# FINAL WELL REPORT

# PARAMOUNT RESOURCES LTD.

# PARA ET AL CAMERON D-49

**Grid: $60^0$ 10′, $117^0$ 30′**

**DATE: July 7, 2003**

**COMPANY REPRESENTATIVE:**
**Dave Block**

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D. GEOLOGY



1. Geological report.
2. Geological composite log
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## A. INTRODUCTION

Paramount Resources Ltd. (Paramount) drilled a 1582 meter exploratory well spudded on February 7, 2003 and finishing on February 15, 2003 to evaluate hydrocarbon potential. The primary target was the Sulphur Point formation at a depth of 1392 mKB. The secondary target was the Slave Point formation at 1334 mKB

The drilling contractor was Precision Drilling based out of Calgary, Alberta. Precision rig # 117 was used and is a land rig rated for 1800 m. The rig had a mud system capacity of 65 $m^3$ and was equipped with a boiler.

The well was drilled on Production License No PL-15 in which Paramount has an 88% working interest. Operating License No 1973 was issued to Paramount on December 6, 2003.

The exact co-ordinates of the well are as follows:

Latitude: $60^0$ 08' 10.469"
Longitude: $117^0$ 38' 56.827"

Shadow Rathole Drilling Ltd. drilled a 610 mm conductor hole to 12.2 meters. From surface to 1.0 meters was packed snow, 1.0 – 4.0 m was gravel, and 4.0 – 12.2 m was rocks and clay. A 406 mm conductor pipe was set and cemented at 12.2 meters.

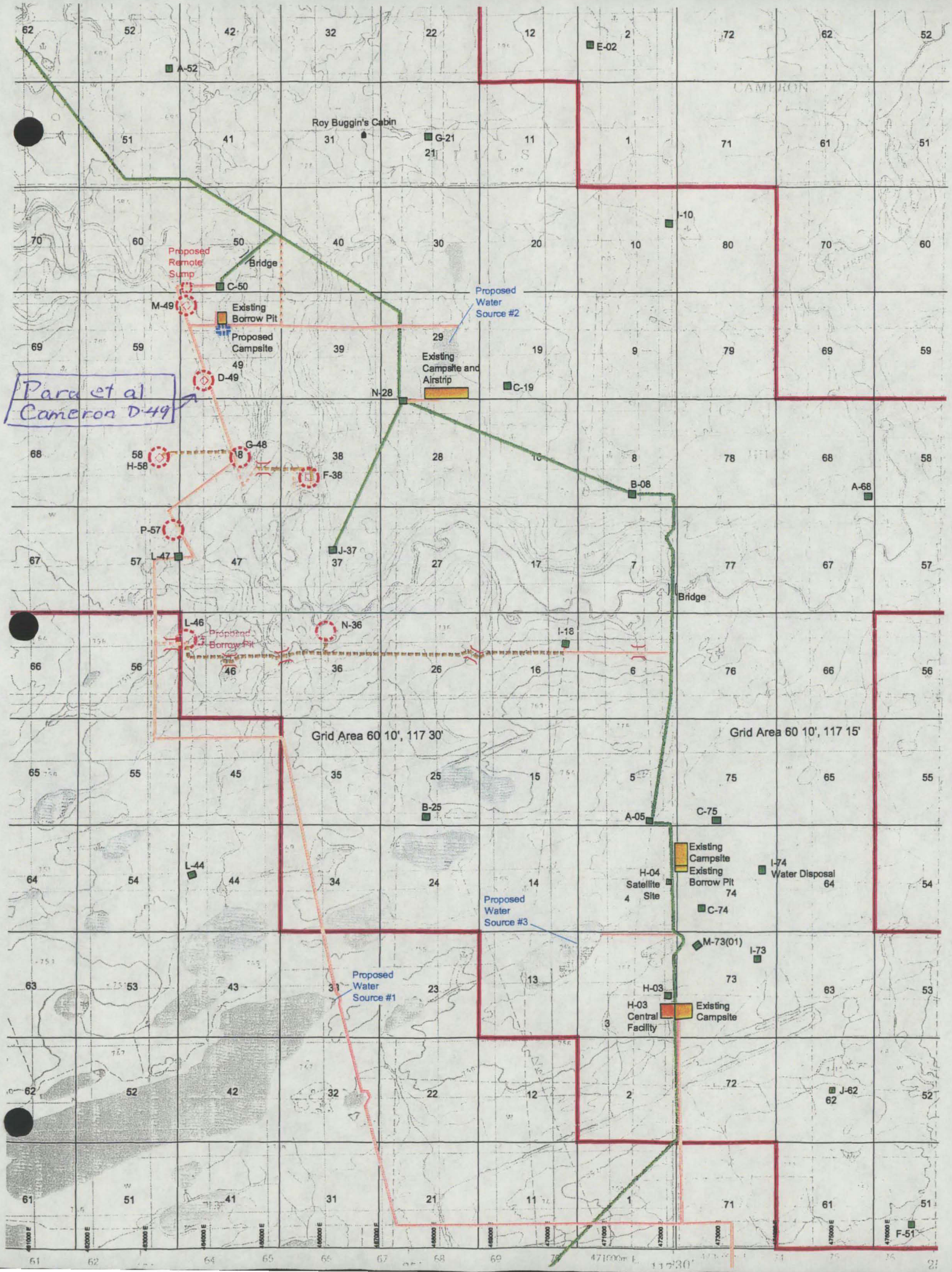
Precision #117 was moved onto the location and rigged up on February 6, 2003. The diverter was nippled up, the rig was rigged up, and the well was spudded on February 7, 2003 at 15:00 hours. A 311 mm surface hole was drilled to 431 mKB. There were no major lost circulation or mud ring problems but rock and gravel were encountered from 22 to 65 meters with minor losses. A string of 219.1 mm, 35.7 kg/m, J-55, ST&C surface casing was run to 431 mKB. The casing was cemented with 33 t class 'G' cement plus 2% $CaCl_2$. There were 7 $m^3$ of cement returned to surface while cementing. The plug was bumped and the float held OK. The plug was down at 01:21 hours on February 10, 2003.

The casing and conductor were trimmed and the casing bowl was welded on. The BOP's were installed and function tested. The BOP's and manifold were pressure tested to 1500 kPa low pressure and 10500 kPa high pressure.

The float collar and shoe were drilled out to 438 mKB on February 12, 2003 A leak off test was performed with the leak off gradient found to be 29.9 kPa/m. A 200 mm hole was drilled with a flocculated water system to approximately 1250 m. A gel/chem mud system was then used to drill to a total depth of 1582 mKB. A single DST was run on the Keg River formation. Computalog ran induction, density, and sonic logs from bottom to surface casing and a micro resistivity log from bottom to 1325 mKB.

139.7 mm, 20.83 kg/m, J-55, ST&C production casing was run and set at 1579 mKB. It was cemented with 20.0 t Fill-Lite 2-125 + 3% A-9 + 0.6% R-3 and 10 t 'G' cement + 0.1% R-3 + 0.4% FL-77. There were 5 $m^3$ cement returns and the plug was bumped with 2.0 MPa.

Precision #117 was rigged out and released at 08:00 hours on February 19, 2003.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B. GENERAL DATA

1. Well Name: Para et al Cameron D-49

   Authority to Drill a Well No: 1973

   Exploration Agreement Number: PL-15

   Location Unit: D

   Section: 49

   Grid Area: $60^0$ 10' N, $117^0$ 30' W

   Classification: Delineation

2. Coordinates:
   Latitude: $60^0$ 08' 10.469"
   Longitude: $117^0$ 38' 56.827"

3. Unique Well Identifier: 300D496010117300

4. Operator: Paramount Resources Ltd.

5. Contractor: Precision Drilling

6. Drilling Unit: Precision Rig # 117, Land Rig

7. Position Keeping: N/A

8. Support Craft (Helicopter): N/A

9. Drilling Unit Performance: Good

10. Difficulties and Delays: None

11. Total Well Cost: $772,000

12. Bottom Hole Co-ordinates: Same as surface

C. SUMMARY OF DRILLING OPERATIONS

1. Elevations:
   Ground: 731.53 m above sea level
   KB: 727.05 m above sea level
   KB to Casing Flange: 4.48 m

2. Total Depth:
   FTD: 1582 mKB
   PBTD: 1573 mKB
   TVD: 1573 mKB

3. Date and Hour Spudded: February 7, 2003 at 15:00 hours

4. Date Drilling Completed: February 15, 2003

5. Date of Rig Release: February 19, 2003

6. Well status: Cased and Suspended

7. Hole Sizes and Depths:

| | |
|---|---|
| Conductor Hole: | 610 mm to 12.2 m |
| Surface Hole: | 311 mm to 431 mKB |
| Main Hole: | 200 mm to 1582 mKB |

8. Casing and Cementing Record:

   Conductor Hole:

| | |
|---|---|
| Casing Size: | 406 mm |
| Wall Thickness: | 7 mm |
| Depth Set: | 12.2 m |
| Cut Height: | At Surface |
| Date Set: | February 3, 2003 |
| Cement Volume: | 40 sacks |
| Cement Type: | Portland Normal |

   Surface Hole:

| | |
|---|---|
| Casing Make: | Ipsco |
| Casing Size: | 219.1 mm |
| Casing Weight: | 35.7 kg/m |
| Casing Grade: | J-55 |
| Thread: | ST&C |
| Number of Joints: | 34 |
| Depth Set: | 431 mKB |
| Cut Height: | At surface |
| Date Set: | February 10, 2003 |
| Cement Volume: | 33 Tonnes |

| | |
|---|---|
| Float Shoe Depth: | 431 mKB |
| Float Collar Depth: | 426 mKB |
| Cement Type: | Class 'G' |
| Additives: | 2% $CaCl_2$ |
| Cement Top: | Surface |
| Casing Bowl Size: | 279 mm x 21 Mpa |
| Casing Bowl Make: | ABB Vetco |

Main Hole:

| | |
|---|---|
| Casing Size: | 139 mm |
| Casing Weight: | 20.83 kg/m |
| Casing Grade: | J-55 |
| Casing Make: | Ipsco |
| Number of Joints: | 117 |
| Thread: | ST&C |
| Depth Set: | 1579 m KB |
| Cut Height: | Surface |
| Date Set: | February 18, 2003 |
| Float Shoe Depth: | 1579 mKB |
| Float Collar Depth: | 1573 mKB |
| Cement Volume 1: | 20.0 Tonnes |
| Cement Type 1: | Fill-Lite 2-125 |
| Additives 1: | 3% A-9 & 0.6% R-3 |
| Cement Volume 2: | 10 Tonnes |
| Cement Type 2: | Class 'G' |
| Additives 2: | 0.1% R3 & 0.4% FL-77 |
| Cement Top: | To be determined by cement bond log. |

9. Sidetracked Hole: N/A

10. Drilling Fluid:

| | | |
|---|---|---|
| Conductor Hole: | Water | |
| Properties: | N/A | |
| Surface Hole: | Gel - Chemical | |
| Properties: | Viscosity: | 42 - 87 sec/L |
| | Weight: | 1070 - 1190 kg/m$^3$ |
| | PH: | 8.0 – 9.5 |
| Main (431 – 1250 m): | Floc water | |
| Properties: | Viscosity: | 28 sec/L |
| | Weight: | 1000 kg/m$^3$ |
| | PH: | 9.0 |
| Main (1250 m – TD): | Gel-chem | |

| | | |
|---|---|---|
| Properties: | Viscosity: | 30 - 52 sec/L |
| | Weight: | 1050 - 1090 kg/m$^3$ |
| | PH: | 8.0 – 11.0 |
| | Water loss: | 10.0 – 16.0 cc |
| | Solids: | Not reported |
| | Gels: | Not reported |
| | Filtrate: | Not reported |
| | PV / YP: | Not reported |

11. Fishing Operations: **N/A**

12. Well Kicks and Well Control Operations: N/A

13. Formation Leak Off Tests:

| | |
|---|---|
| Depth: | 438 m |
| Fluid Density: | 1000 kg/m$^3$ |
| Applied Pressure: | 8652 kPa |
| Hydrostatic Pressure: | 4228 kPa |
| Mud Weight Equivalent: | 3046 kg/m$^3$ |
| Casing setting depth: | 431 mKB |

The surface casing leak-off test was taken to a gradient of 29.88 kPa/m before leak off was detected.

