1 M
SGT-E	9C2-303	**OP System Version: 9C2-303** MCM CAL-R	OP92-KP2	

TCP CONFIRMATION PASS



TCP CONFIRMATION PASS

Gamma Ray (GR) (GAPI)
Casing Collar Locator (CCL)
Tension (TENS) (N)

DLIS Name	Description	Value
CCLD	CCL reset delay	305 MM
CCLT	CCL Detection Level	0.3 V
DO	Depth Offset for Playback	0.2 M
PP	Playback Processing	NORMAL

Format: CORRELATION Vertical Scale: 1:240 Graphics File Created: 09-Feb-2003 23:05

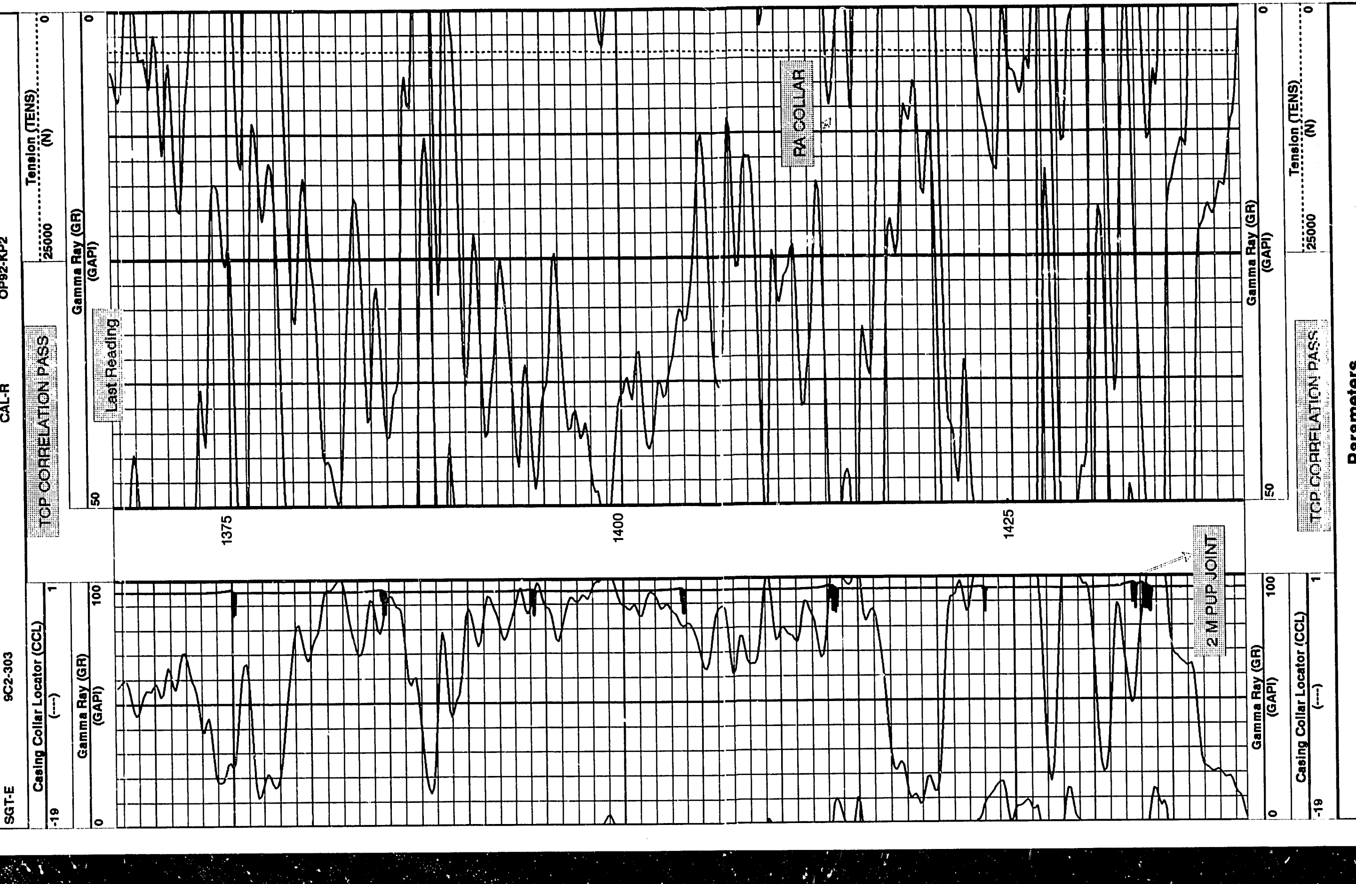
OP System Version: 9C2-303
SGT-E 9C2-303 MCM CAL-R OP92-KP2

