# FINAL WELL REPORT

# PARAMOUNT RESOURCES LTD.

# PARA ET AL CAMERON M-49

## Grid: $60^0$ 10′, $117^0$ 30′

**DATE: July 11, 2003**

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

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## A. INTRODUCTION

Paramount Resources Ltd. (Paramount) drilled a 1505 meter exploratory well spudded on February 20, 2003 and finishing on March 5, 2003 to evaluate hydrocarbon potential. The primary target was the Sulphur Point formation at a depth of 1358 mKB. The secondary target was the Slave Point formation at 1300 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 1974 was issued to Paramount on December 6, 2002.

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

Latitude: $60^0$ 08' 52.585"
Longitude: $117^0$ 39' 16.552"

Shadow Rathole Drilling Ltd. drilled a 610 mm conductor hole to 12.2 meters. From surface to 9.1 meters was good clay, 9.1 - 10.1 m was sand and water, and 10.1 – 12.2 m was good clay. A 406 mm conductor pipe was set and cemented at 12.2 meters.

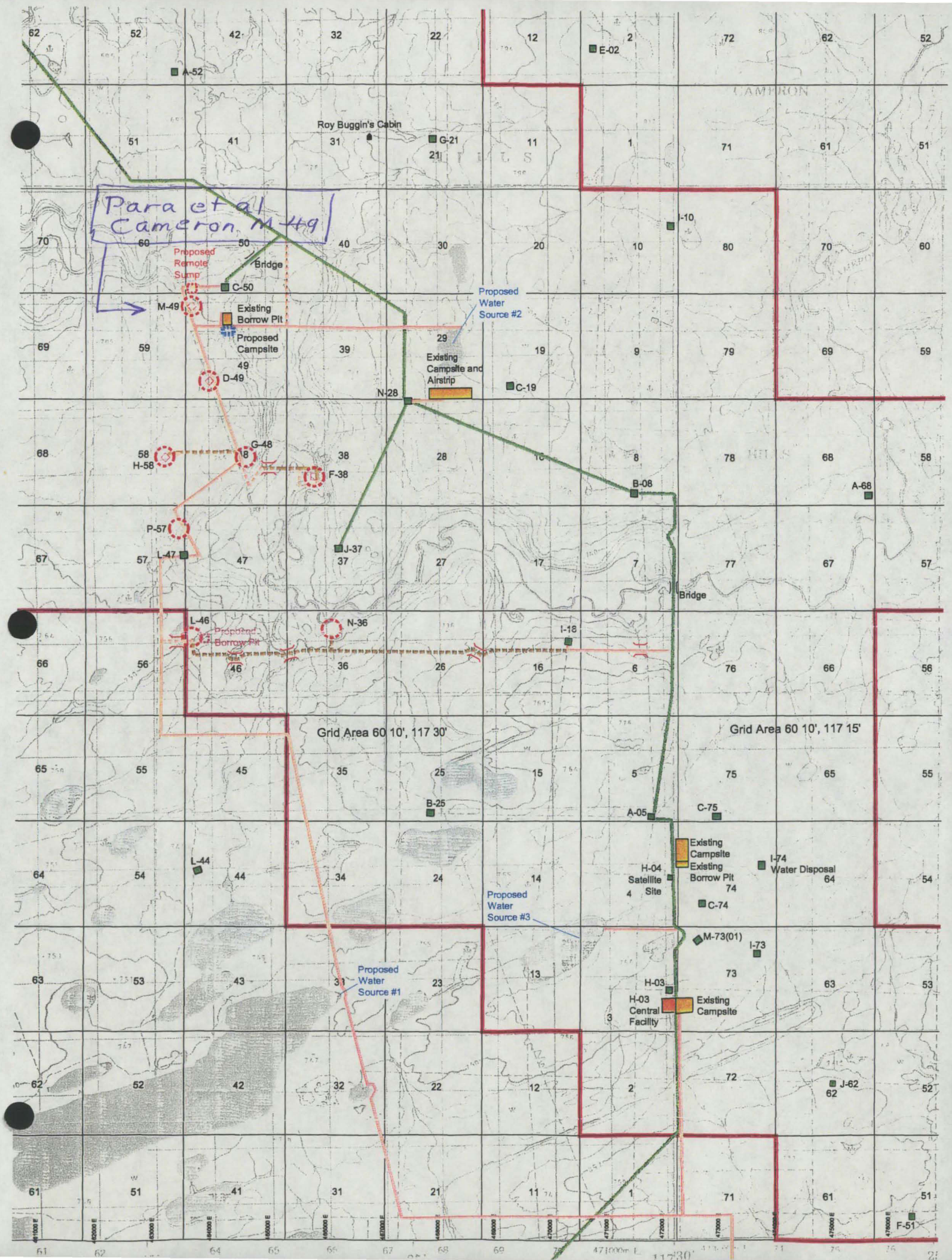
Precision #117 was moved onto the location and rigged up on February 19, 2003. The diverter was nippled up, the rig was rigged up, and the well was spudded on February 20, 2003 at 12:30 hours. A 311 mm surface hole was drilled to 426 mKB. There were no major lost circulation or mud ring problems but gravel and shale were encountered from 21 to 50 meters. A string of 219.1 mm, 35.7 kg/m, J-55, ST&C surface casing was run to 425 mKB. The casing was cemented with 32 t class 'G' cement plus 2% $CaCl_2$. There were 4 $m^3$ of cement returned to surface while cementing. The plug was bumped and the float held OK. The plug was down at 19:27 hours on February 22, 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 432 mKB on February 23, 2003 A leak off test was performed with the leak off gradient found to be 29.1 kPa/m. A 200 mm hole was drilled with a flocculated water system to approximately 612 mKB where circulation losses were encountered. The mud was flipped to a gel/chem system to control the losses to 720 mKB. The mud was flipped back to a flocculated water system to 1250 m. A gel/chem mud system was then used to drill to a total depth of 1505 mKB. A single core was cut in the Keg River from 1459 – 1470 mKB. Two DST's were run on the Muskeg and Slave Point formations. Computalog ran induction, density, and sonic logs from bottom to surface casing and a micro resistivity log from bottom to 1205 mKB.

139.7 mm, 20.83 kg/m, J-55, ST&C production casing was run and set at 1505 mKB. It was cemented with 23.5 t Fill-Lite 2-125 + 3% A-9 + 0.6% R-3 and 6.5 t 'G' cement + 0.1% R-3 + 0.4% FL-77. There were 4 $m^3$ cement returns and the plug was bumped with 3.5 MPa.

Precision #117 was rigged out and released at 16:00 hours on March 5, 2003.


Para et al
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B. GENERAL DATA

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

   Authority to Drill a Well No: 1974

   Exploration Agreement Number: PL-15

   Location Unit: M

   Section: 49

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

   Classification: Delineation

2. Coordinates:
   Latitude: $60^0$ 08' 52.585"
   Longitude: $117^0$ 39' 16.552"

3. Unique Well Identifier: 300M496010117300

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: Circulation losses from 612 – 720 mKB