14.Time Distribution

| Date | Hours | Activity |
|---|---|---|
| 03/02/06 | 0.25 | Safety meeting |
| | 15.75 | Move in / rig up |
| 03/02/07 | 8.75 | Move in / rig up |
| | 0.25 | Safety meeting |
| | 0.25 | Rig service |
| | 4.5 | Nipple up diverter |
| | 1.5 | Make up BHA |
| | 8.5 | Drill |
| | 0.25 | Survey |
| 03/02/08 | 0.5 | Rig service |
| | 3.0 | Survey |
| | 16.75 | Drill |
| | 3.0 | Trip |
| | 0.75 | Circulate and condition mud |
| 03/02/09 | 0.25 | Safety meeting |
| | 0.5 | Rig service |
| | 5.75 | Drill |
| | 4.5 | Circulate and condition mud |
| | 0.75 | Survey |
| | 8.5 | Trip |
| | 3.5 | Run casing |
| | 0.25 | Cement casing |
| 03/02/10 | 0.25 | Rig service |
| | 1.5 | Cement casing |
| | 4.0 | Wait on cement |
| | 2.5 | Nipple down diverter |
| | 2.5 | Nipple up BOP's |
| | 6.0 | Test BOP's |
| | 0.25 | BOP drill |
| | 2.0 | Make up BHA |
| | 4.5 | Repair stand pipe and set up flare line |
| | 0.5 | Drill out casing shoe |
| 03/02/11 | 0.25 | Safety meeting |
| | 0.5 | Rig service |
| | 0.25 | Drill out casing shoe |

| | | |
|---|---|---|
| | 21.25 | Drill |
| | 0.75 | Survey |
| | 1.0 | Leak off test |
| 03/02/12 | 0.25 | Safety meeting |
| | 0.75 | Rig service |
| | 1.75 | Survey |
| | 21.25 | Drill |
| 03/02/13 | 0.25 | Rig service |
| | 0.25 | Safety meeting |
| | 1.0 | Survey |
| | 21.0 | Drill |
| | 1.5 | Circulate and condition mud |
| 03/02/14 | 1.25 | Rig service |
| | 9.25 | Drill |
| | 12.5 | Trip |
| | 1.0 | Circulate and condition mud |
| 03/02/15 | 0.25 | Rig service |
| | 4.5 | Circulate and condition mud |
| | 1.0 | Slip & cut drill line |
| | 6.25 | Wait on fishing tools |
| | 9.5 | Trip |
| | 2.5 | Logging |
| 03/02/16 | 0.5 | Safety meeting |
| | 12.5 | Trip |
| | 4.5 | Circulate and condition mud |
| | 2.5 | Run DST |
| | 4.0 | Logging |
| 03/02/17 | 0.5 | Safety meeting |
| | 11.25 | Run DST |
| | 3.5 | Wait on daylight |
| | 1.0 | Thaw frost plug n Kelly hose |
| | 0.75 | Circulate and condition mud |
| | 7.0 | Trip |
| 03/02/18 | 0.5 | Safety meeting |
| | 3.75 | Circulate and condition mud |
| | 7.0 | Trip |
| | 2.0 | Nipple down BOP's |

| | | |
|---|---|---|
| | 6.75 | Run casing |
| | 1.5 | Cement casing |
| | 2.5 | Rig out |
| 03/02/19 | 8.0 | Rig out |

Time Break Down by Activity:

| Activity | Hours |
|---|---|
| Move in / rig up: | 24.25 |
| Drilling: | 103.75 |
| Surveying: | 7.5 |
| Circulate and condition mud: | 21.25 |
| Running casing: | 10.25 |
| Cementing casing: | 3.25 |
| Wait on cement | 4.0 |
| Drill out casing shoe: | 0.75 |
| Rig service: | 4.5 |
| Tripping: | 60.0 |
| Safety meetings: | 3.0 |
| Nipple up diverter: | 4.5 |
| Nipple down diverter: | 2.5 |
| Nipple up BOP's: | 2.5 |
| Nipple down BOP's: | 2.0 |
| Pressure test BOP's: | 6.0 |
| BOP drill: | 0.25 |
| Leak off tests: | 1.0 |
| Make up BHA: | 3.5 |
| Slip & cut drill line: | 1.0 |
| Logging: | 6.5 |
| Thaw frost plug in kelly hose: | 1.0 |
| Repair standpipe: | 4.5 |
| Run DST: | 13.75 |
| Wait on daylight: | 3.5 |
| Wait on fishing tools: | 6.25 |
| Rig out: | 10.5 |

15. Deviation Survey: See page 7 of the Geological Report in the Attachment Section

16. Abandonment Plugs: N/A

17. Composite Well Record: See the copy of the strip log in the Geological Report in the Attachment Section.

18. Completion Record: Reported in a separate report.

D: GEOLOGY

GEOLOGICAL SUMMARY

Tops: See page 10 of the Geological Report in the Attachment Section.

Sample Descriptions: See page 11 - 16 of the Geological Report in the Attachment Section.

Total Depth: 1582 mKB

GAS DETECTION REPORT

A gas detector was utilized from the drill out of the conductor pipe to total depth. The gas detector readings are included on the composite geological log at the end of the Geological Report in the Appendix Section.

DRILL STEM TESTS

#1: Keg River: 1500 – 1510 mKB

| | | | |
|---|---|---|---|
| PF: | 5 min | PFP: | 8244 - 8192 kPa |
| ISI: | 60.5 min | ISIP: | 10758 kPa |
| FF: | 12.5 min | FFP: | 8297 - 9782 kPa |
| FSI: | 114 min | FSIP: | 10750 kPa |

PF: Closed chamber. Average gas flow rate = 83.5 $10^3m^3$/day
Final Flow: Closed chamber. Average gas flow rate = 73.9 $10^3m^3$/day
Rec: 170 m gasified 32 API oil, 20 m mud, & 10 m ammonia/water

WELL EVALUATION

The following logs were run:

| | |
|---|---|
| Simultaneous Triple Induction Shallow Focused Log: | 431 – 1579 mKB |
| Spectral Density Compensated Neutron Log: | 431 – 1572 mKB |
| Borehole Compensated Sonic Log: | 431 – 1578 mKB |
| Micro Resistivity Log: | 1325.0 – 1562 mKB |

GAS, OIL, & WATER ANALYSES: N/A

FORMATION STIMULATION: N/A

FORMATION AND TEST RESULTS: N/A

DETAILED TEST PRESSURE DATA READINGS: N/A

## E. ENVIRONMENTAL CONSIDERATIONS

There are no known outstanding environmental considerations on this well. The well was drilled sumpless with all drilling fluids being held in tanks on the lease. At the end of the job the water was stripped from the mud system and hauled to the next lease for re-use. The solids were hauled to a remote site where they were disposed of using the mix/bury/cover technique.

ATTACHMENTS

# RUNNING HORSE RESOURCES INC.

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wellsitegeologists@telusplanet.net
www.wellsitegeologists.com

## Geological Report

on

# Para et al Cameron D-49
# Unit D Section 49

Well Reached Total Depth of 1582 metres
on
February 14, 2003 @ 20:30 hours

for

Paramount resources ltd.

**Prepared for:** **Mr. Llew Williams**
**Paramount Resources Ltd.**

**Wellsite Geologist:** **Brad Powell, B.Sc.**
**Running Horse Resources Inc.**

**Approved by:**

**Dennis Winchester, P.Geol.**
**Running Horse Resources Inc.**

PROFESSIONAL GEOLOGIST OF ALBERTA
DENNIS WINCHESTER

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# Geological Summary

**Para et al Cameron D-49** is a vertical well spudded by Precision Drilling Rig #117 on February 7, 2003 @ 15:00. Surface hole is 311mm drilled to 431.3m with 219.1mm casing landed at 431.3m. The 200mm main hole terminated in the **PreCambrian** at 1582.2m on February 14, 2003 @ 20:30.

This well was drilled primarily to produce gas from the **Sulphur Point Dolomite** and secondarily to evaluate the **Keg River** for possible gas. Samples were taken from 1300m to TD at 1582.2m. Triple Induction, SP, Neutron Density, Compensated Sonic run from TD to surface casing. Microlog was run from TD to 1300m. One real time, dual straddle DST was run over the 1500-1510m interval of the Keg River (results unavailable).

The **Sulphur Point** formation was entered at a log depth of 1393.9m (-661.5m) and consisted of microcrystalline to finely crystalline dolomite. It was 11.5m in thickness and was conformably underlain by Muskeg anhydrite. There were common subhedral and occasional euhedral dolomite crystals and rhombs (possible fracture druses) and the intercrystalline and vug porosity was good to excellent. There was patchy light to medium brown oil staining which yielded a bright yellow gold fluorescence and a slow streaming milky yellowish white cut. Well log indicated an average porosity of 9% with intervals of 15-20% on a dolomite scale from 1399-1403m. Deep Induction readings averaged 120-200ohms from 1393-1399m and 70-200 ohms from 1399-1403m (in the most porous interval). **The Sulphur Point Dolomite appears to have good potential for gas production.**

The **Keg River** formation was entered at a log depth of 1492.0m (-760.4m) and consisted of microcrystaine grading to coarse crystalline dolmite. It was 66m thick and was overlying a Granite Wash sand. The Keg River showed scattered fair vug porosity with excellent intercrystalline porosity. Gas detector reading of 795 units (26x BG) was recorded from 1507m-1509m and gas potential was confirmed with strong cross-over of the neutron/density curves. **The Keg River has good potential for gas production at this location.**

**The well was cased as a potential Sulpher Point / Keg River gaswell**

# Well Data Summary

| | |
|---|---|
| **OPERATOR** | **Paramount Resources Ltd.** |
| **WELL NAME** | **Para et al Cameron D-49** |
| **LOCATION** | **Unit D Section 49** |
| | **Grid Area: Lat 60° 10' N Long 117° 30' W** |
| **UWI** | 300D496010117300 |
| **POOL** | Undefined |
| **FIELD** | Cameron |
| **PROVINCE** | North West Territories |
| **LICENCE NUMBER** | 1973 |
| **CLASSIFICATION** | Production |
| **A.F.E. NUMBER** | 02N310147 |
| **SURFACE COORDINATES** | Latitude: 60° 08' 10.469" North |
| | Longitude: 117° 38' 56.827" West |
| **ELEVATIONS** | KB: 731.53m |
| | GL: 727.05m |
| **TOTAL DEPTH** | Driller: 1582.2m (-850.7m) |
| | Logger: 1581.5m (-850.0m) |
| **DRILLING CONTRACTOR** | Precision Drilling Rig #117 |
| **ENGINEER** | Mike Hannas/Brian Neigum 403-997-5286 |
| **GEOLOGIST** | Brad Powell 403-861-0838 |
| **SPUD DATE** | February 7, 2003 @ 15:00 |
| **COMPLETED DRILLING** | February 14, 2003 @ 20:30 |
| **RIG RELEASE** | February |

# Well Data Summary

**HOLE SIZE** Surface hole: 311mm
Main hole: 200mm

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**LOGGING** STI / MRT/ SPED / CNS / GR / XY CAL / BCS from TD to surface casing.
Microlog from TD to top of Slave Point.

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**DST's** Keg River 1500-1510m (real time, dual straddle)

**CORE** none

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**SAMPLES**

| | | |
|---|---|---|
| Operator: | 1 set vials (@ 5m) over interval: | 1300m - TD |
| NEB: | 2 sets vials (@ 5m) over interval: | 1300m - TD |
| | 1 set bags (@ 5m) over interval: | 1300m - TD |
| | 1 set geochem jars (@ 5m) o | 1300m - TD |

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**DIRECTIONS** From High Level, Alberta, go north on Highway 35. 1.3km south of Indian Cabins, turn west onto main road and go 32.5km, staying right at all Y forks. Turn right up big hill, drive 31km, following rig signs. Turn left to location.

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**PROBLEMS**

**Surface Hole:** None.

**Main Hole:** Upon drilling into the Muskeg formation, anhydrite caused the mud system to thicken to the point we could not circulate (estimated mud viscosity 300s/L). The mud system was treated accordingly and normal drilling continued.