Input DLIS Files
DEFAULT GR_CCL_028LUP FN:27 PRODUCER 09-Feb-2003 22:51 1425.5 M 1360.5 M

Output DLIS Files
DEFAULT GR_CCL_030PUP FN:29 PRODUCER 09-Feb-2003 23:05

DEFAULT	GR_CCL_021LUP	**Input DLIS Files** FN:20 PRODUCER	09-Feb-2003 20:07	1439.6 M 1366.9 M
DEFAULT	GR_CCL_023PUP	**Output DLIS Files** FN:22 PRODUCER	G9-Feb-2003 20:25	1439.7 M 1367.5 M
SGT-E	9C2-303	**OP System Version: 9C2-303** MCM CAL-R	OP92-KP2	

TCP CORRELATION PASS



TCP CORRELATION PASS

Gamma Ray (GR) (GAPI)
Casing Collar Locator (CCL)
Tension (TENS) (N)

DLIS Name	Description	Value
CCLD	CCL reset delay	305 MM
CCLT	CCL Detection Level	0.3 V
DO	Depth Offset for Playback	0.1 M
PP	Playback Processing	NORMAL

Format: CORRELATION Vertical Scale: 1:240 Graphics File Created: 09-Feb-2003 20:25

OP System Version: 9C2-303
SGT-E 9C2-303 MCM CAL-R OP92-KP2

Input DLIS Files
DEFAULT GR_CCL_021LUP FN:20 PRODUCER 09-Feb-2003 20:07 1439.6 M 1366.9 M

Output DLIS Files
DEFAULT GR_CCL_023PUP FN:22 PRODUCER 09-Feb-2003 20:25

BOTTOM LOG INTERVAL	1435 m
SCHLUMBERGER DEPTH	1435 m
DEPTH DRILLER	1540 m
KELLY BUSHING	265 m
DRILL FLOOR	264.7 m
GROUND LEVEL	258.9 m

COMPANY: CANNAT RESOURCES INC.
WELL: CNRES BEHDZIAH YOUH 0-52
FIELD: UNDEFINED
Province: NORTHWEST TERRITORIES

Schlumberger TCP CORRELATION AND CONFIRMATION LOG

Cabra CONSULTING
a division of Cabra Advisory Ltd.
#307, 736 - 8th Ave. SW
Calgary, Alberta T2P 1H4
(403) 243-3622 www.cabra.ca

COMPOSITE WELL HISTORY
DRILLING TIME
LITHOLOGY LOG

COMPANY: Canadian Natural Resources Limited
WELL: CNRES Behdziah Youh 00/o-52-67.00-126.30
FIELD: New Wildcat Pool
PROVINCE: NWT
LOCATION: Colville Hills o-52-67.00-126.30

COORDINATES: 66deg51min 126deg39min
ELEVATIONS: GD 258.9 m LOG MEASURED FROM KB
KB 265.0 m 6.1 m ABOVE GROUND
WELL TYPE: Exploratory TOTAL DEPTH: 1540.5
SPUD DATE: Jan 3, 2003 T.D. DATE: Feb 4, 2003
LICENCE No.: 1960 AFE No.: 02A0552D312