11. Total Well Cost: $792,000

12. Bottom Hole Co-ordinates: Same as surface

## C. SUMMARY OF DRILLING OPERATIONS

1. Elevations:
   Ground: 704.43 m above sea level
   KB: 709.28 m above sea level
   KB to Casing Flange: 4.85 m

2. Total Depth:
   FTD: 1505 mKB
   PBTD: 1499 mKB
   TVD: 1505 mKB

3. Date and Hour Spudded: February 20, 2003 at 12:30 hours

4. Date Drilling Completed: February 28, 2003

5. Date of Rig Release: March 5, 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 426 mKB |
| Main Hole: | 200 mm to 1505 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 14, 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: | 31 |
| Depth Set: | 425 mKB |
| Cut Height: | At surface |
| Date Set: | February 22, 2003 |
| Cement Volume: | 32 Tonnes |

| | |
|---|---|
| Float Shoe Depth: | 425 mKB |
| Float Collar Depth: | 420 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: | 1505 m KB |
| Cut Height: | Surface |
| Date Set: | March 5, 2003 |
| Float Shoe Depth: | 1505 mKB |
| Float Collar Depth: | 1499 mKB |
| Cement Volume 1: | 23.5 Tonnes |
| Cement Type 1: | Fill-Lite 2-125 |
| Additives 1: | 3% A-9 & 0.6% R-3 |
| Cement Volume 2: | 6.5 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: | 38 - 80 sec/L | |
| | Weight: | 1060 - 1080 kg/m$^3$ | |
| | PH: | 9.0 | |
| Main (425 – 612 m): | Floc water | | |
| Properties: | Viscosity: | 29 sec/L | |
| | Weight: | 1000 kg/m$^3$ | |
| | PH: | not reported | |
| Main (612 – 720 m): | Gel - Chemical | | |

| | | |
|---|---|---|
| Properties: | Viscosity: | 75 - 80 sec/L |
| | Weight: | 1050 - 1080 kg/m$^3$ |
| | PH: | 9.0 - 10.0 |
| Main (720 – 1170 m): | Floc water | |
| Properties: | Viscosity: | 28 sec/L |
| | Weight: | 1000 kg/m$^3$ |
| | PH: | not reported |
| Main (1170 m – TD): | Gel-chem | |
| Properties: | Viscosity: | 28 - 100 sec/L |
| | Weight: | 1020 - 1080 kg/m$^3$ |
| | PH: | 9.0 – 11.0 |
| | Water loss: | 9.0 – 14.0 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: | 431 m |
| Fluid Density: | 1000 kg/m$^3$ |
| Applied Pressure: | 8200 kPa |
| Hydrostatic Pressure: | 4180 kPa |
| Mud Weight Equivalent: | 2962 kg/m$^3$ |
| Casing setting depth: | 426 mKB |

The surface casing leak-off test was taken to a gradient of 29.06 kPa/m before leak off was detected.

14.Time Distribution

| Date | Hours | Activity |
|---|---|---|
| 03/02/19 | 0.25 | Safety meeting |
| | 15.75 | Move in / rig up |
| 03/02/20 | 3.0 | Move in / rig up |
| | 0.25 | Safety meeting |
| | 0.25 | Rig service |
| | 6.25 | Nipple up diverter |
| | 0.5 | Test diverter |
| | 2.25 | Drill rat hole |
| | 1.25 | Trip |
| | 9.25 | Drill |
| | 0.5 | Survey |
| | 0.5 | Circulate and condition mud |
| 03/02/21 | 0.25 | Rig service |
| | 2.75 | Survey |
| | 18.5 | Drill |
| | 2.5 | Trip |
| 03/02/22 | 0.5 | Safety meeting |
| | 0.25 | Rig service |
| | 1.25 | Drill |
| | 4.5 | Ream |
| | 2.0 | Circulate and condition mud |
| | 0.25 | Survey |
| | 5.0 | Trip |
| | 4.25 | Run casing |
| | 2.0 | Cement casing |
| | 4.0 | Nipple down diverter |
| 03/02/23 | 0.5 | Rig service |
| | 0.75 | Safety meeting |
| | 1.5 | Slip & cut drill line |
| | 6.0 | Nipple up BOP's |
| | 6. 25 | Test BOP's |
| | 1.75 | Make up BHA |
| | 1.25 | Drill out casing shoe |
| | 4.75 | Drill |
| | 0.75 | Leak off test |

| | | |
|---|---|---|
| | 0.5 | Survey |
| 03/02/24 | 0.75 | Rig service |
| | 2.5 | Circulate and condition mud |
| | 19.75 | Drill |
| | 1.0 | Survey |
| 03/02/25 | 0.25 | Safety meeting |
| | 0.75 | Rig service |
| | 2.0 | Survey |
| | 21.0 | Drill |
| 03/02/26 | 0.5 | Rig service |
| | 9.0 | Drill |
| | 9.5 | Trip |
| | 5.0 | Circulate and condition mud |
| 03/02/27 | 0.25 | Rig service |
| | 1.5 | Rig repair |
| | 2.75 | Ream |
| | 7.25 | Cut core |
| | 9.25 | Trip |
| | 3.0 | Circulate and condition mud |
| 03/02/28 | 0.75 | Rig service |
| | 0.25 | Safety meeting |
| | 8.25 | Drill |
| | 0.5 | Ream |
| | 3.75 | Circulate and condition mud |
| | 1.5 | Wait on orders |
| | 6.25 | Trip |
| | 2.75 | Recover core, lay out coring tools |
| 03/03/01 | 0.25 | Safety meeting |
| | 0.5 | Rig service |
| | 8.5 | Trip |
| | 0.75 | Ream |
| | 3.5 | Circulate and condition mud |
| | 0.5 | Survey |
| | 10.0 | Logging |
| 03/03/02 | 0.75 | Safety meeting |
| | 0.25 | Rig service |
| | 8.25 | Trip |

| | | |
|---|---|---|
| | 10.75 | Run DST |
| | 4.0 | Circulate and condition mud |
| 03/03/03 | 0.25 | Safety meeting |
| | 0.5 | Rig service |
| | 1.25 | Circulate and condition mud |
| | 8.5 | Trip |
| | 11.5 | Run DST |
| | 2.0 | Wait on vacuum truck |
| 03/03/04 | 0.5 | Safety meeting |
| | 0.5 | Rig service |
| | 2.0 | Circulate and condition mud |
| | 9.0 | Trip |
| | 1.0 | Slip & cut drill line |
| | 2.25 | Run casing |
| | 0.75 | Run DST |
| | 8.0 | Thaw kelly hose |
| 03/03/05 | 0.25 | Safety meeting |
| | 0.25 | Rig service |
| | 3.75 | Run casing |
| | 1.5 | Circulate and condition mud |
| | 2.5 | Cement casing |
| | 2.0 | Nipple down BOP's |
| | 5.75 | Rig out |

## Time Break Down by Activity:

| Activity | Hours |
|---|---|
| Move in / rig up: | 18.75 |
| Drill rat hole: | 2.25 |
| Drilling: | 91.75 |
| Reaming: | 8.5 |
| Surveying: | 7.5 |
| Circulate and condition mud: | 29.0 |
| Running casing: | 10.25 |
| Cementing casing: | 4.5 |
| Drill out casing shoe: | 1.25 |
| Rig service: | 6.25 |
| Rig repair: | 1.5 |
| Tripping: | 68.0 |
| Safety meetings: | 4.25 |
| Nipple up diverter: | 6.25 |

| | |
|---|---|
| Test diverter: | 0.5 |
| Nipple down diverter: | 4.0 |
| Nipple up BOP's: | 6.0 |
| Nipple down BOP's: | 2.0 |
| Pressure test BOP's: | 6.25 |
| Leak off tests: | 0.75 |
| Make up BHA: | 1.75 |
| Slip & cut drill line: | 2.5 |
| Logging: | 10.0 |
| Run DST: | 23.0 |
| Cut core: | 7.75 |
| Recover core: | 2.75 |
| Wait on orders: | 1.5 |
| Wait on vacuum truck: | 2.0 |
| Rig out: | 5.75 |

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 - 14 of the Geological Report in the Attachment Section.

Total Depth: 1505 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: Muskeg: 1418 – 1426 mKB

| | | | |
|---|---|---|---|
| PF: | 5.5 min | PFP: | 732 - 806 kPa |
| ISI: | 60.5 min | ISIP: | 10860 kPa |
| FF: | 59.0 min | FFP: | 923 - 1657 kPa |
| FSI: | 108.5 min | FSIP: | 10478 kPa |

PF: Closed chamber. Average gas flow rate = 0.41 $10^3m^3$/day
Final Flow: Closed chamber. Average gas flow rate = 0.29 $10^3m^3$/day
Rec: 30 m mud, & 64 m gas cut brackish water

#2: Slave Point: 1306 – 1317 mKB

| | | | |
|---|---|---|---|
| PF: | 3.5 min | PFP: | 896 - 601 kPa |
| ISI: | 61.5 min | ISIP: | 10119 kPa |
| FF: | 62.5 min | FFP: | 639 - 1249 kPa |
| FSI: | 79.5 min | FSIP: | 10139 kPa |

PF: Closed chamber. Average gas flow rate = 1.1 $10^3m^3$/day
Final Flow: Closed chamber. Average gas flow rate = 1.1 $10^3m^3$/day
Rec: 30 m gas cut drilling fluid & 66 m gas cut brackish water

WELL EVALUATION

The following logs were run:

| | |
|---|---|
| Simultaneous Triple Induction Shallow Focused Log: | 425 – 1501 mKB |
| Spectral Density Compensated Neutron Log: | 425 – 1494 mKB |
| Borehole Compensated Sonic Log: | 425 – 1500 mKB |
| Micro Resistivity Log: | 1205 – 1484 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.