# Logging Summary

**Date:** February 15, 2003

**Logging Company:** Computalog Engineer: Glenn Sather

**Mud Properties:** WT: 1070 kg/m3 Visc: 66 s/L WL: 9.0 pH: 8.0

**Hole Size:** 200mm

**Surface Casing:** 219.1mm, 35.7kg/m, set @ 431.34m

**Depths:** Driller: 1582.2m Strap: 1582.2m Logger: 1581.5m

**Logging Times:** First Alerted: 16:00 February 13, 2003

Time Required: 18:00 February 15, 2003 (10.0hr final notice)

Arrived: 17:15 February 15, 2003

**Hole Condition:** Good

**Circulations:** 1hr after TD then 1.5hr after wiper trip

**Wiper Trips:** 20 stands

**LOGGING SEQUENCE**

**Run #1:** STI / MRT/ SpeD / CNS / Pe / GR / XY CAL

**Interval:** TD to surface casing (with MRT from TD to top of Slave Point)

**Run #2:** BCS / XY CAL / GR

**Interval:** TD to surface casing

**REMARKS:** No problems getting logging tools to bottom for Run #1. On bottom with Run #1 @ 22:30 February 15, 2003.

# Bit Record & Casing Summary

## Bit Record

| Bit # | Make | Type | Size | In (m) | Out (m) | Meters (m) | Hours | ROP (m/hr) | IADC T - B - G |
|---|---|---|---|---|---|---|---|---|---|
| 1A | HW | GT-1 | 311mm | 0 | 165 | 165 | 16 | 10.31 | 6 – E - IN |
| 2A | Varel | L117 | 311mm | 165 | 431 | 266 | 19 | 14.00 | 4 – E - IN |
| 1 | Varel | MKS55 | 200mm | 431 | 1559 | 1128 | 65.75 | 17.16 | 4 broken cutters |
| 2 | Varel | CH34 | 200mm | 1559 | 1582 | 23 | 7.50 | 3.07 | 8 – E – 0.25 |

## Casing Summary

| Type | Csg. Size mm | Hole Size mm | Landed m | Total Jts | Remarks |
|---|---|---|---|---|---|
| Surf | 219.1 | 311 | 431.3 | 33 | 33 joints of 219.1mm 35.72kg/m, J-55, 8RD ST&C new casing ran. Cemented with BJ 33t of 0:1:0 Class G + 2% CaCl2. Approximately 7m3 of good returns, float OK, plug down @ 01:21 February 10, 2003. |
| Prod | 139.7 | 200 | 1579 | 119 | 119 joints of 139.7mm 20.3kg/m, J-55, 8RD ST&C new casing ran. Cemented with BJ with 20t Fill-lite 2-125 with 0.6% R-3 and 3% A-9 for lead. Tail cement 10t 0:1:0 Class G with 0.4% FL-77 and 0.1% R-3. 8.0m3 good returns. Plug down 19:35 on February 18, 2003. |

# Deviation Surveys

| DEPTH (m) | DEVIATION (degrees) |
|---|---|
| 31 | 0.25 |
| 59 | 0.75 |
| 95 | 0.50 |
| 123 | 0.75 |
| 151 | 1.00 |
| 180 | 1.50 |
| 208 | 1.00 |
| 237 | 0.75 |
| 265 | 0.25 |
| 293 | 0.75 |
| 322 | 1.00 |
| 350 | 0.50 |
| 379 | 0.50 |
| 407 | 0.75 |
| 476 | 0.50 |
| 571 | 0.75 |
| 667 | 0.50 |
| 772 | 0.75 |
| 875 | 0.50 |
| 971 | 0.25 |
| 1085 | 0.50 |
| 1237 | 0.25 |
| 1361 | 0.25 |
| 1472 | 0.25 |
| 1570 | 1.00 |

# Daily Drilling Summary

| Date | Depth | Progress | Operations (as of 23:59 on date shown) |
|---|---|---|---|
| Feb 6 | 0 | 0 | Move rig to location. Start rigging up rig. |
| Feb 7 | 49 | 49 | Nipple up diverter, function test. Test accumulator and related BOP equipment. Spud well February 7, 2003 @ 15:00. Drill 311mm surface hole with Bit #1A with surveys and required rig service to 49m. |
| Feb 8 | 340 | 291 | Drill 311mm surface hole with required surveys and rig service from 49m to 165m. POOH for bit trip. RIH with Bit #2A. Drill ahead to 340m. |
| Feb 9 | 431 | 140 | Drill 311mm surface hole with required surveys and rig service from 340m to 426m. Circulate and condition hole. Wiper trip with strap tally. RIH and wash to bottom. Drill to surface TD @ 431m. Circulate and condition hole for running casing. POOH. Safety meeting. Rig for and run 33 joints 219.1mm surface casing. Circulate casing and condition mud for cement. Rig in BJ to cement. |
| Feb 10 | 431 | 0 | Cement casing. WOC Cut casing, weld on bowl. Pressure test manifold, blind rams, casing, bowl, kill valves, relief valve, HCR, pipe rams, annular, stabbing valve, Kelly cocks. Function test motor kills. Make up BHA and RIH with Bit #1. Safety meeting. Tag cement at 420m, drill out plug. |
| Feb 11 | 704 | 273 | Drill out plug, drill ahead 200mm main hole with surveys and required rig service from 431m to 704m. |
| Feb 12 | 1300 | 594 | Drill ahead 200mm main hole with Bit #1 with surveys and required rig service from 704m to 1300m. |
| Feb 13 | 1546 | 246 | Drill ahead 200mm main hole with Bit #1 with surveys and required rig service from 1300m to 1407m. Stop and clean mud system and swap to gypsum mud for anhydrite contamination. Drill ahead to 1546m. |

# Daily Drilling Summary

| Date | Depth | Progress | Operations (as of 23:59 on date shown) |
|---|---|---|---|
| Feb 14 | 1559 | 13 | Drill 200mm main hole from 1546m to 1559m with required rig service and surveys. Stop and circulate up sample. POOH for bit trip. Make up new BHA with Bit #2. RIH. Drill ahead 200mm main hole from 1559m to 1582m. Stop and circulate sample, POOH bit trip for poor ROP. Inspect bit and decided to call out fishing tools. |
| Feb 15 | 1582 | 23 | Wait on tools. Called TD. RIH to condition hole for loggers. Circulate, POOH to log. Rig up Computalog. Log Run #1. |
| Feb 16 | 1582 | 0 | Complete Log Run #1. RIH with Log Run #2. Log Run #2. Rig out loggers. RIH to condition hole for DST. POOH. Rig up Baker for DST. |
| Feb 17 | 1582 | 0 | Rig up Baker for DST. RIH. Run DST with time intervals of 5, 60, 10, 180min. RIH to condition hole for casing. |
| Feb 18 | 1582 | 0 | Circulate to condition hole for casing. POOH and lay down drill string. Run 119 joints 139.7mm production casing. Circulate casing. Rig for cementers. Cement production casing with BJ. WOC. |
| Feb 19 | 1582 | 0 | Nipple down BOPs, set slips, tear out rig. Rig released 08:00 February 19, 2003. |

# Formation Tops

**Kelly Bushing Elevation: 731.5m**

| Formation | Sample (m) | Logger (m) | Elevation (m) |
|---|---|---|---|
| | | | |
| Wabamun | n/a | 503.0 | +228.5 |
| Fort Simpson | n/a | 718.0 | + 13.5 |
| Slave Point | 1332.0 | 1333.5 | -602.0 |
| F4 | 1372.5 | 1373.0 | -641.5 |
| Watt Mountain | 1379.5 | 1380.0 | -648.5 |
| Sulphur Point LS | 1383.5 | 1384.5 | -653.0 |
| Sulphur Point DOL ** | 1388.0 | 1393.0 | -661.5 |
| Muskeg | 1404.5 | 1404.5 | -673.0 |
| Keg River * | 1494.0 | 1492.0 | -760.5 |
| PreCambrian | 1557.5 | 1557.5 | -826.0 |
| T.D. | 1582.2 | 1581.5 | -850.0 |
| | | | |

***Primary Zones of Interest*
** Secondary Zones of Interest*

1295m-1305m
SHALE 80%, 1. gray brown to medium brown, micromicaceous in part, blocky, firm, dolomitic in part, silty in part, trace calcite veining, 2. light greenish gray to light green, dull to slightly micromicaceous, platy, fissile to firm, smooth and waxy in part, calcareous, locally pyritized and pyrite nodules, LIMESTONE 20%, off white to light gray, micritic, mudstone, lumpy to blocky, dense, tight, locally pyritized, no shows

1305m-1310m
SHALE 80%, 1. gray brown to medium brown, dark brown to occasional black, bituminous appearance in part, micromicaceous in part, blocky, firm, dolomitic in part, silty in part, occasionally grading to coal, trace calcite veining, 2. light greenish gray to light green, dull to slightly micromicaceous, platy, fissile to firm, smooth and waxy in part, calcareous, locally pyritized and pyrite nodules, LIMESTONE 20%, off white to light gray, micritic, mudstone, lumpy to blocky, dense, tight, locally pyritized, no shows

1310m-1325m
SHALE 40%, light green gray to light green, dull to slightly micromicaceous, platy, smooth and waxy, calcareous, in part pyritized, pyrite nodules, SHALE 30%, dark brown to black, bituminous appearance, lumpy to blocky, firm, common calcareous veining, LIMESTONE 40%, off white to light gray, occasional light brown, micritic to occasional very fine crystalline, mudstone, lumpy to blocky, dense, tight, locally pyritized and coarse pyrite nodules, trace bioclastic debris, no shows

1325m-1332m
SHALE 50%, light green gray to light green, dull to slightly micromicaceous, platy, smooth and waxy, calcareous, in part pyritized, pyrite nodules, LIMESTONE 50%, off white to light gray, occasional light brown, micritic to occasional very fine crystalline, mudstone, lumpy to blocky, dense, tight, locally pyritized and coarse pyrite nodules, no shows

**SLAVE POINT @ 1332m**

1332m-1335m
LIMESTONE 100%, cream to light brown, brown, predominantly cryptocrystalline to microcrystalline, occasionally very fine crystalline, mudstone to wackestone, in part chalky, argillaceous in part, lumpy to blocky, scattered pyrite nodules and locally disseminated pyrite crystals, dense with trace poor intercrystalline porosity, inferred minor earthy porosity, tight, questionable show

1335m-1340m
LIMESTONE 100%, as above but darker brown, hydrocarbon odor in sample, trace poor intercrystalline porosity, spot yellow fluorescence, weak greenish yellow watery cut

1340m-1350m
LIMESTONE 100%, cream to light brown, brown, mottled in part, predominantly cryptocrystalline to microcrystalline, occasionally very fine crystalline, mudstone to wackestone, in part chalky, argillaceous in part, lumpy to blocky, scattered pyrite nodules and locally disseminated pyrite crystals, dense with trace poor intercrystalline porosity, inferred minor earthy porosity, tight, questionable show

1350m-1360m
LIMESTONE 100%, cream to light brown to brown, mottled in part, predominantly microcrystalline to very fine crystalline, mudstone to wackestone, in part chalky, argillaceous in part, lumpy to blocky, scattered pyrite nodules and locally disseminated pyrite crystals, common bituminous partings, in part pelletal, dense with trace poor intercrystalline porosity, inferred minor earthy porosity, dull yellow fluorescence, instant milky yellow white cut

1360m-1370m
LIMESTONE 100%, cream to buff, light brown to gray brown, mottled, microcrystalline to fine crystalline, dark fragments in light argillaceous lime mud matrix, pelletal wackestone in part, chalky laminations, locally disseminated pyrite, scattered gray to gray green shale partings, dense, tight, no shows, ANHYDRITE, stringers, amorphous to microcrystalline, white to gray to tan, soft to firm, tight

**F4 MARKER @ 1372.5m**

1370m-1375m
LIMESTONE 90%, as above, trace halo cut, DOLOMITE 10%, brown, microcrystalline, calcareous in part, firm, tight

1375m-1379.5m
LIMESTONE 80%, cream to light brown, occasional light gray tan, becoming lighter than as above, predominantly microcrystalline mudstone to finely crystalline wackestone, argillaceous in part, silty to arenaceous, scattered anhydrite and dolomitic streaks, lumpy to blocky, scattered fossil debris, streaks of poor pinpoint and inter crystalline porosity, no shows, 10% ANHYDRITE, pearly to opaque in part, off white to tan, firm, tight, 10% SHALE partings, gray to green, platy, fissile

**WATT MOUNTAIN @ 1379.5m**

1379.5m-1383.5m
SHALE 100%, slightly greenish gray to mint green, occasionally bright blue green, waxy, soft, slightly calcareous in part, common disseminated pyrite and very coarse cubic pyrite crystals and crystalline clusters

**SULPHUR POINT LIMESTONE @ 1383.5m**

1383.5m-1388m
LIMESTONE, white to tan, cryptocrystalline to microcrystalline, chalky mudstone, assumed poor earthy/chalky porosity, tight, no shows

**SULPHUR POINT DOLOMITE @ 1388m**

1388m-1390m
DOLOMITE 100%, light brown to brown, patchy dark brown oil stain, microcrystalline to very fine crystalline packstone to grainstone, streaks of good vug porosity, good sucrosic intercrystalline porosity, bright yellow fluorescence, slow streaming milky yellow white cut

1390m-1395m
DOLOMITE 100%, light brown to brown, patchy dark brown oil stain, microcrystalline to fine crystalline packstone to grainstone, streaks of fair vug porosity, good sucrosic intercrystalline porosity, scattered sparry calcite suggesting fracture porosity, sandy appearance, trace pyrite, bright yellow fluorescence, slow streaming milky yellow white cut

1395m-1405m
DOLOMITE 100%, light brown to brown, patchy dark brown oil stain, microcrystalline to fine crystalline packstone to grainstone, subhedral to occasional euhedral crystal growth, streaks of fair vug porosity, good sucrosic intercrystalline porosity, scattered sparry calcite suggesting fracture porosity, sandy appearance, trace pyrite, even yellow to gold fluorescence, slow streaming milky yellowish white cut

**MUSKEG @ 1404.5m**

1405m-1410m
ANHYDRITE 80%, pearly to watery lustre in part, white to off white, tan to light brown, occasional gray, cryptocrystalline to microcrystalline, amorphous in part, slightly dolomitic in part, dense, tight, DOLOMITE 20%, as above

1410m-1415m
ANHYDRITE 100%, pearly to watery lustre in part, white to off white, tan to brown, occasional gray, occasionally orange, cryptocrystalline to microcrystalline, amorphous in part, soft to firm, slightly dolomitic in part, dense, tight