CONTRACTOR: Akita Sahtu #51
MUD TYPE: Air/Water/Salt base
MUD UP @: 1100m (salt)
SAMPLES: 5 meter intervals
CNRL 200-1540m TD
NWT 200-1540m TD
DSTs: None

CORES: None

OPEN HOLE LOGS: Schlumberger
Int. Run 1 - HGNS/ARRAY IND/SP/GPIT
Main Run 1 - DTC/GPIT/BHC/HGNS/HALS
Main Run 2 - HGNS/MICROLOG

SUPERVISION
GEOLOGICAL: N. Sinnott DRILLING: C. Skubleny

CASING DEPTH
SURFACE: 195 m
INTERMEDIATE: 805 m
MAIN:

CASING SIZE
SURFACE: 339.7 mm
INTERMEDIATE: 244.5 mm
MAIN: 177.8 mm

HOLE SIZE
SURFACE: 387 mm
INTERMEDIATE: 311 mm
MAIN: 215 mm

REMARKS: Hole severely deviated below 1350m, which was also a point of dropping gamma ray data. Formation markers in this log not adjusted to open hole logs

CANSTRAT SYMBOLS USED FOR LITHOLOGY AND SHOWS

SCALE 1:240

DESCRIPTIONS

DOLOSTONE - very light brown, extremely fine crystalline, abundant very calcareous, 40% visible pinpoint intergranular and vuggy porosity, trace dark brown oil stain, poor yellow fluorescence, no cut, trace light yellow brown tests to black, hard bitumen and pyrobitumen, trace dolomitic siltstone as inclusions common, trace bright yellow mineral fluorescence in fractures, common calcite veins/vugs, trace clear calcite, trace dolostone - very light, no show.

CALCAREOUS DOLOSTONE - cream, mottled fine crystalline, abundant clear blebby intergranular porosity, trace pinpoint vuggy (vert?) moderately calcareous, trace dolomitic siltstone as inclusions.

DOLOSTONE - medium brown, minor medium crystalline, 10% visible intergranular porosity, rare clear quartz grains, light, no show.

DOLOSTONE - medium brown, minor medium crystalline, 10% visible intergranular porosity, moderately calcareous, rare very finely disseminated pyrite, rare clear quartz grains, light, no show.

DOLOSTONE - buff, light brown and minor medium brown, fine crystalline, trace to 1% white and clear, diffuse anhydrite nodules, trace visible porosity, trace to one grain of semisolid asphaltic dead.

CALCAREOUS DOLOSTONE & DOLOMITIC LIMESTONE - tans, extremely fine to fine crystalline, light, no show, 2-4% visible intergranular porosity, 10% white, clear and brown anhydrite nodules, rare clear quartz grains, rare disseminated pyrite, no show. Trace quartz sandstone as above, light, no show. Trace unconsolidated grains, slightly calcareous, fine to medium grained, subangular to subrounded, clear quartz and minor pink feldspar grains, no show. Trace to rare dolomitic siltstone as inclusions, rare disseminated pyrite, no show.

CALCAREOUS DOLOSTONE - cream to light brown, extremely fine crystalline, 2-3% visible intergranular porosity, 3% white and clear, diffuse anhydrite nodules, trace dark brown oil stain, trace dead bitumen, trace to 5% brown, trace very light grey green and dark grey green, waxy, soft, CLAYSTONE. Trace dolomitic siltstone as inclusions, rare disseminated pyrite, no show. Trace to rare CHERT, 30% brown, 30% light grey, 30% translucent, 10% white, no show.

DOLOSTONE - light to medium brown, very fine crystalline, abundant very calcareous, light, no show.