# Geological Report

on

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

Well Reached Total Depth of 1505 metres
on
March 5, 2003 @ 16:00 hours

for

**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.**

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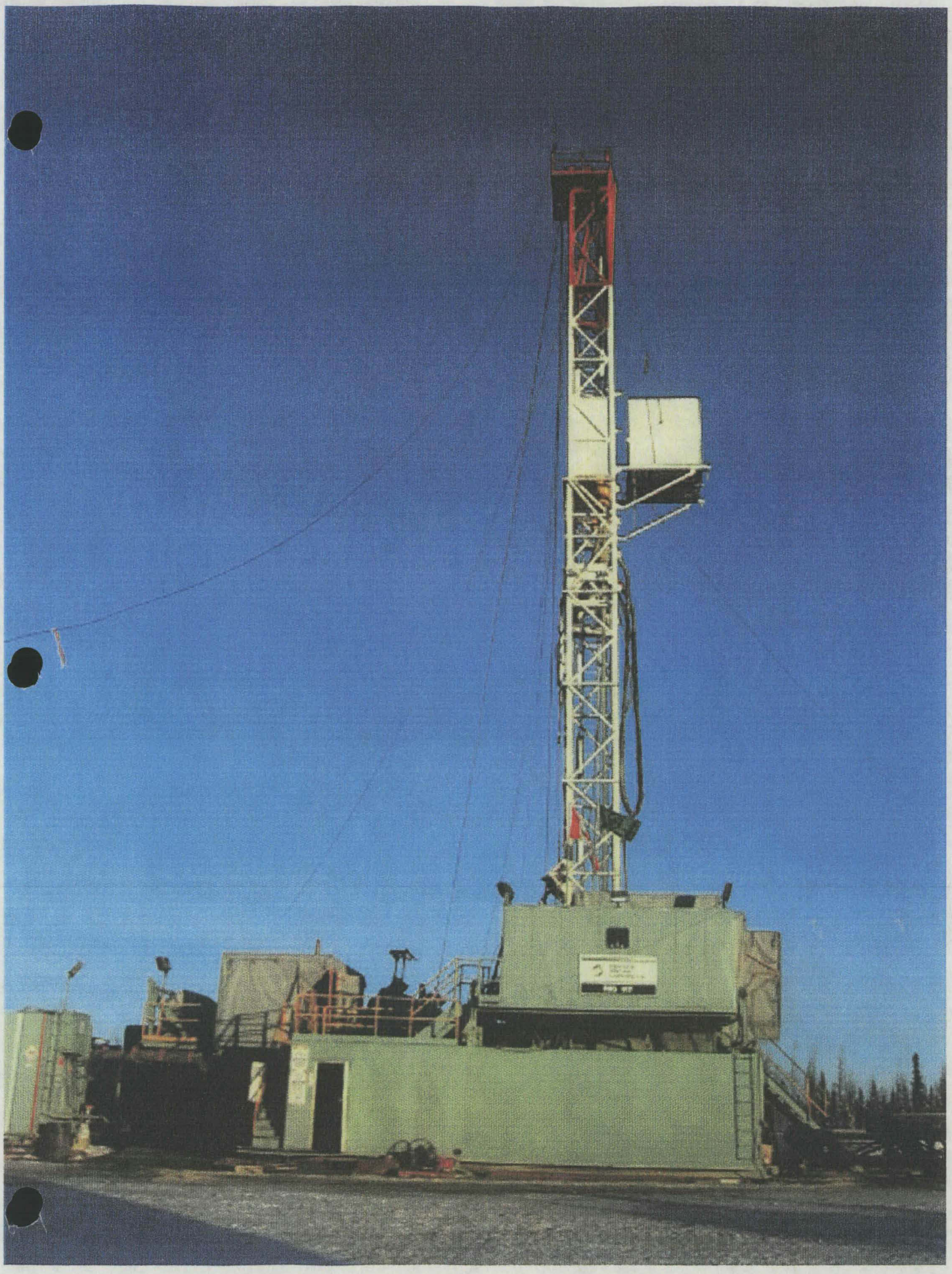


# Geological Summary

**Para et al Cameron D-49** is a vertical well spudded by Precision Drilling Rig #117 on February 20, 2003 @ 12:30hrs. Surface hole is 311mm drilled to 425.0m with 219.1mm casing landed at 424.9m. The 200mm main hole terminated in the PreCambrian at 1505.0m on March 5, 2003 @ 16:00hrs.

This well was drilled primarily to produce gas from the **Sulphur Point dolomite** and secondarily to evaluate the **Keg River dolomite** for possible gas. Samples were taken from 1300m to TD and a gas detector was run over the same interval. Triple Induction, SP, Neutron Density, Compensated Sonic were run from TD to surface casing. Microlog was run from TD to 1300m. Two real time, dual straddle DST were run from 1306m-1317m (Slave Point) and 1418m-1426m (Muskeg). A 13m core was cut from 1457m-1470m in the Keg River dolomite.

The **Sulphur Point dolomite** was entered at a log depth of 1379.0m (-669.7m) and consisted of microcrystalline to finely crystalline dolomite. It was ~15m 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. Gas detector readings the interval reached a maximum of 265 units (13x BG). Well log indicated an average porosity of 9% with intervals of 15-20% on a dolomite scale from 1379-1387m and deep induction readings averaged 20-30ohms. **The Sulphur Point Dolomite appears to have good potential for gas production.**

The **Keg River dolomite** was entered at a log depth of 1446.0m (-736.7m) and was overlying a Granite Wash sand. The zone was 38m in thickness and the most promising interval 1455m-1462m (Rainbow member) was cored. It is described as light to dark, grey to brown (lighter downsection), dolomitized reefal packstone to grainstone. There was a spotty breccia-like appearance and was microcrystalline to finely crystalline with occasionally coarse crystalline. There was well developed vug porosity with massive coarse subhedral to euhedral crystal growth, and fair to good intercrystalline porosity. As well, there were scattered fractures, with bitumen/carbon deposition along fractures and vugs, with druse and dolomite rhomb linings. Fossils included Stromatoporiod remnants, calcareous algal laminations, and possible Amphipora. The good porosity was confirmed on logs with the Keg River averaging 3-6% porosity, up to 9-12% in the 1455m-1462m interval. There was weak to strong hydrocarbon odor in the samples, with very dull yellow fluorescence and weak green cut. The deep Induction log also shows the presence of hydrocarbons readings of ~50-60ohms over the interval of interest. **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 M-49** |
| **LOCATION** | **Unit M Section 49** |
| | **Grid Area: Lat 60° 10' N Long 117° 30' W** |
| **UWI** | 300M496010117300 |
| **POOL** | Undefined |
| **FIELD** | Cameron |
| **PROVINCE** | North West Territories |
| **LICENCE NUMBER** | 1974 |
| **CLASSIFICATION** | Production |
| **A.F.E. NUMBER** | 02N310150 |
| **SURFACE COORDINATES** | Latitude: 60° 08' 52.585" North |
| | Longitude: 117° 39' 16.552" West |
| **ELEVATIONS** | KB: 709.28m |
| | GL: 704.43m |
| **TOTAL DEPTH** | Driller: 1505.0m |
| | Logger: 1503.5m |
| **DRILLING CONTRACTOR** | Precision Drilling Rig #117 |
| **ENGINEER** | Brian Neigum 403-997-5286 |
| **GEOLOGIST** | Brad Powell 403-861-0838 |
| **SPUD DATE** | February 20, 2003 @ 12:30hrs |
| **COMPLETED DRILLING** | February 28, 2003 @ 21:05hrs |
| **RIG RELEASE** | March 5, 2003 @ 16:00hrs |