1415m-1420m
ANHYDRITE 90%, pearly to watery lustre in part, white to off white, tan to brown, occasional gray, occasionally orange, cryptocrystalline to microcrystalline, amorphous in part, soft to firm, slightly dolomitic in part, dense, tight, DOLOMITE 10%, light brown to dark brown oil stained, microcrystalline to very fine crystalline grainstone, ex vug

porosity, good sucrosic intercrystalline porosity, sandy appearance, yellow fluorescence, slow streaming milky greenish white cut

1420m-1430m
ANHYDRITE 80%, pearly to watery lustre in part, white to off white, tan to brown, occasional gray, cryptocrystalline to microcrystalline, amorphous in part, soft to firm, slightly dolomitic in part, dense, tight, DOLOMITE 20%, light brown to dark brown oil stained, microcrystalline to very fine crystalline grainstone, excellent vug porosity, good sucrosic intercrystalline porosity, sandy appearance, yellow fluorescence, slow streaming milky greenish white cut

1430m-1435m
ANHYDRITE 100%, pearly to watery lustre in part, white to off white, tan to brown, occasional gray, cryptocrystalline to microcrystalline, amorphous to blocky, slightly dolomitic in part, dense, tight, minor DOLOMITE stringers

1435m-1440m
ANHYDRITE 80%, off white to tan, occasional gray to brown, pearly to watery lustre, cryptocrystalline, slightly dolomitic in part, dense, tight, DOLOMITE 20%, light brown to spot dark brown oil stain, microcrystalline to very fine crystalline, occasionally sucrosic, anhydritic in part, fair to good intercrystalline porosity, streaks of fair vug porosity, pale yellow fluorescence, weak green cut

1440m-1450m
ANHYDRITE 100%, as above, minor DOLOMITE as above

1450m-1455m
ANHYDRITE 70%, white to tan, occasional gray to brown, pearly to watery lustre, cryptocrystalline, slightly dolomitic in part, dense, tight, DOLOMITE 30%, light brown to spot dark brown oil stain, microcrystalline to very fine crystalline, occasionally sucrosic, anhydritic in part, streaks of fair intercrystalline porosity, pale yellow fluorescence, questionable show

1455m-1465m
ANHYDRITE 100%, white to tan, occasional gray to brown, pearly to watery lustre, cryptocrystalline, slightly dolomitic in part, dense, tight, minor DOLOMITE, light brown to spot dark brown oil stain, microcrystalline to very fine crystalline, occasionally sucrosic, anhydritic in part, streaks of fair intercrystalline porosity, pale yellow fluorescence, questionable show

1465m-1475m
ANHYDRITE 80%, white to tan, occasional gray to brown, pearly to watery lustre, cryptocrystalline, slightly dolomitic in part, dense, tight, DOLOMITE 20%, light brown to spot dark brown oil stain, microcrystalline to very fine crystalline, occasionally sucrosic, anhydritic in part, streaks of fair intercrystalline porosity, pale yellow fluorescence,

questionable show

1475m-1490m
ANHYDRITE, 100%, as above, DOLOMITE stringers, pale yellow fluorescence, weak watery green cut

1490m-1494m
ANHYDRITE 100%, pearly to watery lustre in part, white to off white, tan to brown, occasional gray, cryptocrystalline to microcrystalline, amorphous in part, soft to firm, slightly dolomitic in part, dense, tight

**KEG RIVER @ 1494m**

1494m-1495m
DOLOMITE 100%, light brown to dark brown oil stained, microcrystalline to very fine crystalline grainstone, trace vug/pinpoint porosity, streaks of fair to good sucrosic intercrystalline porosity, hydrocarbon odor in sample, sandy appearance, yellow fluorescence, slow streaming milky greenish white cut

1495m-1500m
DOLOMITE 100%, tan to gray brown to brown, common dark brown oil stain, microcrystalline to very fine crystalline, packstone to grainstone, scattered fair vug porosity, streaks of fair intercrystalline porosity, sucrosic in part, local anhydrite and calcite infill, sandy appearance, brittle to firm, hydrocarbon odor in sample, spot pale yellow fluorescence, weak cut

1500m-1505m
DOLOMITE 100%, tan to brown, common dark brown oil stain, microcrystalline to fine crystalline, packstone to grainstone, scattered fair vug porosity, streaks of fair intercrystalline porosity, sparry calcite and micro druse and clear dolomite rhombs along cutting surfaces suggest fracture porosity, sucrosic in part, local anhydrite and calcite infill, sandy appearance, brittle to firm, hydrocarbon odor in sample, spot pale yellow fluorescence, weak green cut

1505m-1510m
DOLOMITE 100%, tan to brown, common dark brown oil stain, microcrystalline to coarse crystalline, packstone to grainstone, scattered fair vug porosity, excellent intercrystalline porosity, excellent grain relief, free sparry calcite crystalline clusters and micro druse to coarse clear euhedral and subhedral dolomite rhombs along cutting surfaces suggest vug and/or fracture porosity, common bitumen plugging of pores, sucrosic, local calcite infill, sandy appearance, slightly bituminous, brittle to firm, scattered dolomitized fossil remains including Crinoids, strong hydrocarbon odor in sample, very dull gold fluorescence, weak green cut

1510m-1525m
DOLOMITE 100%, tan to brown, common dark brown oil stain, microcrystalline to fine crystalline, packstone to grainstone, trace poor vug porosity, scattered fair intercrystalline porosity, sandy appearance, in part sucrosic, trace calcite infill, slightly bituminous with black bitumen partings, brittle to firm, very dull gold fluorescence, weak green cut, scattered SHALE partings, gray to green, platy, calcareous

1525m-1545m
DOLOMITE 100%, tan to brown, common dark brown oil stain, predominantly microcrystalline to fine crystalline, local to coarse crystalline, euhedral and subhedral crystal growth, packstone to grainstone, trace poor vug porosity, local fair to good sucrosic intercrystalline porosity, good grain relief, becoming tighter down section, clear dolomite rhombs and sparry calcite, possible fracture porosity, silty to sandy appearance, trace calcite infill, slightly bituminous with black bitumen partings, brittle to firm, very dull gold fluorescence, weak green cut

**CHINCHAGA @ 1545m**

1545m-1553m
DOLOMITE 90%, tan to brown, light gray brown, becoming lighter and more gray than as above, patchy dark brown oil stain, predominantly microcrystalline to fine crystalline, local to coarse crystalline, euhedral and subhedral crystal growth, packstone to grainstone, trace poor vug porosity, local fair to good sucrosic intercrystalline porosity, good grain relief, argillaceous in part, clear dolomite rhombs and sparry calcite, silty to sandy appearance, trace calcite infill, slightly bituminous with black bitumen partings, brittle to firm, very spotty dull gold fluorescence, weak green cut, trace SHALE partings, gray to green, calcareous, 10% ANHYDRITE

**GRANITE WASH @ 1553m**

1553-1557.5m
SANDSTONE, milky to black, very fine to coarse grained, poorly sorted, angular to sub angular, common pyrite, very firm, tight

**PRECAMBRIAN @ 1557.5m**

1557.5m-1582.2m
GRANITE / GNEISS, light gray to black, dark green, predominant hornblende, common green chlorite, orange feldspar, angular clear quartz fragments, coarse grained to granule sized, moderately sorted, angular, arkosic in part, trace pyrite, very hard, weathered, abrasive, tight

**TOTAL DEPTH @ 1582.2m**

1315m, Muskwa bituminous sh 10X

1315m, Muskwa bitns sh 30X

1345m, Slave Point 10X

1345m, Slave Point 30X

1405m, Sulphur Point Dolomite 10X

1405m, Sulphur Point Dolomite 30X

1430m, Muskeg anhydrite 10X

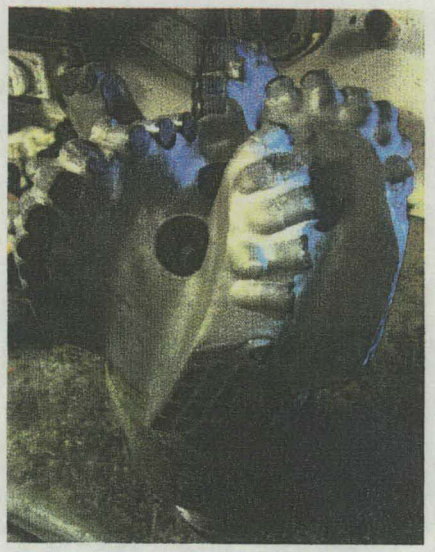
1510m, Keg River 30X

1510m, Keg River 10X

1510m, Keg River 30X

1580m, PreCambrian Granite Wash 10X

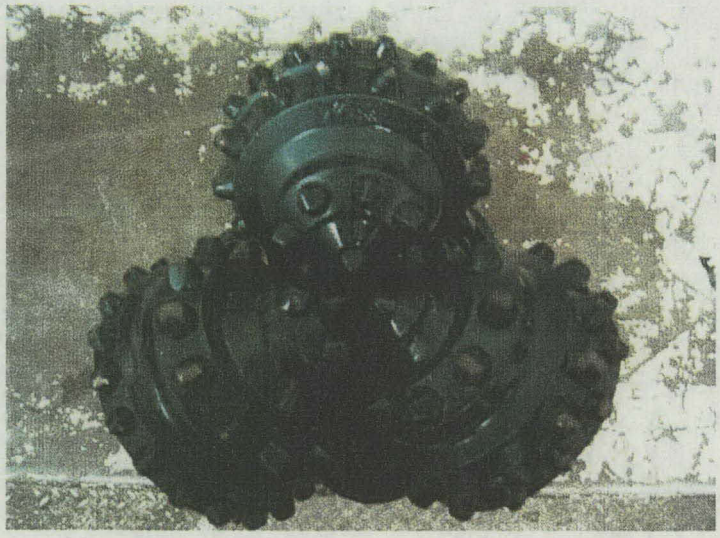
1580m, PreCambrian Granite Wash 30X



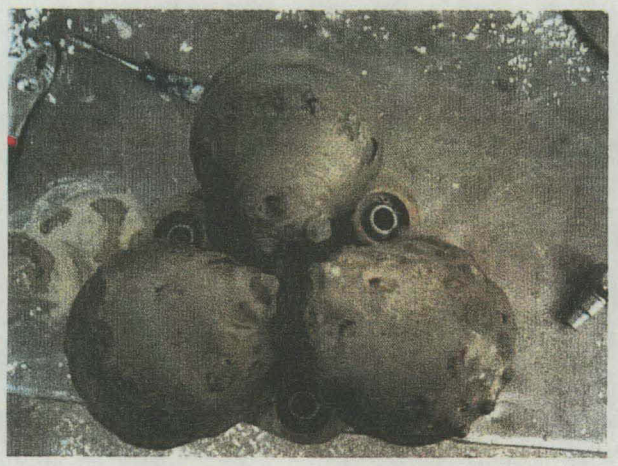
Bit #1 Varel MKS55
minor cutter damage

431 to 1559m = 1128m in 65.75 hrs

Bit #2, Varel, CH34, 200mm



Bit #2, fresh out of the box



Bit #2 from 1559 to 1582m = 23 metres

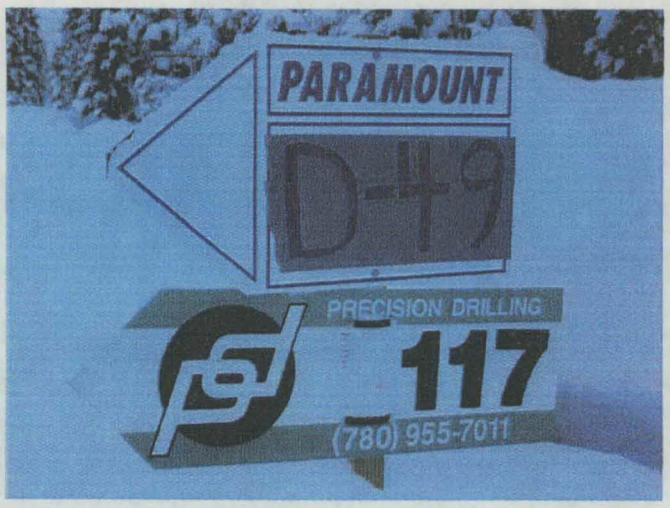
and 7.5 hours later

Engaged in the search for Hydrocarbons

for 14 days in and 7 days out when a swing crew is available

Winter days are short and the Sun stays low

Even the trees struggle here




Street Address

End of Story

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

| | | | |
|---|---|---|---|
| Well Name: | Para et al Cameron D-49 | | |
| Location: | D-49 Grid Area: Lat 60° 10' N Long 117° 30' W | | |
| Licence Number: | 1973 | Region: | Camern Hills, NWT |
| Spud Date: | Feb 7/03 @ 15:00hr | Drilling Completed: | Feb 14/03 @20:30hr |
| Surface Coordinates: | Latitude: 60° 08' 10.469" North<br>Longitude: 117° 38' 56.827" West | | |
| Bottom Hole Coordinates: | | | |
| Ground Elevation (m): | 727.1 | K.B. Elevation (m): | 731.5 |
| Logged Interval (m): | 1295.0 To: 1582.0 | Total Depth (m): | 1582.0 |
| Formation: | Primary = Sulphur Point DOL | Secondary = Keg River | |
| Type of Drilling Fluid: | Gel Chemical | | |



## OPERATOR

Company: Paramount Resources Ltd.
Address: 4700 Bankers Hall West
888 3rd Street S.W.
Calgary, Alberta T2P 5C5

## GEOLOGIST

Name: Brad Powell, B.Sc.
Company: RUNNING HORSE RESOURCES LTD.
Address: Email: wellsitegeologists@telus.net
http://www.wellsitegeologists.com
(403) 660-9883

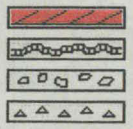
## DSTs

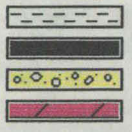
One real time, dual straddle over the porous Keg River interval 1500-1510m was run by Baker.