DOLOSTONE - very light grey, light grey and brown, thin to sparse interbedded with dolomitic siltstone (matrix VA), trace light grey green and dark grey green, waxy, soft, CLAYSTONE. Trace to rare chert, 50% brown, 50% light grey

pump sweep
50bbl

moderately calcareous, anhydritic in part, tight, no shows.
trace maroon hematitic CLAYSTONE.

water
dens 1110
vis 30
pH 9.0

DOLOSTONE - cream to buff, light grey brown to dark brown red, hard, microcrystalline to fine crystalline (Archie IA), rare Archie IIA with calcite matrix, weakly to moderately calcareous, anhydritic in part, rare clast or nodule of sucrosic textures of euhedral dolomite with clay matrix and dark yellow euhedral dolomite with extremely fine druxy pyrite on surface (vuggs), tight, no show.
trace light green and maroon hematitic CLAYSTONE and SILTSTONE.

525

functioned annular
Water
Density 1150
Vis 29

DOLOSTONE - cream to light red brown, hard, microcrystalline to fine crystalline (Archie IA), rare Archie IIA with calcite and clay matrix, weakly to moderately calcareous, anhydritic in part, tight, no show.
trace light green and maroon hematitic (and red/green mottled) CLAYSTONE and brick red SHALE.

550

15/01/2003

575

DOLOSTONE - cream to light pink and medium red brown, hard, microcrystalline to fine crystalline (Archie IA), minor Archie IIA with calcite and clay matrix, weakly to moderately calcareous, anhydritic in part, blebs of dark red hematitic matrix and rare specularite, rare fine euhedral pyrite clusters, tight, no shows.
trace light green and maroon hematitic (and red/green mottled) CLAYSTONE and brick red, micromicaceous SHALE.

survey
0.50 deg

0 50 100
0 20 40

DOLOSTONE - cream, light to medium gray, gray brown and brown grey, microcrystalline to fine crystalline (Archie IA), minor Archie IIA with calcite and clay matrix and trace vuggy porosity filled with anhydrite in part, weakly to moderately calcareous, anhydritic in part, no shows.
trace light green to gray and brick red CLAYSTONE and brick red, micromicaceous SHALE.

600

Bit #7 out 605m
8-8-RT-A-E-1-WT-PR

RIH Bit #8
Hughes
HC537GHSOD
#W222ADA1

DOLOSTONE - very light to medium gray (gray laminae more evident in some chips), hard, microcrystalline to extremely fine crystalline (Archie IA), minor Archie IIA with calcite matrix in part, weakly to moderately calcareous, anhydritic in part, trace white anhydrite blebs <1mm, tight, no show.
trace pale green and red mottled CLAYSTONE with clear angular fine quartz.
NO SAMPLE (missed).

Density 1060
Vis 28

625

as previous sample.

DOLOSTONE - as previous, white to cream and minor very light grey and pink.

16/01/2003

650

DOLOSTONE -as previous, white to light brown gray and gray brown (slightly argillaceous and silty).

Bit #8 out 661m
8-2-WT-A-1-1-BT-PR

RIH Bit #9
in 661m
Reed EHP51H
#M178757

DOLOSTONE - white to very light grey brown, hard to brittle, microcrystalline to extremely fine crystalline (Archie IA), trace white oolitic grainstone replaced by silica, trace loose sub- to euhedral clear and cloudy dolomite (vuggs), trace very fine disseminated pyrite, tight, no show.
DOLOSTONE - white to very light grey brown, hard to brittle, microcrystalline to extremely fine crystalline (Archie IA) , trace shaly laminae.

Bit #9 out 675m
1-1-NO-A-0-0-NO-PR

675

survey
0.15 deg

trip for bit #9

17/01/2003

Bit #10
in @666m
HR61A

700

DOLOSTONE - light to dark brown, gray brown, hard to brittle, microcrystalline to fine crystalline (Archie IA) .

0 50 100
0 20 40

DOLOSTONE - white to medium brown and light gray, hard to brittle, microcrystalline to fine crystalline (Archie IA) .