# Well Data Summary

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

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

**DST's** DST #1: 1306m-1317m (Slave Point)
DST #2: 1418m-1426m (Muskeg)

**CORE** Core #1: 1457-1470m (Keg River)

**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) over interval: | 1300m - TD |

**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 35km, following rig signs. Turn right to location.

**PROBLEMS**

**On Surface Hole:** none

**On Main Hole:** Anhydrite mud contamination caused minor setbacks.

# Logging Summary

**Date:** February 28, 2003

**Logging Company:** Computalog Engineer: K. Muir

**Mud Properties:** WT: 1080 kg/m3 Visc: 100 s/L WL: 11.0 pH: 11.0

**Hole Size:** 200mm

**Surface Casing:** 219.1mm, 35.7kg/m, set @ 425.9m

**Depths:** Driller: 1505.0m Strap: 1505.0m Logger: 1503.5m

**Logging Times:** First Alerted: 19:00 February 28, 2003

Time Required: 05:00 March 1, 2003 (10.0hr final notice)

Arrived: 04:30 March 1, 2003

**Hole Condition:** Good

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

**Wiper Trips:** 15 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 @ 10:30 March 1, 2003.

# Bit Record & Casing Summary

## Bit Record

| Bit # | Make | Type | Size (mm) | In (m) | Out (m) | Meters (m) | Hours | ROP (m/hr) | Condition T - B - G |
|---|---|---|---|---|---|---|---|---|---|
| 1A | Smith | FDSS | 311 | 0 | 59 | 59 | 8 | 7.38 | 7 – 4 - IN |
| 2A | Hughes | XGG | 311 | 59 | 171 | 112 | 7.5 | 14.93 | 7 – 3 - IN |
| 3A | Russian | R193 | 311 | 171 | 426 | 255 | 10.5 | 24.29 | 2 – 1 - IN |
| 1 | Varel | MKS55 | 200 | 426 | 1423 | 997 | 41.5 | 24.02 | 70% |
| 2 | Varel | CH34 | 200 | 1423 | 1457 | 34 | 6 | 5.67 | 1 –1 - IN |
| 1C | Hughes | BHC409 | 199 | 1457 | 1470 | 13 | 5.5 | 2.36 | 99% |
| 2RR | Varel | CH34 | 200 | 1470 | 1505 | 35 | 8.25 | 4.24 | 1 –1 - IN |

## Casing / Cementing Summary

| Type | Size (mm) | Hole Size (mm) | Landed (m) | Total Jts | Remarks |
|---|---|---|---|---|---|
| Surf | 219.1 | 311 | 424.9 | 31 | 30 joints of 219.1mm 35.72kg/m, K-55, 8RD ST&C new Ipsco casing ran. Cemented with BJ 32t of 0:1:0 Class G + 2% CaCl2. Approximately 4m3 of good returns, float OK, plug down @ 19:27 February 22, 2003. |
| Prod | 139.7 | 200 | 1504. | 118 | 118 joints of 139.7mm 20.3kg/m, J-55, 8RD ST&C new Ipsco casing ran. Cemented with BJ with 23.5t Fill-lite 2-125 with 0.6% R-3 and 3% A-9 for lead. Tail cement 6.5t 0:1:0 Class G with 0.4% FL-77 and 0.1% R-3. 4.0m3 good returns. Plug down 23:55 on March 4, 2003. |

# Deviation Surveys

| DEPTH | DEGREES |
|---|---|
| 41 | 1.00 |
| 65 | 0.75 |
| 94 | 1.00 |
| 123 | 0.50 |
| 151 | 0.75 |
| 181 | 1.00 |
| 210 | 1.00 |
| 237 | 1.00 |
| 266 | 1.00 |
| 295 | 0.75 |
| 323 | 0.75 |
| 349 | 1.25 |
| 377 | 0.75 |
| 418 | 1.50 |
| 522 | 1.00 |
| 616 | 1.00 |
| 751 | 0.75 |
| 846 | 1.00 |
| 938 | 1.00 |
| 1034 | 1.00 |
| 1137 | 1.00 |
| 1235 | 1.75 |
| 1282 | 1.50 |
| 1355 | 1.25 |
| 1498 | 1.00 |

# Daily Drilling Summary

| Date | Depth | Progress | Operations (08:00hrs on date shown) |
|---|---|---|---|
| Feb 20 | 0 | 0 | Move rig to location. Start rigging up rig and nipple up diverter. |
| Feb 21 | 171 | 0 | Nipple up diverter, drill rat hole. Function test diverter and BOPs. Safety meeting. Spud February 20 @ 12:30. Drill 311mm surface hole with required surveys and rig service from 0m to 59m with Bit #1A. POOH for bit trip. RIH with Bit #2A. Drill ahead to 171m. POOH for bit trip. |
| Feb 22 | 408 | 237 | RIH with Bit #3A. Drill ahead 311mm surface hole from 171m to 408m with required surveys and rig service. Circulate hole clean, wiper trip with strap. RIH with reaming. |
| Feb 23 | 319 | 227 | Drill 311mm surface hole with required surveys and rig service from 408m to 426m. Circulate and condition hole for running casing. Rig for and run 31 joints 219.1mm surface casing. Circulate casing. Rig up BJ cementers, safety meeting, and cement hole. Nipple down diverter and weld on bowl. Nipple up BOPs and start to pressure test. |
| Feb 24 | 657 | 231 | Pressure test rams, kill line, HCR, BOP, Hydril, stabbing valve, manifold and check accumulator. WOC. Make up BHA with Bit #1. Hold drill out safety meeting, and drill out plug. Leak of test and drill ahead 200mm main hole to 612m. Lost circulation. Mix pill, pump pill, and drill ahead to 657m. |
| Feb 25 | 1169 | 512 | Drill ahead 200mm main hole with required surveys and rig service from 657m to 720m. Lost circulation healed. Flip back to floc water. Drill ahead to 1169m. |
| Feb 26 | 1423 | 254 | Drill ahead 200mm main hole with required surveys and rig services from 1169m to 1423m. Stop and circulate. POOH for bit trip. |

# Daily Drilling Summary

| Date | Depth | Progress | Operations (08:00hrs on date shown) |
|---|---|---|---|
| Feb 27 | 1457 | 34 | Trip out Bit #1. Make up new BHA with Bit #2. RIH. Drill ahead 200mm main hole from 1423m to 1429m. Mud clobbered, stop and treat. Drill ahead to 1450m and then control drill to 1457m core point. Wiper trip to 1278m. Circulate to condition hole for coring. POOH to core. |
| Feb 28 | 1470 | 13 | Make up coring assembly. RIH, ream to bottom. Cut core 1457m to 1470m, jammed off. POOH to recover core. Lay down core barrels. |
| Mar 1 | 1505 | 35 | Rig service, RIH with Bit #2RR. Ream to bottom. Drill 200mm main hole with required surveys and rig service from 1470m to 1505m. Circulate to condition hole for logging. Wiper trip and circulate. Strap out to log. |
| Mar 2 | 1505 | 0 | POOH to log. Rig up Computalog. Log tools on bottom at 10:30 March 1, 2003. Log Run #1. Rig out tools. Rig for log Run #2. Log Run#2. Rig out loggers. RIH and wait on orders. RIH to bottom and circulate to condition hole for DSTs. |
| Mar 3 | 1505 | 0 | Rig in for 2 real time, closed chamber tests with Baker of time intervals 5, 60, 60, 180min. |
| Mar 4 | 1505 | 0 | Test #1 and #2. POOH lay down test tools. RIH to condition hole for casing / cementing. Slip and cut, rig service. |
| Mar 5 | 1505 | 0 | Run 118 joints 139.7mm production casing. Circulate casing. Rig in BJ to cement. Cement casing. Rig out BJ. WOC, tear out BOPs, set slips, tear out rig. Rig release March 5, 2003 @ 1600. |