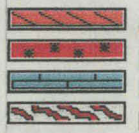
## Comments

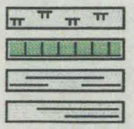
This well was drilled by Presicion Drilling Rig #117.
A Continental gas detector was run.
Paramount AFE #02N310147

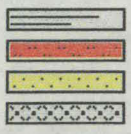
## ROCK TYPES


Anhy
Bent
Brec
Cht


Clyst
Coal
Congl
Dol


Gyp
Igne
Lmst
Meta


Mrlst
Salt
Shale
Shcol


Shgy
Sltst
Ss
Till

## ACCESSORIES

### MINERAL

- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Brecfrag
- Calc
- Carb
- Chtdk
- Chtlt
- Dol
- Feldspar
- Ferrpel
- Ferr
- Glau
- Gyp
- Hvymin
- Kaol
- Marl
- Minxl
- Nodule
- Phos
- Pyr
- Salt
- Sandy
- Silt
- Sil
- Sulphur
- Tuff

### FOSSIL

- Algae
- Amph
- Belm
- Bioclst
- Brach
- Bryozoa
- Cephal
- Coral
- Crin
- Echin
- Fish
- Foram
- Fossil
- Gastro
- Oolite
- Ostra
- Pelec
- Pellet
- Pisolite
- Plant
- Strom

### STRINGER

- Anhy
- Arg
- Bent
- Coal
- Dol
- Gyp
- Ls
- Mrst
- Sltstrg
- Ssstrg

### TEXTURE

- Boundst
- Chalky
- Cryxln
- Earthy
- Finexln
- Grainst
- Lithogr
- Microxln
- Mudst
- Packst
- Wackest