DOLOSTONE - mixed white to light brown and light medium bluish gray (argillaceous and pyritic - extremely fine), hard to brittle, microcrystalline to extremely fine crystalline (Archie IA), trace medium blue gray pyritic shaly partings .
DOLOSTONE - as previous, alternating white to very light brown and medium to dark brown over intervals <5m;
trace dark brown bituminous shaly, finely banded laminae (algae?) with pale yellow slow streaming out

725

water
dens 1140
vis 30
pH 9.0

DOLOSTONE - alternating white to very light brown and medium to dark brown over intervals <5m, hard to brittle, microcrystalline to extremely fine crystalline (Archie IA);
trace dark brown bituminous shaly laminae (algae?) with pale yellow slow streaming out.

750

DOLOSTONE - as previous.

775

18/01/2003

DOLOSTONE - alternating white to very light brown and medium to dark brown over intervals <5m, hard to brittle, microcrystalline to extremely fine crystalline (Archie IA);
2% medium blue gray, soft subtleaie shale with 2% very finely disseminated pyrite and trace light brown, coarse euhedral dolomite crystals.

Bit #11 in 792m
HP61AHQ
#NQ1469

Bit #10 out 793m
8-WT-A-E-1-BT-PR

0 50 100
0 20 40

800

water
dens 1050
vis 30
pH 9.0

CASING

Bit #11 out @826m
1-3-NO-A-0-0-NO-TD

20/01/2003
21/01/2003

DOLOSTONE - white, sugary and friable, very fine crystalline, (Archie IIB) to light gray, hard and brittle, microcrystalline (Archie IA), trace tabular bright white anhydrite.

Bit #12
dip current
RR170
#HA72027

24/01/2003
25/01/2003

Bit #13
in @ 809m
SHM614DH
#LK4753

gel
dens 1050
vis 39
pH 7.5

825

LIMESTONE - buff to dark gray brown, massive, hard, microcrystalline (trace white extremely fine crystalline Archie IIIB), moderately dolomitic, slightly silty in part, tight, no show;
trace dark brown micromicaceous shale, bituminous in part, moderate yellow slow streaming out.

850

DOLOMITIC LIMESTONE - cream to medium gray brown, massive, hard, microcrystalline to extremely fine crystalline mudstone, trace dark brown micromicaceous shale, tight, no show.

LIMESTONE - cream to light brown gray, soft to firm, flaky, microcrystalline mudstone, Archie IA (trace white extremely fine crystalline Archie IIIB), dolomitic in part, trace extremely fine disseminated pyrite, tight, no show.
No Sample - missed.

26/01/2003

LIMESTONE - white, cream to medium gray, hard, microcrystalline mudstone, dolomitic in part, argillaceous in part, trace extremely fine disseminated pyrite, tight, no show.