# Formation Tops

**Kelly Bushing Elevation: 709.28m**

| Formation | Sample (m) | Logger (m) | SubSea (m) |
|---|---|---|---|
| Wabamun | n/a | 478.5 | +230.8 |
| Fort Simpson | n/a | 696.0 | +13.3 |
| Slave Point | 1302.5 | 1302.5 | -593.2 |
| F4 | 1341.5 | 1341.5 | -632.2 |
| Watt Mountain | 1350.0 | 1350.0 | -640.7 |
| Sulphur Point LS | 1367.0 | 1367.0 | -657.7 |
| Sulphur Point DOL ** | 1378.5 | 1379.0 | -669.7 |
| Muskeg | 1394.0 | 1401.0 | -691.7 |
| Keg River * | 1453.5 | 1446.0 | -736.7 |
| PreCambrian | 1485.5 | 1484.0 | -774.7 |
| Total.Depth. | 1505.0 | 1503.5 | -794.2 |

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

1295m-1302.5m
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

**SLAVE POINT @ 1302.5m**

1302.5m-1305m
LIMESTONE 100%, cream to light brown, brown, predominantly cryptocrystalline to microcrystalline, occasionally very fine crystalline, mudstone to wackestone, in part chalky, argillaceous in part, resinous 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

1305m-1315m
LIMESTONE 100%, cream to light brown, brown, slightly darker than above, predominantly cryptocrystalline to microcrystalline, occasionally very fine crystalline, mudstone to wackestone, in part chalky, argillaceous in part, resinous in part, lumpy to blocky, scattered pyrite nodules and locally disseminated pyrite crystals, dense with trace poor intercrystalline porosity, inferred minor earthy porosity, pale yellow fluorescence, weak greenish yellow watery cut

1315m-1325m
LIMESTONE 100%, white to light brown, brown, becoming lighter, predominantly microcrystalline, occasionally very fine crystalline, mudstone to wackestone, in part pelletal, 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, questionable show

1325m-1340m
LIMESTONE 100%, cream to brown, becoming quite dark brown, cryptocrystalline to microcrystalline, mudstone, in part chalky, argillaceous in part, lumpy to blocky, scattered pyrite nodules and locally disseminated pyrite crystals, dense, tight, questionable show

**F4 MARKER @ 1341.5m**

1340m-1345m
LIMESTONE 90%, as above, DOLOMITE 10%, brown to dark brown, grey brown, cryptocrystalline to microcrystalline, blocky, tight, minor ANHYDRITE?

1345m-1350m
LIMESTONE 80%, cream to brown, gray, very mottled, mudstone to wackestone, microcrystalline to very fine crystalline, argillaceous, lumpy to blocky, dolomitic in part, tight, yellow fluorescence, weak faint green cut, DOLOMITE 20%, medium brown, cryptocrystalline to microcrystalline, blocky, firm, tight, questionable show, minor ANHYDRITE, off white to tan, cryptocrystalline to microcrystalline, pearly lustre in part, calcareous in part, soft

**WATT MOUNTAIN @ 1350m**

1350m-1367m
SHALE 100%, slightly greenish gray to mint green, occasionally bright blue green, waxy, soft, calcareous, common disseminated pyrite and very coarse cubic pyrite crystals and crystalline clusters, occasional dark gray to black SHALE

**SULPHUR POINT LIMESTONE @ 1367m**

1367m-1378.5m
LIMESTONE 70%, predominantly off white to tan, light brown to dark brown, gray, cryptocrystalline to medium crystalline, mudstone to wackestone, brown rock fragments in white argillaceous lime matrix, in part pelletal, dolomitic in part, mottled, chalky, lumpy to blocky, tight with streaks of poor pinpoint porosity, assumed minor earthy porosity, no show, SHALE 30%, as above (cavings)

**SULPHUR POINT DOLOMITE @ 1378.5m**

1378.5m-1380m
DOLOMITE 100%, light brown to brown, patchy dark brown oil stain, microcrystalline to fine crystalline packstone to grainstone, subhedral crystalline growth, streaks of fair pinpoint/vug porosity, fair intercrystalline porosity, bright yellow fluorescence, slow streaming milky yellow white cut

1380m-1385m
DOLOMITE 100%, light brown to brown, patchy dark brown oil stain, microcrystalline to fine crystalline packstone to grainstone, subhedral crystalline growth, streaks of fair pinpoint/vug porosity, fair intercrystalline porosity, local sucrosic texture, trace fossil debris, sandy appearance in part, trace bitumen, bright yellow fluorescence, slow streaming milky yellow white cut

1385m-1395m
DOLOMITE 100%, essentially as above, becoming coarser, becoming darker brown, scattered calcite and clear dolomite crystalline along cutting edges suggesting vug and/or fracture porosity, even bright yellow fluorescence, slow streaming milky yellow white cut

**MUSKEG @ 1394m**

1395m-1400m
ANHYDRITE 50%, 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 50%, light brown to dark brown oil stained, microcrystalline to very fine crystalline grainstone, poor vug porosity, streaks of fair to good intercrystalline porosity, sandy appearance, lumpy to blocky, dull gold to yellow fluorescence, slow streaming milky greenish white cut

ANHYDRITE 50%,
As above, DOLOMITE 50%, light brown to dark brown oil stained, microcrystalline to very fine crystalline grainstone, poor vug porosity, streaks of fair to good intercrystalline porosity, in part sucrosic, scattered subhedral to euhedral crystalline growth, sandy appearance, yellow fluorescence, slow streaming milky greenish white cut

1405m-1415m
ANHYDRITE 70%, 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 30%, light brown to dark brown oil stained, microcrystalline to very fine crystalline grainstone, poor vug porosity, streaks of fair to good intercrystalline porosity, sandy appearance, yellow fluorescence, slow streaming milky greenish white cut

1415m-1420m
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 30%, light brown to dark brown oil stained, microcrystalline to very fine crystalline grainstone, poor vug porosity, streaks of fair intercrystalline porosity, sandy appearance, even dull gold to yellow fluorescence, slow streaming milky yellowish white cut

1420m-1425m
SAMPLE MISSED

1425m-1445m
ANHYDRITE 100%, white to tan, occasional gray to brown, pearly to watery lustre, cryptocrystalline, slightly dolomitic in part, amorphous to blocky, chalky in part to firm, dense, tight, minor DOLOMITE stringers

1445m-1450m
DOLOMITE 70%, light brown to dark brown oil stained, microcrystalline to fine crystalline grainstone, trace vug/pinpoint porosity, streaks of fair intercrystalline porosity, scattered medium subhedral to euhedral crystalline growth and clusters suggest vug porosity, sandy appearance, blocky, firm, yellow fluorescence, slow streaming milky

greenish white cut, ANHYDRITE 30%, as above

1450m-1453.5m
DOLOMITE 50%, ANHYDRITE 50%

**KEG RIVER @ 1453.5m**

1453.5m-1457m
DOLOMITE 100%, light brown to dark brown oil stained, microcrystalline to very fine crystalline grainstone, trace vug/pinpoint porosity, streaks of fair intercrystalline porosity, scattered medium subhedral to euhedral crystalline growth and clusters suggest vug porosity, sandy appearance, blocky, firm, yellow fluorescence, slow streaming milky greenish white cut

**CORE POINT @ 1457m-1470m (13m)**

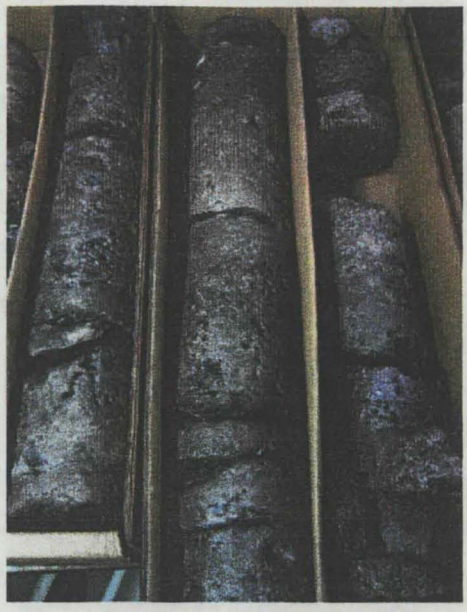
1457m-1470m For detailed core descriptions over the interval of 1457m to 1470m, see detailed core log.