## OTHER SYMBOLS

### POROSITY TYPE

- Earthy
- Fenest
- Fracture
- Inter
- Moldic
- Organic
- Pinpoint
- Vuggy

### SORTING

- Well
- Moderate
- Poor

### ROUNDING

- Rounded
- Subrnd
- Subang
- Angular

### OIL SHOWS

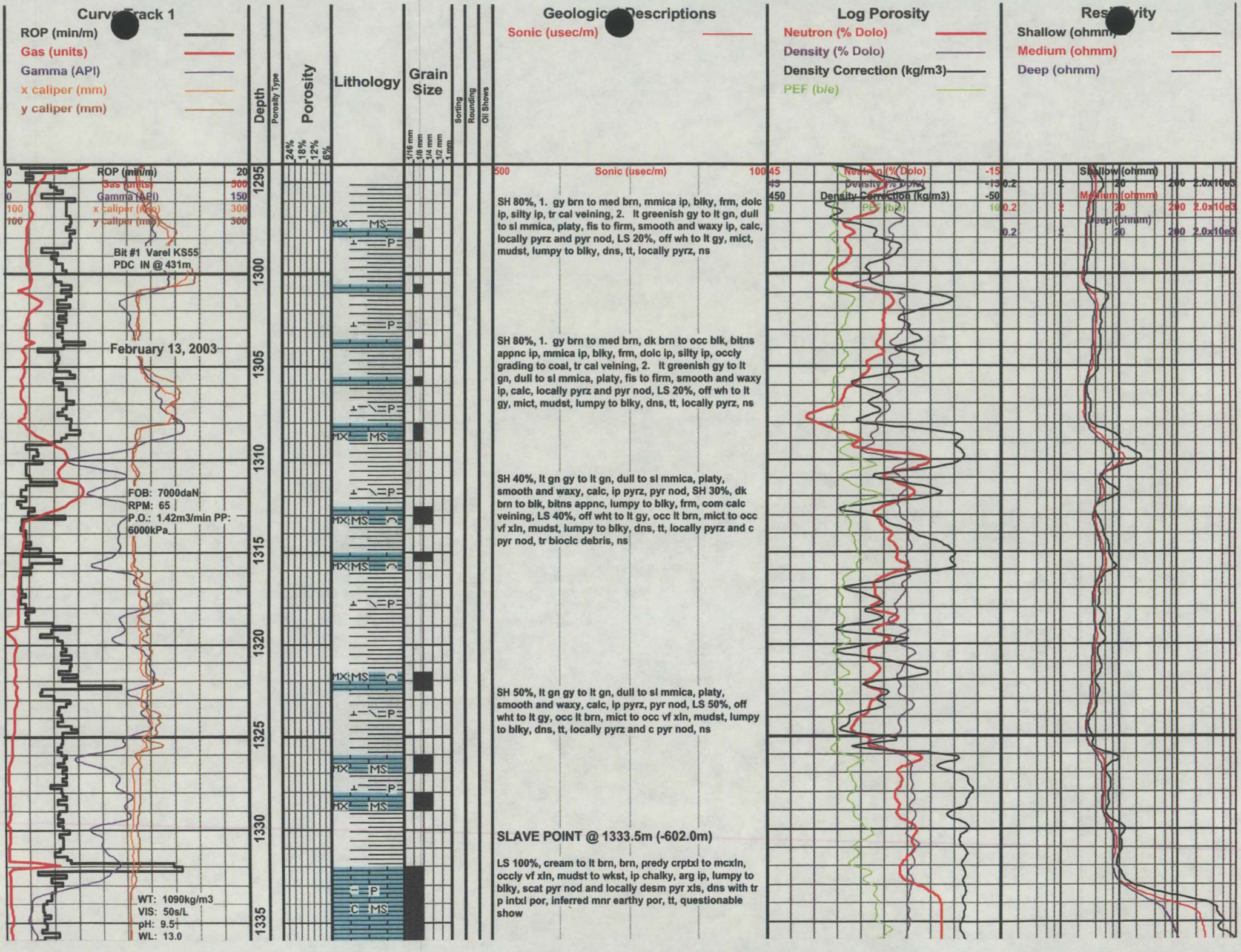
- Even
- Spotted
- Ques
- Dead

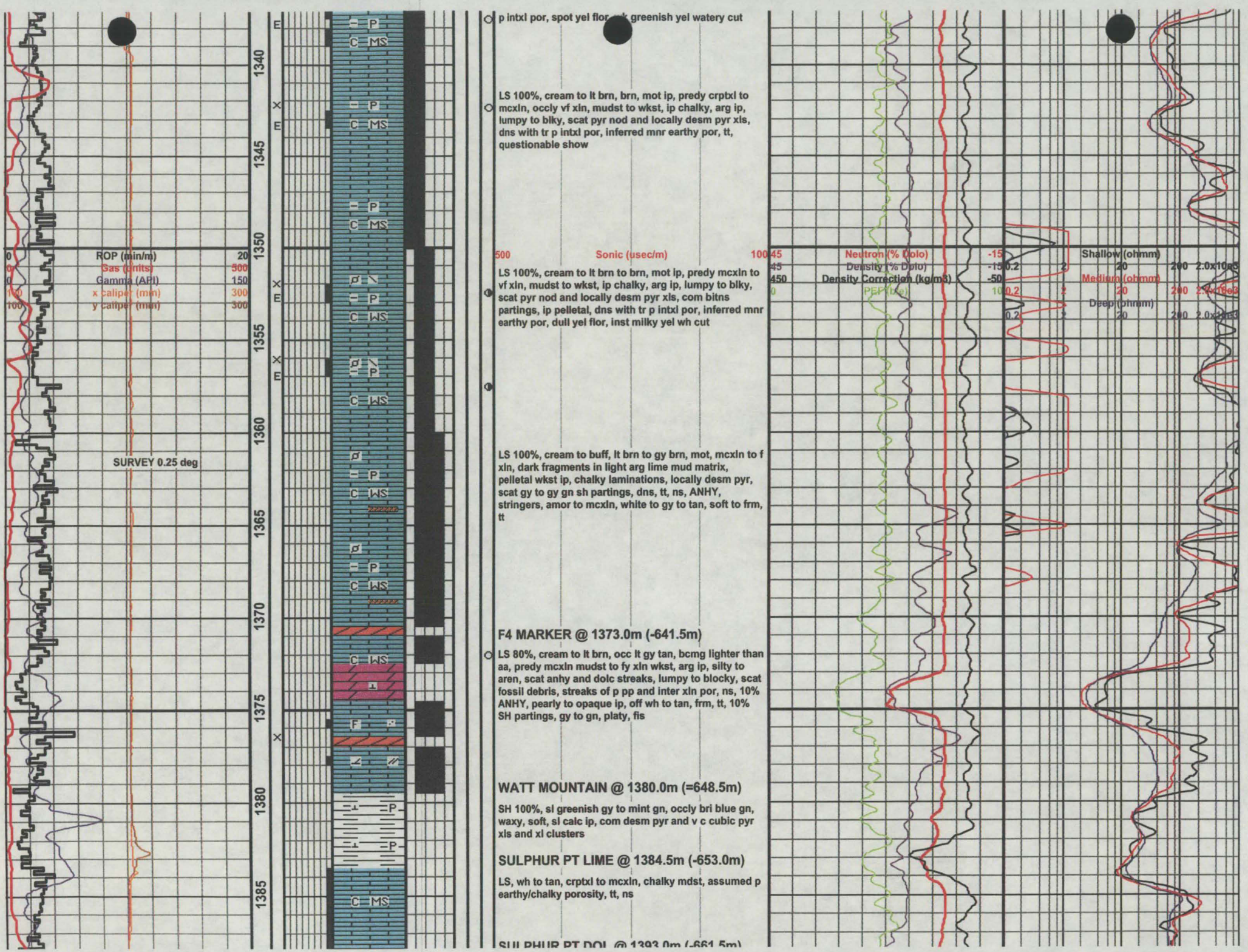
### INTERVALS

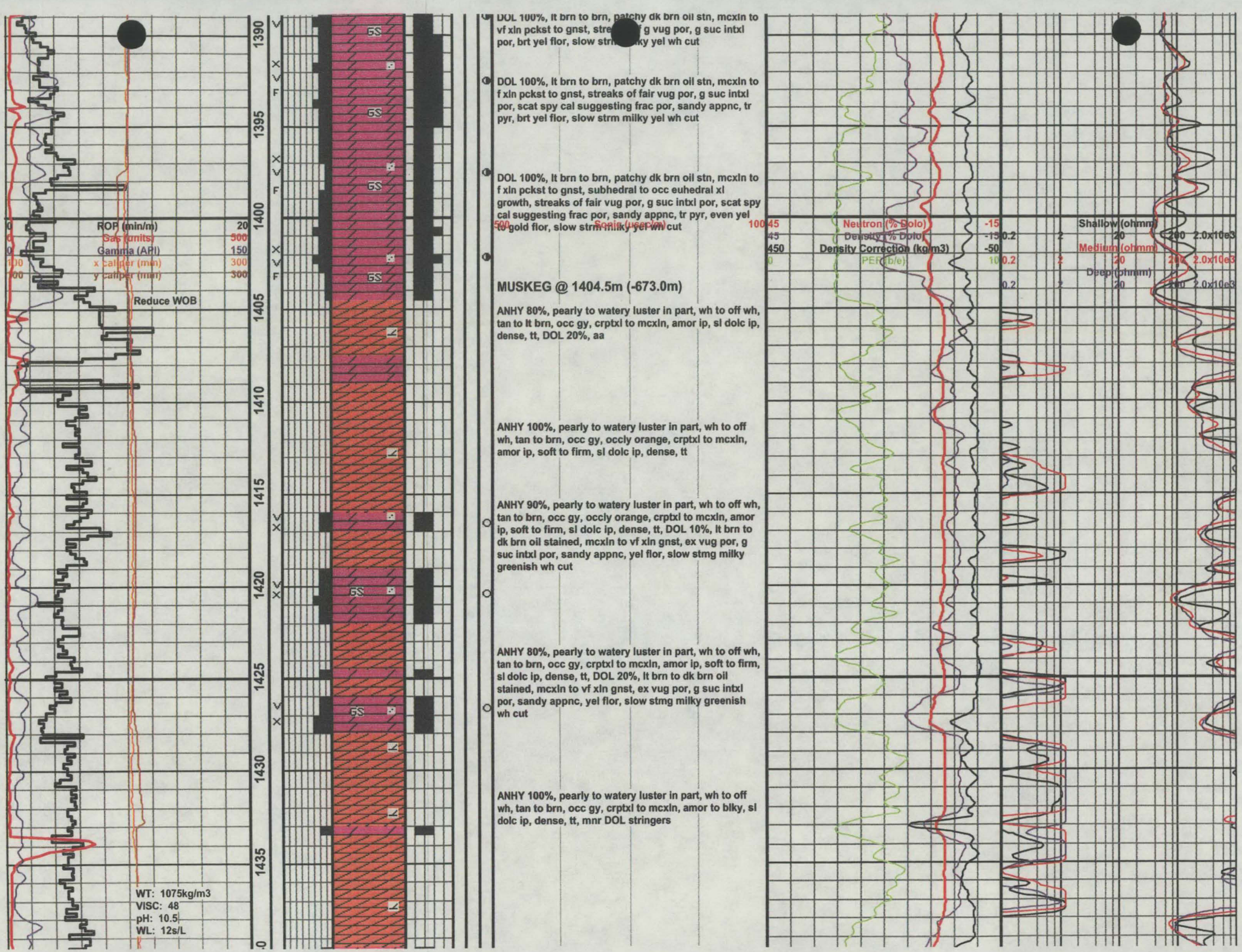
- Core
- Dst

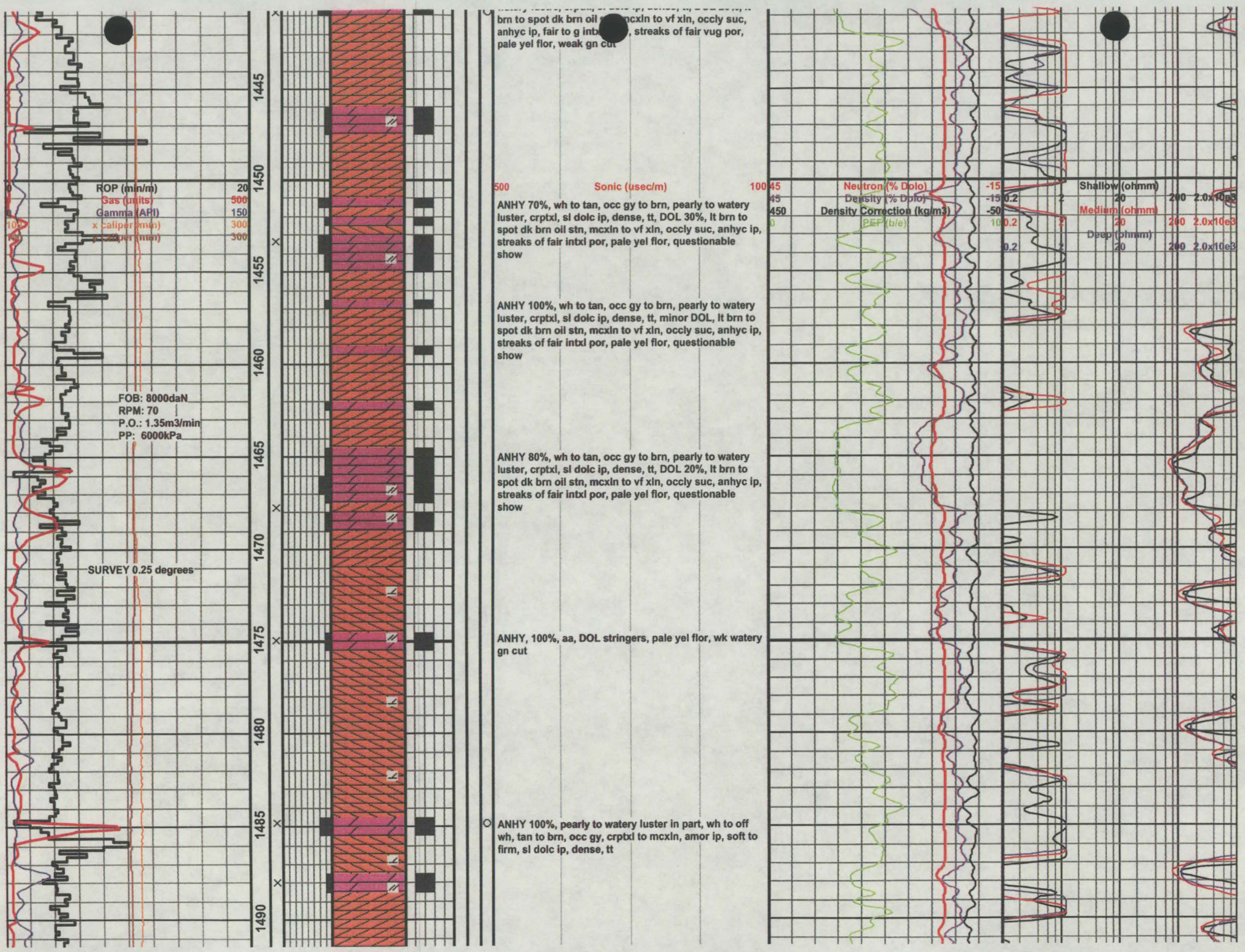
### EVENTS

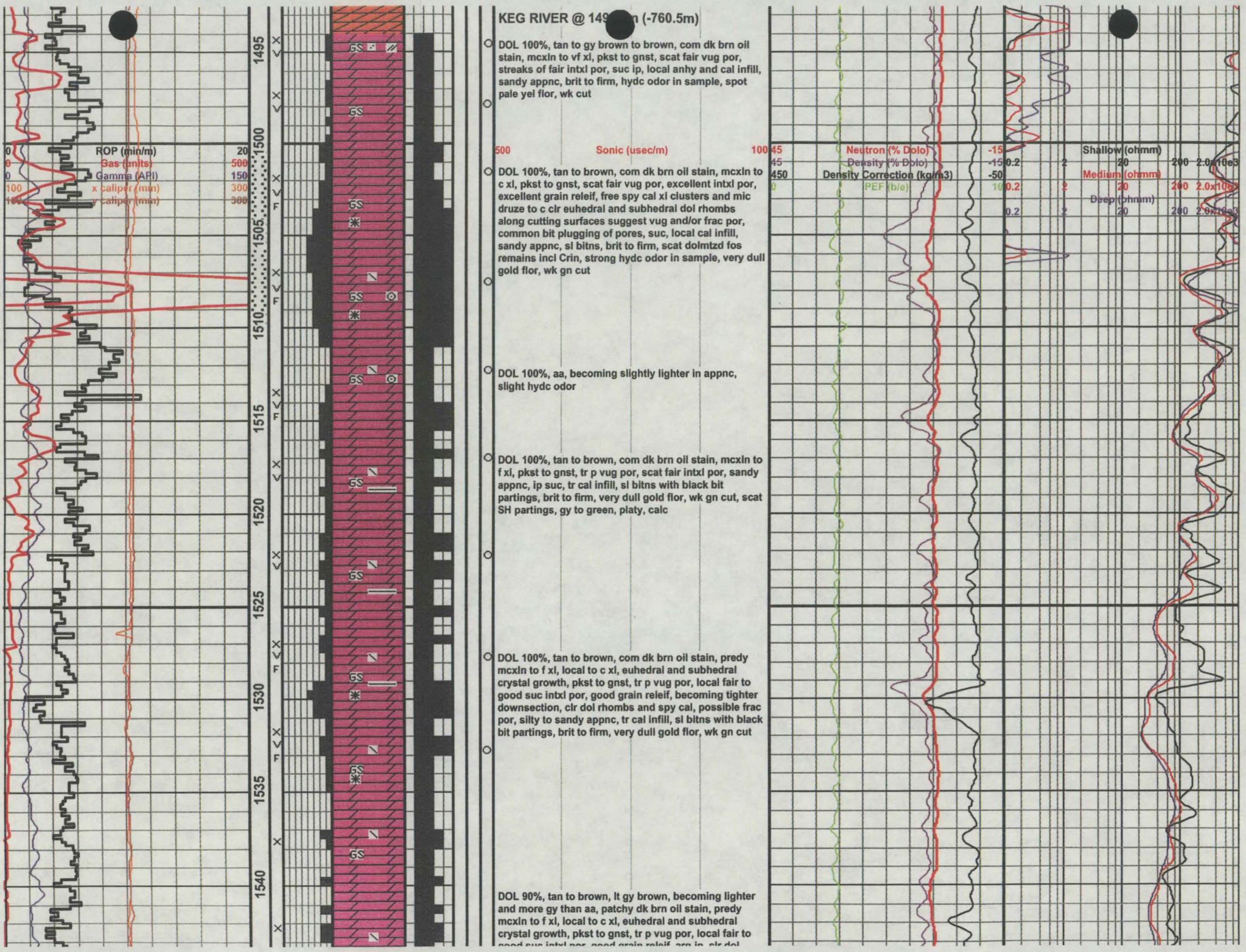
- Rft
- Sidewall

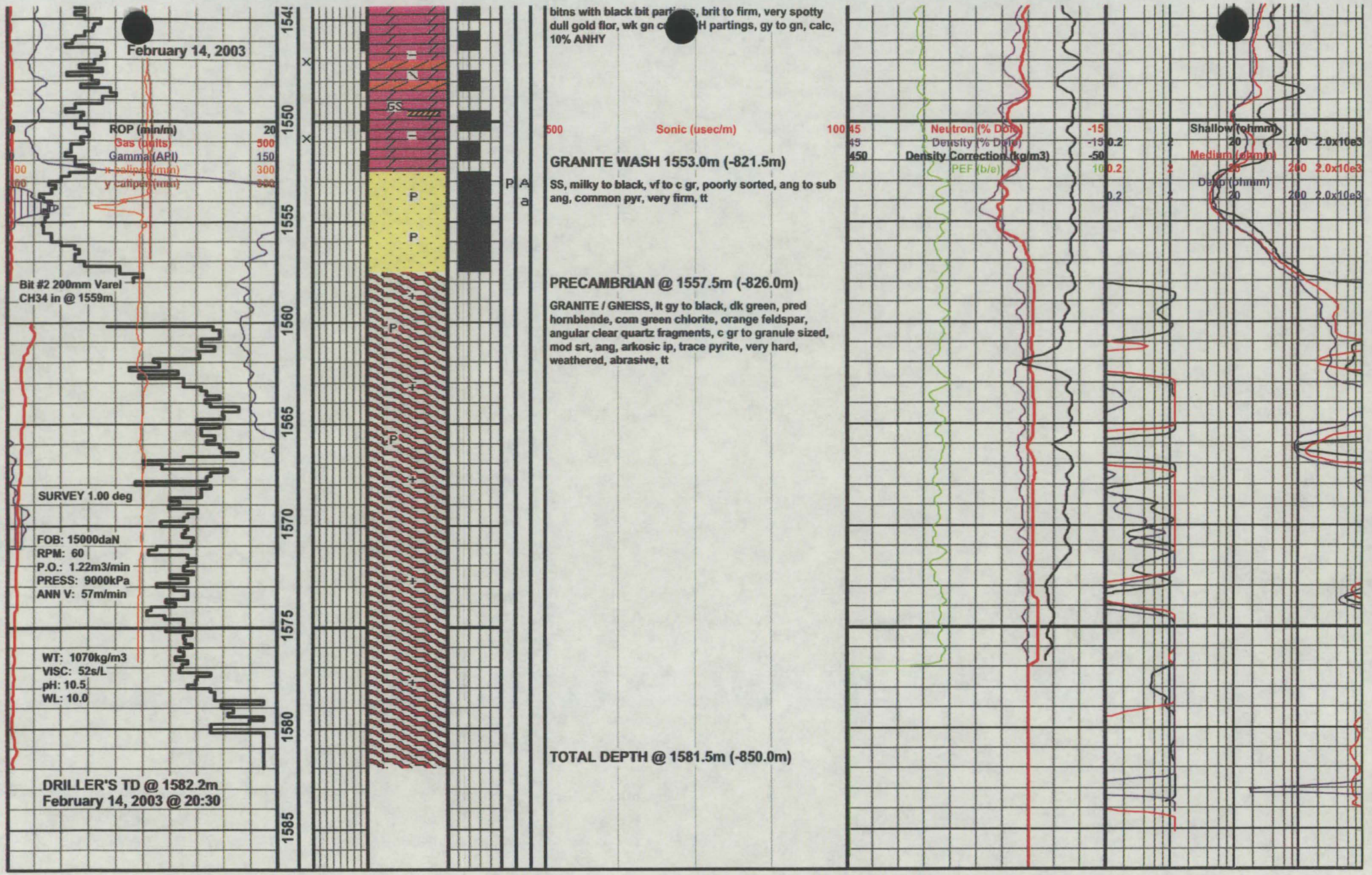

Curve Track 1
ROP (min/m)
Gas (units)
Gamma (API)
x caliper (mm)
y caliper (mm)
Depth
Porosity Type
Porosity
24%
18%
12%
6%
Lithology
Grain Size
1/16 mm
1/8 mm
1/4 mm
1/2 mm
1 mm
Sorting
Rounding
Oil Shows
Geological Descriptions
Sonic (usec/m)
Log Porosity
Neutron (% Dolo)
Density (% Dolo)
Density Correction (kg/m3)
PEF (b/e)
Resistivity
Shallow (ohmm)
Medium (ohmm)
Deep (ohmm)
ROP (min/m) 0 20
Gas (units) 0 300
Gamma (API) 0 150
x caliper (mm) 100 300
y caliper (mm) 100 300
Bit #1 Varel KS55
PDC IN @ 431m
February 13, 2003
FOB: 7000daN
RPM: 65
P.O.: 1.42m3/min PP: 6000kPa
WT: 1090kg/m3
VIS: 50s/L
pH: 9.5
WL: 13.0
1295
1300
1305
1310
1315
1320
1325
1330
1335
500 Sonic (usec/m) 100
45 Neutron (% Dolo) -15
45 Density (% Dolo) -15
450 Density Correction (kg/m3) -50
0 PEF (b/e) 10
0.2 2 20 200 2.0x10e3
SH 80%, 1. gy brn to med brn, mmica ip, blky, frm, dolc ip, silty ip, tr cal veining, 2. lt greenish gy to lt gn, dull to sl mmica, platy, fis to firm, smooth and waxy ip, calc, locally pyrz and pyr nod, LS 20%, off wh to lt gy, mict, mudst, lumpy to blky, dns, tt, locally pyrz, ns
SH 80%, 1. gy brn to med brn, dk brn to occ blk, bitns appnc ip, mmica ip, blky, frm, dolc ip, silty ip, occly grading to coal, tr cal veining, 2. lt greenish gy to lt gn, dull to sl mmica, platy, fis to firm, smooth and waxy ip, calc, locally pyrz and pyr nod, LS 20%, off wh to lt gy, mict, mudst, lumpy to blky, dns, tt, locally pyrz, ns
SH 40%, lt gn gy to lt gn, dull to sl mmica, platy, smooth and waxy, calc, ip pyrz, pyr nod, SH 30%, dk brn to blk, bitns appnc, lumpy to blky, frm, com calc veining, LS 40%, off wht to lt gy, occ lt brn, mict to occ vf xln, mudst, lumpy to blky, dns, tt, locally pyrz and c pyr nod, tr biocic debris, ns
SH 50%, lt gn gy to lt gn, dull to sl mmica, platy, smooth and waxy, calc, ip pyrz, pyr nod, LS 50%, off wht to lt gy, occ lt brn, mict to occ vf xln, mudst, lumpy to blky, dns, tt, locally pyrz and c pyr nod, ns
SLAVE POINT @ 1333.5m (-602.0m)
LS 100%, cream to lt brn, brn, predy crptxl to mcxln, occly vf xln, mudst to wkst, ip chalky, arg ip, lumpy to blky, scat pyr nod and locally desm pyr xls, dns with tr p intxl por, inferred mnr earthy por, tt, questionable show

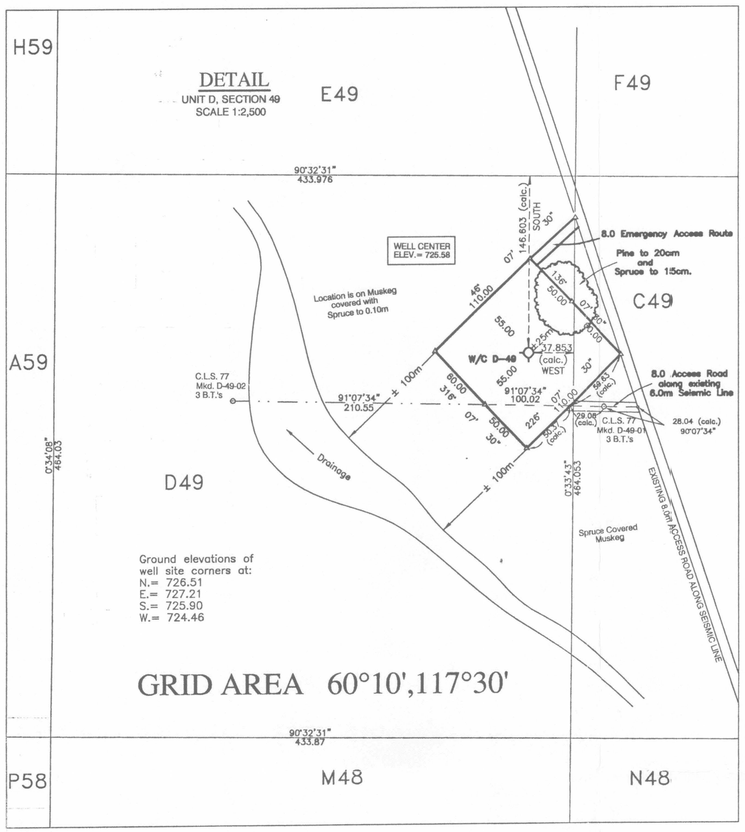

ROP (min/m) 0 20
Gas (units) 0 500
Gamma (API) 0 150
x caliper (mm) 100 300
y caliper (mm) 100 300
SURVEY 0.25 deg
1340
1345
1350
1355
1360
1365
1370
1375
1380
1385
p intxl por, spot yel flor, wk greenish yel watery cut
LS 100%, cream to lt brn, brn, mot ip, predy crptxl to mcxln, occly vf xln, mudst to wkst, ip chalky, arg ip, lumpy to blky, scat pyr nod and locally desm pyr xls, dns with tr p intxl por, inferred mnr earthy por, tt, questionable show
500 Sonic (usec/m) 100