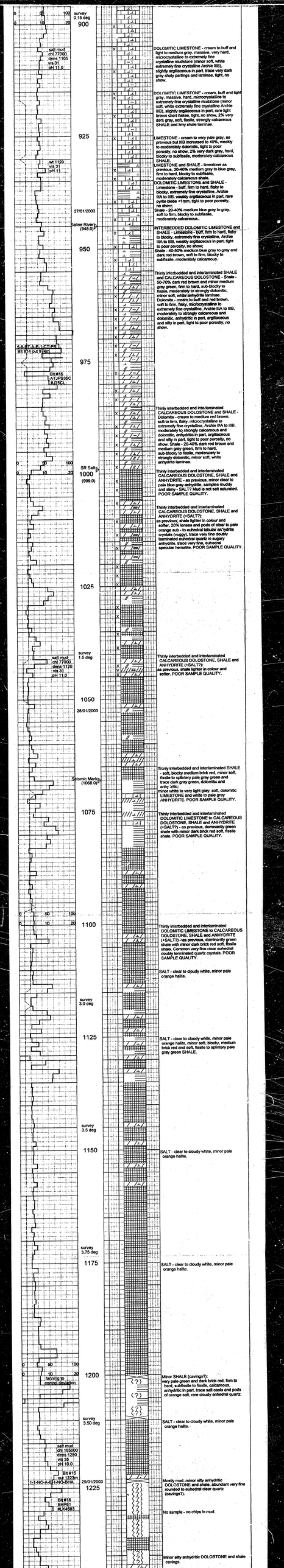
Bit #13
out 869m
8-8-WT-A-E-1-BT-PR

875

Bit #14 in 869m
EHP61GDH
#LK4753

DOLOMITIC LIMESTONE - cream to medium gray brown and gray, massive, hard, microcrystalline to extremely fine crystalline mudstone (trace white extremely fine crystalline Archie IIIB), trace clear platy and fibrous selenite crystals and bright white anhydrite, trace light brown chert, trace very dark gray shaly partings and laminae, tight, no show.