1470m-1485m
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

**PRECAMBRIAN @ 1485.5m**

1485.5m-1505m
GRANITE / GNEISS, gray to black, dark green, pink, predominant hornblende, common green chlorite, orange feldspar, angular clear quartz fragments, coarse grained to granule sized, poor sorted, angular, arkosic in part, trace pyrite, very hard, weathered, abrasive, tight

**TOTAL DEPTH @ 1505m**



1460m, Keg River

1460m, Keg River

1460.1m, Keg River

1461m, Keg River

1462.5m, Keg River

1468.1m, Tight Keg River

1468m, Tight Keg River

1310m, Slave Point Sh/Ls 10x

1360m, Watt Mountain Shale 10x

1385m, Sulphur Pt Dol 10X

1455m, Muskeg Anhydrite 10X

1460m, Keg River Dolomite

1490m, PreCrambrian 10X

1490m, PreCambrian 10X

1557m, Keg River Top 10X

1557m, Keg River Top 30X

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

| | |
|---|---|
| Well Name: | Para et al Cameron M-49 |
| Location: | M-49 Grid Area: Lat 60° 10' N Long 117° 30' W |
| Licence Number: | 1974 |
| Region: | Cameron Hills, NWT |
| Spud Date: | Feb 20/03 @ 12:30 |
| Drilling Completed: | Feb 28/03 @ 21:05 |
| Surface Coordinates: | Latitude: 60° 08' 52.585" North |
| | Longitude: 117° 39' 16.552" West |
| Bottom Hole Coordinates | |
| Ground Elevation (m): | 704.43 |
| K.B. Elevation (m): | 709.28 |
| Logged Interval (m): | 1295.0 To: 1505.0 |
| Total Depth (m): | 1505.0 |
| Formation: | Sulphur Point Dolomite / Keg River |
| Type of Drilling Fluid: | Gel Chemical |



## CORE

| | | | |
|---|---|---|---|
| Contractor: | Baker Hughes | | |
| Core #: | 1 | | |
| Formation: | Keg River dolomite | | |
| Core Interval: | From: 1457.0m | Cut: | 13.0m |
| | To: 1470.0m | Recovered: | 13.0m |
| Bit type: | Hughes BHC 409 | | |
| Size: | 199mm | | |
| Coring Time: | 5.5hrs | | |

## 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


## Cores

Baker Hughes: 199mm core barrel
Core #1: 1457.0m-1470.0m (Keg River)
Cut: 13.0m Recovered: 13.0m

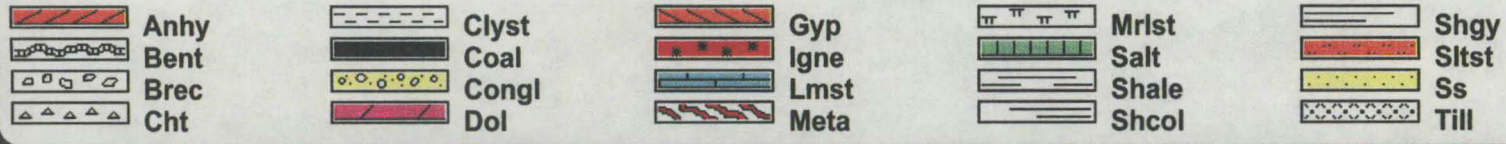
## DSTs

Baker Hughes: Closed chamber, real-time
DST #1: 1306-1317m (Slave Point)
DST #2: 1418-1426m (Muskeg)

## Comments

This well was drilled by Presicion Drilling Rig #117.
A MiniPac gas detector was run.
Paramount AFE #02N310150
Logging Program: Computalog
Run #1: STI-MRT-SP-SPED-CNT-GR-DAC
Run #2: BHS-GR-CAL
139.7mm production casing was run