LS 100%, cream to lt brn to brn, mot ip, predy mcxln to vf xln, mudst to wkst, ip chalky, arg ip, lumpy to blky, scat pyr nod and locally desm pyr xls, com bitns partings, ip pelletal, dns with tr p intxl por, inferred mnr earthy por, dull yel flor, inst milky yel wh cut
LS 100%, cream to buff, lt brn to gy brn, mot, mcxln to f xln, dark fragments in light arg lime mud matrix, pelletal wkst ip, chalky laminations, locally desm pyr, scat gy to gy gn sh partings, dns, tt, ns, ANHY, stringers, amor to mcxln, white to gy to tan, soft to frm, tt
F4 MARKER @ 1373.0m (-641.5m)
LS 80%, cream to lt brn, occ lt gy tan, bcmg lighter than aa, predy mcxln mudst to fy xln wkst, arg ip, silty to aren, scat anhy and dolc streaks, lumpy to blocky, scat fossil debris, streaks of p pp and inter xln por, ns, 10% ANHY, pearly to opaque ip, off wh to tan, frm, tt, 10% SH partings, gy to gn, platy, fis
WATT MOUNTAIN @ 1380.0m (=648.5m)
SH 100%, sl greenish gy to mint gn, occly bri blue gn, waxy, soft, sl calc ip, com desm pyr and v c cubic pyr xls and xl clusters
SULPHUR PT LIME @ 1384.5m (-653.0m)
LS, wh to tan, crptxl to mcxln, chalky mdst, assumed p earthy/chalky porosity, tt, ns
SULPHUR PT DOL @ 1393.0m (-661.5m)
45 Neutron (% Dolo) -15
45 Density (% Dolo) -15
450 Density Correction (kg/m3) -50
0 PEF (b/e) 10
0.2 2
Shallow (ohmm)
Medium (ohmm)
Deep (ohmm)
20 200 2.0x10e3

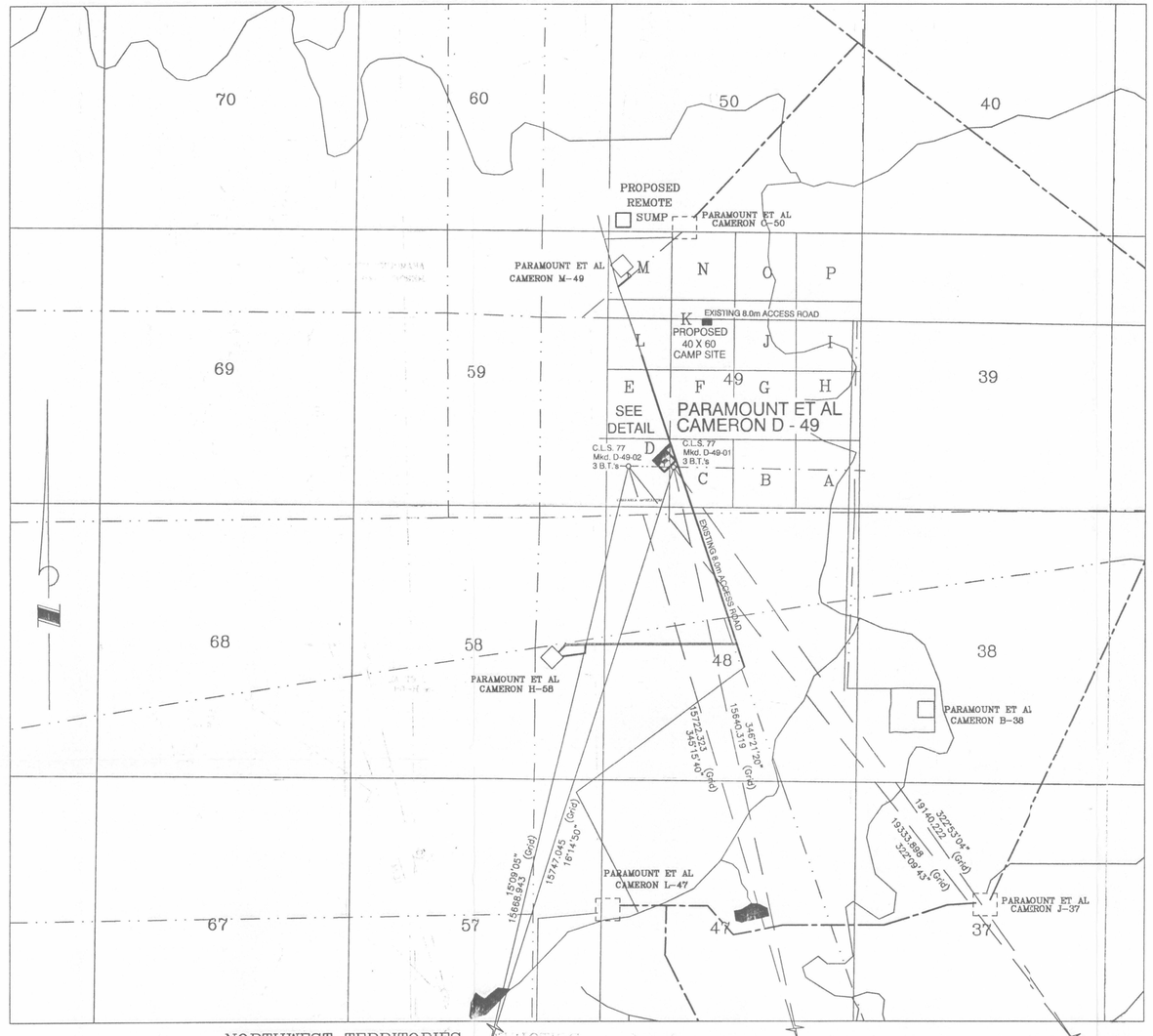

ROP (min/m) 0 20
Gas (units) 0 300
Gamma (API) 0 150
x caliper (mm) 100 300
y caliper (mm) 100 300
Reduce WOB
WT: 1075kg/m3
VISC: 48
pH: 10.5
WL: 12s/L
1390
1395
1400
1405
1410
1415
1420
1425
1430
1435
0
DOL 100%, lt brn to brn, patchy dk brn oil stn, mcxln to vf xln pckst to gnst, stre g vug por, g suc intxl por, brt yel flor, slow str ky yel wh cut
DOL 100%, lt brn to brn, patchy dk brn oil stn, mcxln to f xln pckst to gnst, streaks of fair vug por, g suc intxl por, scat spy cal suggesting frac por, sandy appnc, tr pyr, brt yel flor, slow strm milky yel wh cut
DOL 100%, lt brn to brn, patchy dk brn oil stn, mcxln to f xln pckst to gnst, subhedral to occ euhedral xl growth, streaks of fair vug por, g suc intxl por, scat spy cal suggesting frac por, sandy appnc, tr pyr, even yel to gold flor, slow strm milky yel wh cut
500 Sonic (usec/m) 100
MUSKEG @ 1404.5m (-673.0m)
ANHY 80%, pearly to watery luster in part, wh to off wh, tan to lt brn, occ gy, crptxl to mcxln, amor ip, sl dolc ip, dense, tt, DOL 20%, aa
ANHY 100%, pearly to watery luster in part, wh to off wh, tan to brn, occ gy, occly orange, crptxl to mcxln, amor ip, soft to firm, sl dolc ip, dense, tt
ANHY 90%, pearly to watery luster in part, wh to off wh, tan to brn, occ gy, occly orange, crptxl to mcxln, amor ip, soft to firm, sl dolc ip, dense, tt, DOL 10%, lt brn to dk brn oil stained, mcxln to vf xln gnst, ex vug por, g suc intxl por, sandy appnc, yel flor, slow stmg milky greenish wh cut
ANHY 80%, pearly to watery luster in part, wh to off wh, tan to brn, occ gy, crptxl to mcxln, amor ip, soft to firm, sl dolc ip, dense, tt, DOL 20%, lt brn to dk brn oil stained, mcxln to vf xln gnst, ex vug por, g suc intxl por, sandy appnc, yel flor, slow stmg milky greenish wh cut
ANHY 100%, pearly to watery luster in part, wh to off wh, tan to brn, occ gy, crptxl to mcxln, amor to blky, sl dolc ip, dense, tt, mnr DOL stringers
45 Neutron (% Dolo) -15
45 Density (% Dolo) -15
450 Density Correction (kg/m3) -50
0 PE (b/e) 10
0.2 2 20 200 2.0x10e3
Shallow (ohmm)
Medium (ohmm)
Deep (ohmm)