RDP scale change
0 10 20


survey
0.15 deg
900
salt mud
chl 77000
dens 1105
vis 31
pH 11.0
DOLOMITIC LIMESTONE - cream to buff and light to medium gray, massive, very hard, microcrystalline to extremely fine crystalline mudstone (minor soft, white extremely fine crystalline Archie IIIB), slighly argillaceous in part, trace very dark gray shaly partings and laminae, tight, no show.
DOLOMITIC LIMESTONE - cream, buff and light gray, massive, hard, microcrystalline to extremely fine crystalline mudstone (minor soft, white extremely fine crystalline Archie IIIB), slighly argillaceous in part, rare light brown chert flakes, tight, no show, 2% very dark gray, soft, fissile, strongly calcareous SHALE and limy shale laminae.
925
LIMESTONE - cream to very pale gray, as previous but IIIB increased to 40%, weakly to moderately dolomitic, tight to poor porosity, no show, 2% very dark gray, hard, blocky to subfissile, moderately calcareous SHALE.
wt 1120
vis 31
pH 11
LIMESTONE and SHALE - limestone as previous, 20-40% medium gray to blue gray, firm to hard, blocky to subfissile, moderately calcareous shale.
DOLOMITIC LIMESTONE and SHALE - Limestone - buff, firm to hard, flaky to blocky, extremely fine crystalline, Archie IIIA to IIIB, weakly argillaceous in part, rare pyrite blebs <1mm, tight to poor porosity, no show.
Shale - 20-40% medium blue gray to gray, soft to firm, blocky to subfissile, moderately calcareous.
27/01/2003
Saline Rivers
(945.0)
INTERBEDDED DOLOMITIC LIMESTONE and SHALE - Limestone - buff, firm to hard, flaky to blocky, extremely fine crystalline, Archie IIIA to IIIB, weakly argillaceous in part, tight to poor porosity, no show.
950
Shale - 40-50% medium blue gray to gray and dark red brown, soft to firm, blocky to subfissile, moderately calcareous.
Thinly interbedded and interlaminated SHALE and CALCAREOUS DOLOSTONE - Shale - 50-70% dark red brown and minor medium gray green, firm to hard, sub-blocky to fissile, moderately to strongly dolomitic, minor soft, white anhydrite laminae. Dolomite - cream to buff and red brown, soft to firm, flaky, microcrystalline to extremely fine crystalline, Archie IIIA to IIIB, moderately to strongly calcareous and dolomitic, anhydritic in part, argillaceous and silty in part, tight to poor porosity, no show.
4-8-8BT-A-E-1-CT-PR
BR #14 out 9744m
975
BR#15
AT:PS35C
(BJ/SCL)
SR Salts
1000
(999.0)
Thinly interbedded and interlaminated CALCAREOUS DOLOSTONE, SHALE and ANHYDRITE - as previous, minor clear to pale blue gray anhydritic, samples muddy and slimy - SALT? Mud is not salt saturated. POOR SAMPLE QUALITY.
Thinly interbedded and interlaminated CALCAREOUS DOLOSTONE, SHALE and ANHYDRITE (+SALT?):
as previous, shale lighter in colour and softer, 20% lenses and pods of clear to pale orange sub - to euhedral tabular anhydrite crystals (vuggy), trace very fine doubly terminated euhedral quartz in sugary anhydrite, trace very fine, euhedral specular hematite. POOR SAMPLE QUALITY.
1025
survey
1.5 deg
salt mud
chl 77000
dens 1120
vis 31
pH 11.0
Thinly interbedded and interlaminated CALCAREOUS DOLOSTONE, SHALE and ANHYDRITE (+SALT?):
as previous, shale lighter in colour and softer. POOR SAMPLE QUALITY.
1050
28/01/2003
Thinly interbedded and interlaminated SHALE - soft, blocky medium brick red, minor soft, fissile to splintery pale grey green and trace dark grey green, dolomitic and anhy; vitric;
Seismic Marker
(1068.0)
minor white to very light grey, soft, dolomitic LIMESTONE and white to pale gray ANHYDRITE. POOR SAMPLE QUALITY.
1075
Thinly interbedded and interlaminated DOLOMITIC LIMESTONE to CALCAREOUS DOLOSTONE, SHALE and ANHYDRITE (+SALT?) - as previous, dominantly green shale with minor dark brick red soft, fissile shale. POOR SAMPLE QUALITY.
1100
Thinly interbedded and interlaminated DOLOMITIC LIMESTONE to CALCAREOUS DOLOSTONE, SHALE and ANHYDRITE (+SALT?) -as previous, dominantly green shale with minor dark brick red soft, fissile shale. Common very fine clear euhedral doubly terminated quartz crystals. POOR SAMPLE QUALITY.
SALT - clear to cloudy white, minor pale orange halite.
survey
3.0 deg
1125
SALT - clear to cloudy white, minor pale orange halite, minor soft, blocky, medium brick red and soft, fissile to splintery pale gray green SHALE.
survey
3.5 deg
1150
SALT - clear to cloudy white, minor pale orange halite.
survey
3.75 deg
1175
SALT - clear to cloudy white, minor pale orange halite.
1200
farming to
control deviation
Minor SHALE (cavings?):
very pale green and dark brick red, firm to hard, subfissile to fissile, calcareous, anhydritic in part, trace salt casts and pods of orange salt, rare cloudy anhedral quartz.
survey
3.50 deg
SALT - clear to cloudy white, minor pale orange halite.
salt mud
chl 185000
dens 1350
vis 35
pH 10.0
BR #15
out 1223m
1-1-NO-A-BT-NO-RHA
29/01/2003
1225
Mostly mud, minor silty anhydritic DOLOSTONE and shale, abundant very fine rounded to euhedral clear quartz (cavings?).
BR #16
RR#1
BLK4583
No sample - no chips in mud.
Minor silty anhydritic DOLOSTONE and shale cavings.

GEOLOGICAL MARKERS

FORMATION	Measured Depth (m)	True Vertical Depth	SUBSEA (m)	PROGNOSIS	LOG TOPS
Franklin Mtn	350.0	350.0	-85.0		350.0
Saline River	945.0	945.0	-680.0	856.0	940.5
SR Salt	999.0	999.0	-734.0	868.0	997.5
Seismic Mark	1068.0	1068.0	-803.0	968.0	1067.0
Mt. Cap	1280.0	1280.0	-1015.0	1090.0	1278.0
Shale Marker	1380.0	1380.0	-1115.0	1240.0	1380.5
Dolomite Mar	0.0	0.0	265.0	1306.0	
Mount Clark	1438.0	1438.0	-1173.0	1310.0	1436.5
Proterozoic	1446.0	1446.0	-1181.0	1330.0	1445.0

BEST
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