## ROCK TYPES



## ACCESSORIES

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

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

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

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

## OTHER SYMBOLS

**POROSITY TYPE**
- Earthy
- Fenest
- Fracture
- Inter
- Moldic
- Organic
- Pinpoint
- Vuggy

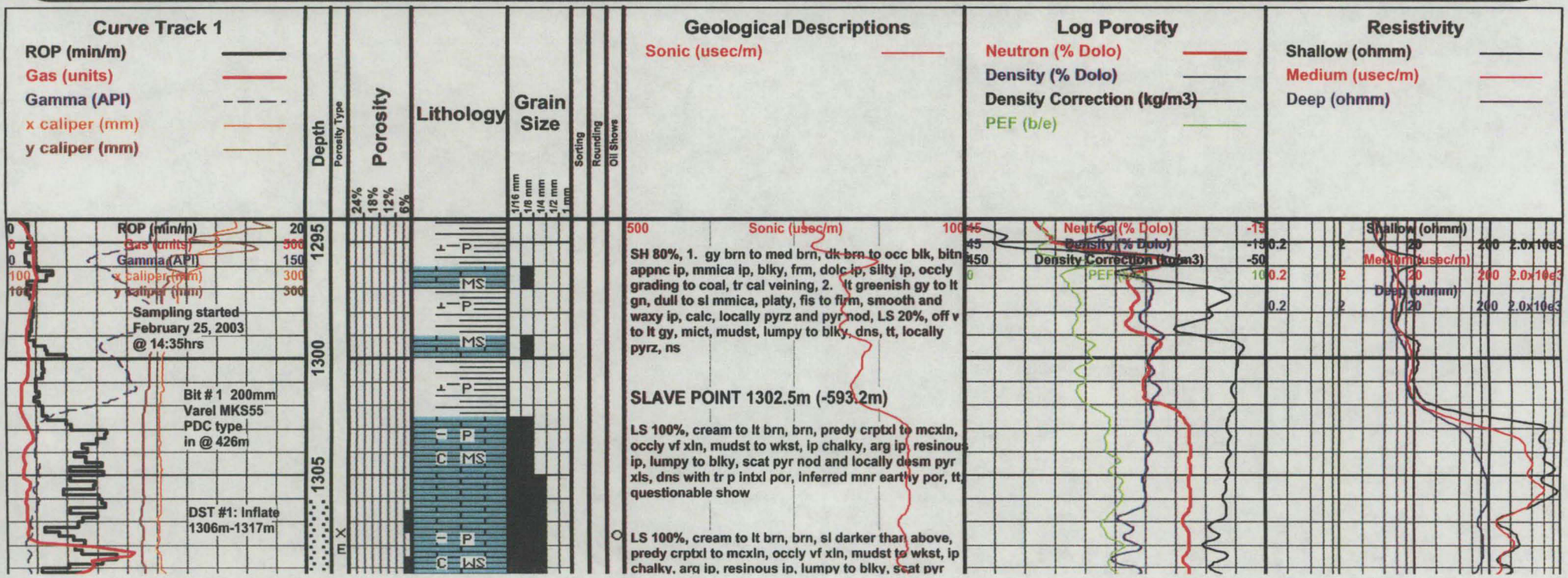
**SORTING**
- Well
- Moderate
- Poor

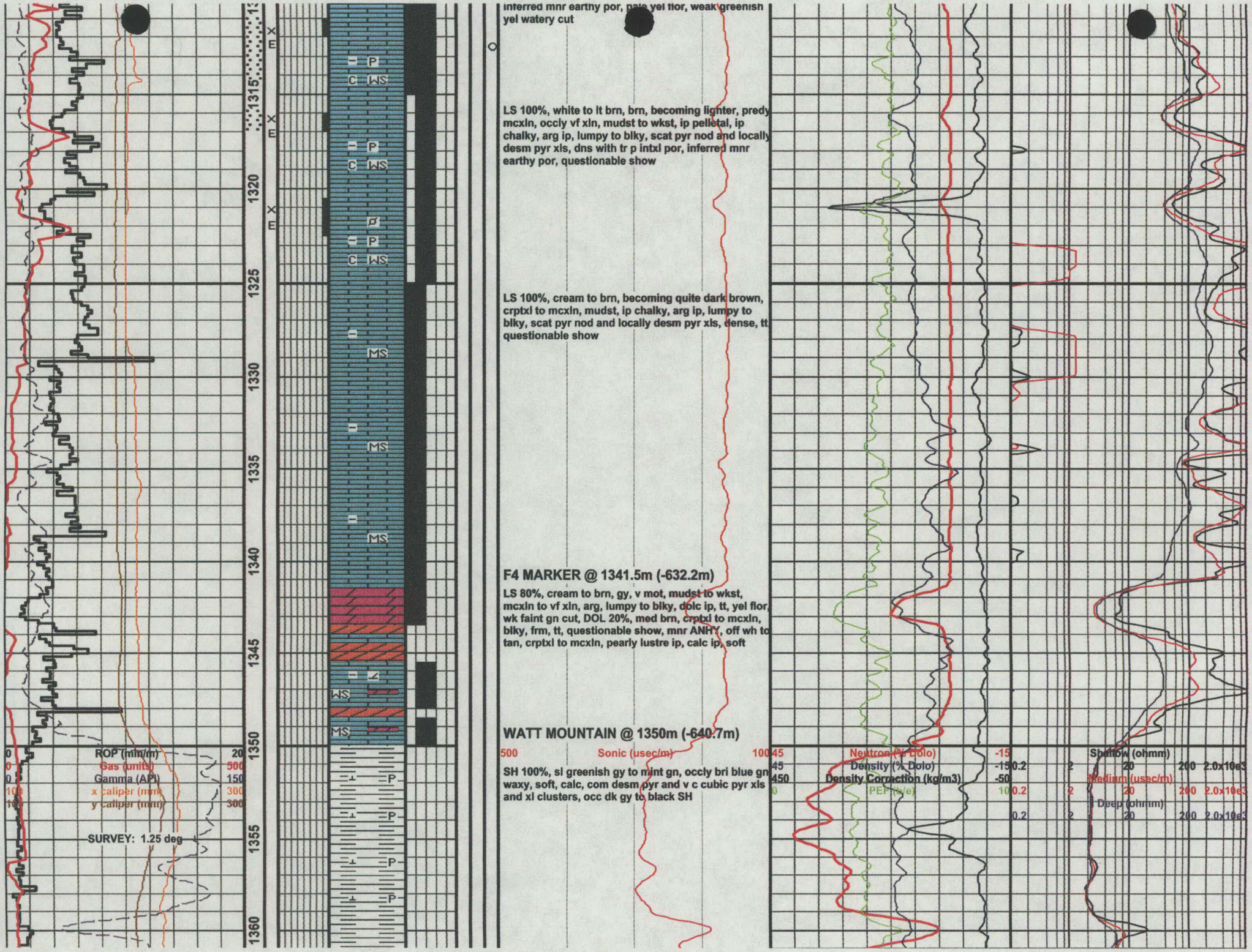
**ROUNDING**
- Rounded
- Subrnd
- Subang
- Angular

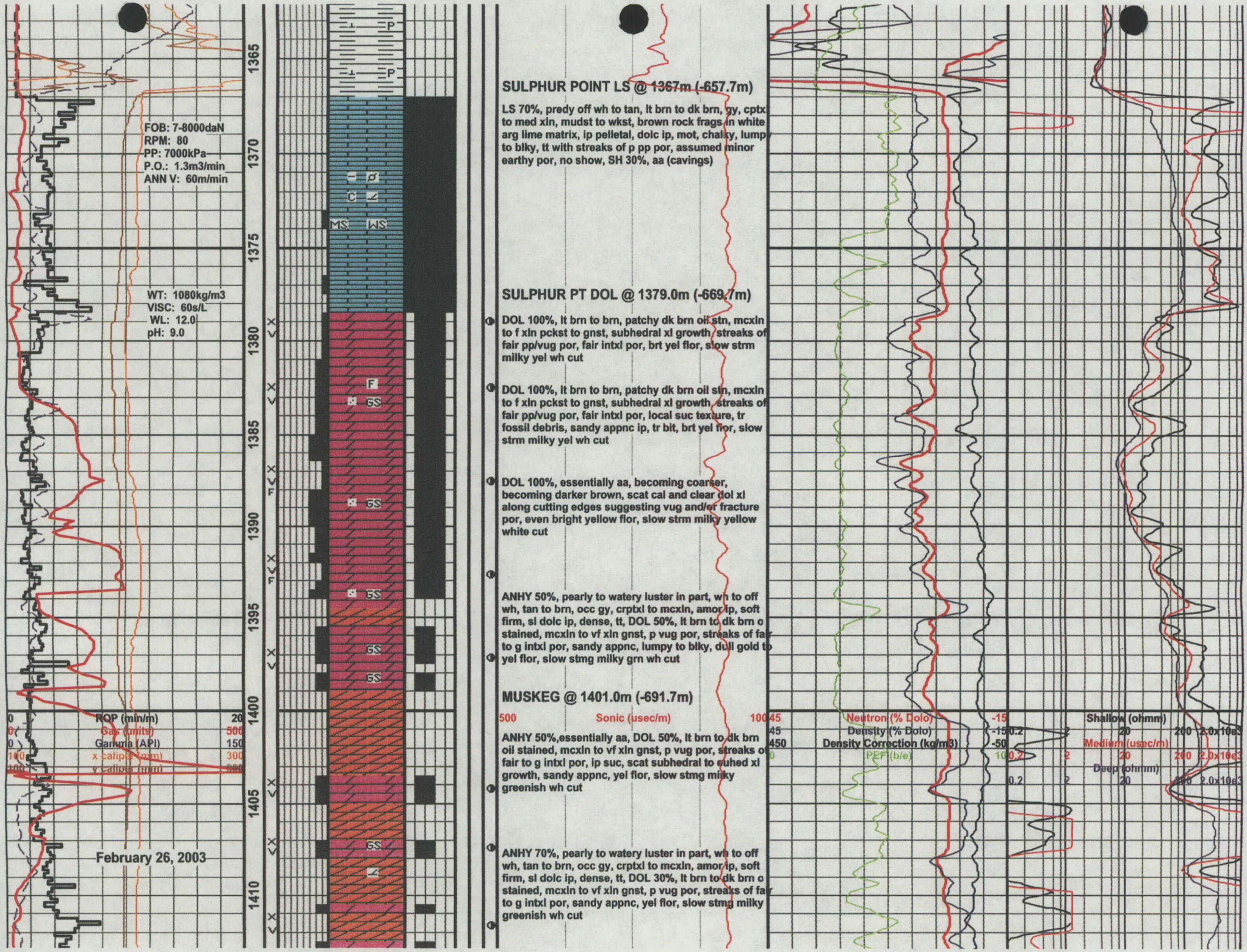
**OIL SHOWS**
- Even
- Spotted
- Ques
- Dead