ROP (min/m) 20
Gas (units) 500
Gamma (API) 150
x caliper (min) 300
y caliper (min) 300
FOB: 8000daN
RPM: 70
P.O.: 1.35m3/min
PP: 6000kPa
SURVEY 0.25 degrees
1445
1450
1455
1460
1465
1470
1475
1480
1485
1490
brn to spot dk brn oil
mcxln to vf xln, occly suc, anhyc ip, fair to g intx
, streaks of fair vug por, pale yel flor, weak gn cut
500 Sonic (usec/m) 100
ANHY 70%, wh to tan, occ gy to brn, pearly to watery luster, crptxl, sl dolc ip, dense, tt, DOL 30%, lt brn to spot dk brn oil stn, mcxln to vf xln, occly suc, anhyc ip, streaks of fair intxl por, pale yel flor, questionable show
ANHY 100%, wh to tan, occ gy to brn, pearly to watery luster, crptxl, sl dolc ip, dense, tt, minor DOL, lt brn to spot dk brn oil stn, mcxln to vf xln, occly suc, anhyc ip, streaks of fair intxl por, pale yel flor, questionable show
ANHY 80%, wh to tan, occ gy to brn, pearly to watery luster, crptxl, sl dolc ip, dense, tt, DOL 20%, lt brn to spot dk brn oil stn, mcxln to vf xln, occly suc, anhyc ip, streaks of fair intxl por, pale yel flor, questionable show
ANHY, 100%, aa, DOL stringers, pale yel flor, wk watery gn cut
ANHY 100%, pearly to watery luster in part, wh to off wh, tan to brn, occ gy, crptxl to mcxln, amor ip, soft to firm, sl dolc ip, dense, tt
45 Neutron (% Dolo) -15
45 Density (% Dolo) -15
450 Density Correction (kg/m3) -50
0 PEF (b/e) 10
0.2 2
Shallow (ohmm)
20 200 2.0x10e3
Medium (ohmm)
20 200 2.0x10e3
Deep (ohmm)
20 200 2.0x10e3


KEG RIVER @ 149 m (-760.5m)
DOL 100%, tan to gy brown to brown, com dk brn oil stain, mcxln to vf xl, pkst to gnst, scat fair vug por, streaks of fair intxl por, suc ip, local anhy and cal infill, sandy appnc, brit to firm, hydc odor in sample, spot pale yel flor, wk cut
DOL 100%, tan to brown, com dk brn oil stain, mcxln to c xl, pkst to gnst, scat fair vug por, excellent intxl por, excellent grain releif, free spy cal xl clusters and mic druze to c clr euhedral and subhedral dol rhombs along cutting surfaces suggest vug and/or frac por, common bit plugging of pores, suc, local cal infill, sandy appnc, sl bitns, brit to firm, scat dolmtzd fos remains incl Crin, strong hydc odor in sample, very dull gold flor, wk gn cut
DOL 100%, aa, becoming slightly lighter in appnc, slight hydc odor
DOL 100%, tan to brown, com dk brn oil stain, mcxln to f xl, pkst to gnst, tr p vug por, scat fair intxl por, sandy appnc, ip suc, tr cal infill, sl bitns with black bit partings, brit to firm, very dull gold flor, wk gn cut, scat SH partings, gy to green, platy, calc
DOL 100%, tan to brown, com dk brn oil stain, predy mcxln to f xl, local to c xl, euhedral and subhedral crystal growth, pkst to gnst, tr p vug por, local fair to good suc intxl por, good grain releif, becoming tighter downsection, clr dol rhombs and spy cal, possible frac por, silty to sandy appnc, tr cal infill, sl bitns with black bit partings, brit to firm, very dull gold flor, wk gn cut
DOL 90%, tan to brown, lt gy brown, becoming lighter and more gy than aa, patchy dk brn oil stain, predy mcxln to f xl, local to c xl, euhedral and subhedral crystal growth, pkst to gnst, tr p vug por, local fair to
ROP (min/m)
Gas (units)
Gamma (API)
x caliper (min)
y caliper (min)
Sonic (usec/m)
Neutron (% Dolo)
Density (% Dolo)
Density Correction (kg/m3)
PEF (b/e)
Shallow (ohmm)
Medium (ohmm)
Deep (ohmm)
1495
1500
1505
1510
1515
1520
1525
1530
1535
1540


February 14, 2003
ROP (min/m) 20
Gas (units) 500
Gamma (API) 150
x caliper (mm) 300
y caliper (mm) 300
Bit #2 200mm Varel
CH34 in @ 1559m
SURVEY 1.00 deg
FOB: 15000daN
RPM: 60
P.O.: 1.22m3/min
PRESS: 9000kPa
ANN V: 57m/min
WT: 1070kg/m3
VISC: 52s/L
pH: 10.5
WL: 10.0
DRILLER'S TD @ 1582.2m
February 14, 2003 @ 20:30
1545
1550
1555
1560
1565
1570
1575
1580
1585
GS
P
bitns with black bit partings, brit to firm, very spotty dull gold flor, wk gn cut, H partings, gy to gn, calc, 10% ANHY
500 Sonic (usec/m) 100
GRANITE WASH 1553.0m (-821.5m)
SS, milky to black, vf to c gr, poorly sorted, ang to sub ang, common pyr, very firm, tt
PRECAMBRIAN @ 1557.5m (-826.0m)
GRANITE / GNEISS, lt gy to black, dk green, pred hornblende, com green chlorite, orange feldspar, angular clear quartz fragments, c gr to granule sized, mod srt, ang, arkosic ip, trace pyrite, very hard, weathered, abrasive, tt
TOTAL DEPTH @ 1581.5m (-850.0m)
45 Neutron (% Dolo) -15
45 Density (% Dolo) -15
450 Density Correction (kg/m3) -50
0 PEF (b/e) 10
0.2 2 Shallow (ohmm) 200 2.0x10e3
0.2 2 Medium (ohmm) 200 2.0x10e3
0.2 2 Deep (ohmm) 200 2.0x10e3




PLAN AND FIELD NOTES

OF SURVEY OF

**PROPOSED EXPLORATORY WELL**

**PARA ET AL CAMERON**

**IN UNIT D, SECTION 49**

**GRID AREA 60° 10' , 117° 30'**

NORTHWEST TERRITORIES

CANADA OIL AND GAS LAND REGULATIONS

EXPLORATORY WELL, NORTHWEST TERRITORIES

SCALE 1:20,000

400m 200 0m 400 800 1200 1600m

SURVEYED FOR

**PARAMOUNT RESOURCES LTD.**

BY: GREG A. BOGGS, C.L.S.

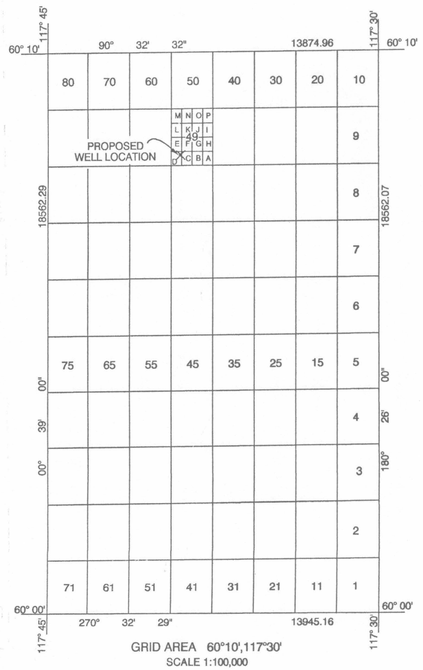
July & August., 2002.

THIS SURVEY WAS EXECUTED DURING THE PERIOD OF

July 21st to August 2nd., 2002.

Certified Correct and completed on the 12th day of August, 2002.

Ga Boggs Canada Lands Surveyor




## AREAS REQUIRED:

| | | |
|---|---|---|
| WELLSITE: | 110m x 110m = | 1.21 ha. |
| ACCESS ROAD: | 8m x 57m = | 0.046 ha. |
| CAMPSITE: | 40m x 60m = | 0.24 ha. |
| TOTAL: | | 1.496 ha |

## BEARING TREES

| STATION | BEARING | DISTANCE | TREE |
|---|---|---|---|
| D – 49 – 01 | 9°21'08" | 8.21 | 10cm Spruce |
| | 128°13'53" | 17.44 | 5cm Spruce |
| | 235°57'46" | 8.84 | 15cm Spruce |
| D – 49 – 02 | 255°16'36" | 8.80 | 10cm Spruce |
| | 352°50'29" | 9.28 | 10cm Spruce |
| | 55°59'26" | 10.20 | 5cm Spruce |

Wellsite control established using differentially corrected GPS observations. All transformations between NAD83 and NAD27 were completed using National Transformation Version 2 program. Alberta Survey Control published coordinate values for marker number 440958 were held fixed. Adjusted values for Alberta Survey Control Markers 427962 and 474668, and comparison to published coordinates are shown below.

GEOGRAPHIC AND UTM COORDINATES, (1983 NAD)

| Station | Latitude(N) | Longitude(W) | Northings | Eastings | Elev. |
|---|---|---|---|---|---|
| CONTROL MONUMENTS | | | | | |
| Alberta Survey Control Marker 440958 (Published/Fixed) | 59° 59' 59.174" | 117°26'22.717" | 6651467.123 | 475477.653 | 713.957 |
| D - 49 - 1 (Adj.) | 60° 08' 09.446" | 117°39'57.776" | 6666729.864 | 463928.071 | 726.731 |
| D - 49 - 2 (Adj.) | 60°08'09.544" | 117°39'17.892" | 6666735.965 | 463617.722 | 724.105 |
| Alberta Survey Control Marker 427963 (Adj.) | 59°58'59.280" | 117°34'50.034" | 6651531.003 | 467617.518 | 726.446 |
| Alberta Survey Control Marker 474668 (Adj.) | 59°58'59.304" | 117°43'32.508" | 6651611.653 | 459522.634 | 745.746 |
| PROPOSED WELL | | | | | |
| D - 49 | 60°08'10.837" | 117°39'01.937" | 6666773.533 | 463864.292 | 725.58 |

GRID AREA 66°10' , 117° 30' - GEOGRAPHIC AND UTM COORDINATES, (1927 NAD)

| | | | | |
|---|---|---|---|---|
| NE | 60° 10'00" | 117° 30' 00" | 6669871.559 | 472250.652 |
| NW | 60° 10'00" | 117° 45' 00" | 6670002.863 | 458376.311 |
| SW | 60° 00'00" | 117° 45' 00" | 6651441.753 | 458165.709 |
| SE | 66° 00'00" | 117° 30' 00" | 6651310.016 | 472110.252 |
| D - 49, N.E. | 60° 08' 15.206" | 117° 38' 54.375" | 6666701.285 | 463980.898 |
| D - 49, N.W. | 60° 08' 15.200" | 117° 39' 22.500" | 6666705.391 | 463546.941 |
| D - 49, S.W. | 60° 08' 00.200" | 117° 39' 22.500" | 6666241.361 | 463542.334 |
| D - 49, S.E. | 66° 08' 00.206" | 117° 38' 54.375" | 6666237.255 | 463976.346 |
| PROPOSED WELL | | | | |
| D 49 | 60° 08' 10.469" | 117° 38' 56.827" | 6666555.119 | 463941.628 |

## LEGEND

UTM coordinates are computed for Zone 11 Central Meridian 117°W. Bearings were derived from differentially corrected GPS Observations, and are referred to meridian 117° W.

Distances are expressed in metres and decmals thereof.

Distances shown in traverse are measured distances reduced to the horizontal at general ground level.

For the computation of coordinates measurd distances have been reduced to the UTM plane by multiplying them by an average combined scale factor of 0.9995070

Distances shown on grid area subdivisions are UTM plane, NAD27 Datum. All other dimensions are based on NAD83 datum.

Areas dealt with shown thus .....
Control monuments found .....
Monuments placed .....
Traverse spikes placed .....
Calculated points .....
Bearing Trees.....
Mkr. denotes metal marker post 2.0m long placed 0.30m away from Post.

● B.T.'s
○
△
◦

Elevations were derived from Alberta Surver Control Marker 440958 Elev. = 713.957m. (Geoid Separation: HT1_01)

Survey was completed prior to drilling; therfore well as drilled may not necessarily agree with proposed location.

PARAMOUNT RESOURCES LTD.

Dave Blood

WITNESS

4/9/02

DATE

| REV.No. | DESCRIPTION | BY | DATE |
|---|---|---|---|
| | | | |

GREG A. BOGGS
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| | |
|---|---|
| Date: | Aug.12,2002 |
| Plan No.: | 1 of 1 |
| Job No.: | 321113192 |
| Scale: | As Shown |
| File No.: | 13192WS |