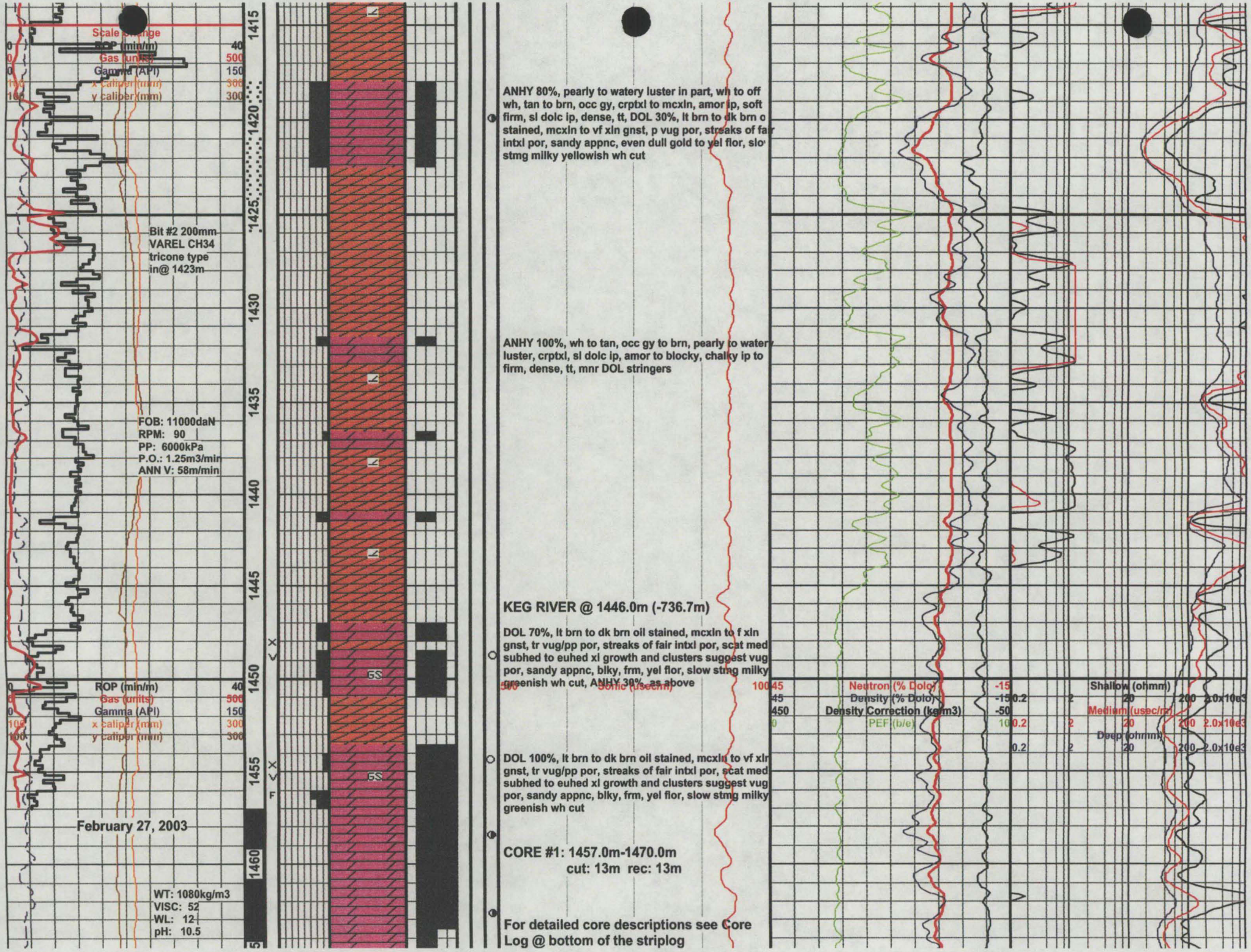
**INTERVALS**
- Core
- Dst

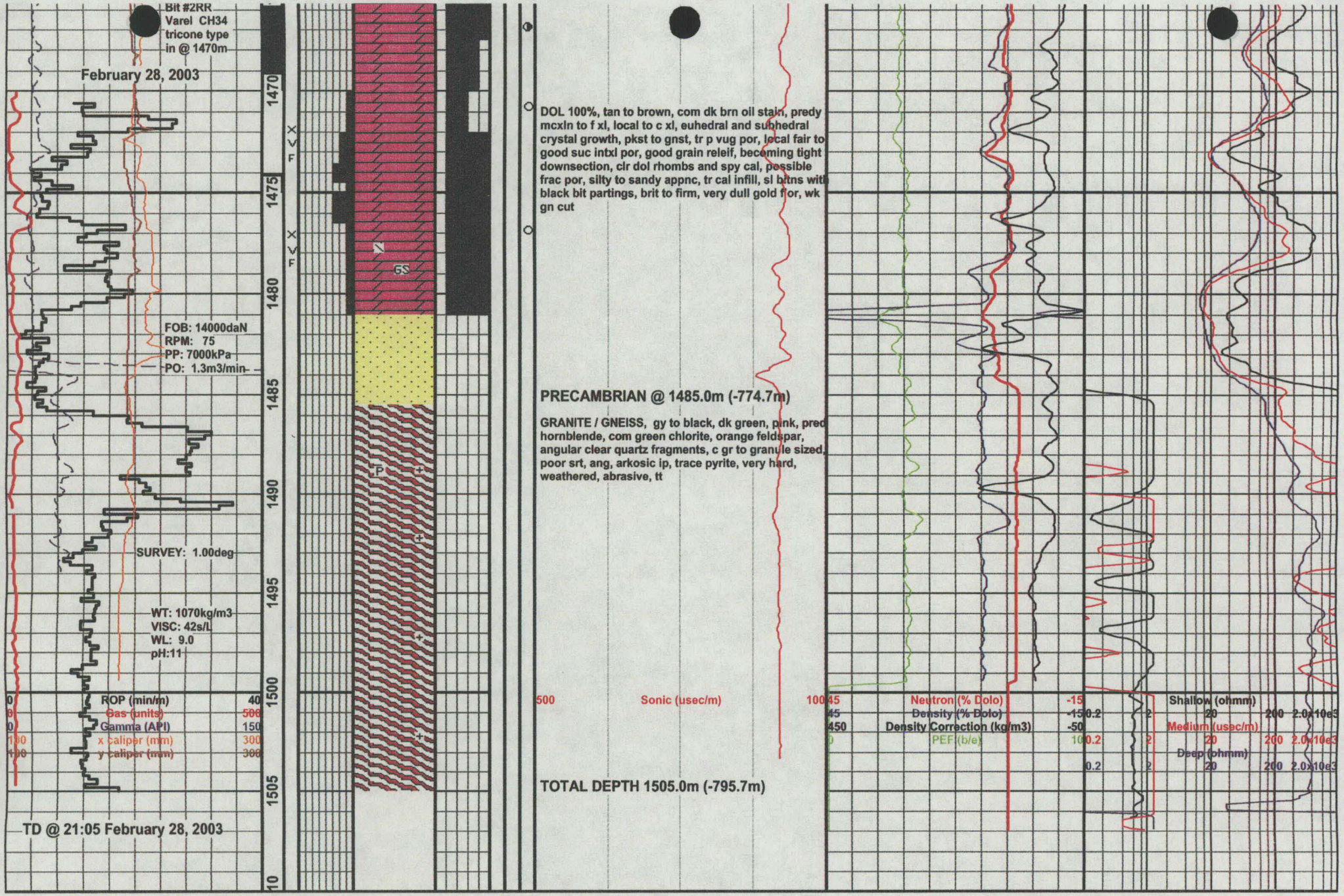
**EVENTS**
- Rft
- Sidewall




inferred mnr earthy por, pale yel flor, weak greenish yel watery cut
LS 100%, white to lt brn, brn, becoming lighter, predy mcxln, occly vf xln, mudst to wkst, ip pelletal, 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, questionable show
LS 100%, cream to brn, becoming quite dark brown, crptxl to mcxln, mudst, ip chalky, arg ip, lumpy to blky, scat pyr nod and locally desm pyr xls, dense, tt questionable show
F4 MARKER @ 1341.5m (-632.2m)
LS 80%, cream to brn, gy, v mot, mudst to wkst, mcxln to vf xln, arg, lumpy to blky, dolc ip, tt, yel flor, wk faint gn cut, DOL 20%, med brn, crptxl to mcxln, blky, frm, tt, questionable show, mnr ANHY, off wh to tan, crptxl to mcxln, pearly lustre ip, calc ip, soft
WATT MOUNTAIN @ 1350m (-640.7m)
SH 100%, sl greenish gy to mint gn, occly bri blue gn waxy, soft, calc, com desm pyr and v c cubic pyr xls and xl clusters, occ dk gy to black SH
ROP (min/m)
Gas (units)
Gamma (API)
x caliper (mm)
y caliper (mm)
SURVEY: 1.25 deg
Sonic (usec/m)
Neutron (% Dolo)
Density (% Dolo)
Density Correction (kg/m3)
PEF (b/e)
Shallow (ohmm)
Medium (usec/m)
Deep (ohmm)
1315
1320
1325
1330
1335
1340
1345
1350
1355
1360


FOB: 7-8000daN
RPM: 80
PP: 7000kPa
P.O.: 1.3m3/min
ANN V: 60m/min
WT: 1080kg/m3
VISC: 60s/L
WL: 12.0
pH: 9.0
ROP (min/m) 20
Gas (units) 500
Gamma (API) 150
x caliper (mm) 300
y caliper (mm) 300
February 26, 2003
1365
1370
1375
1380
1385
1390
1395
1400
1405
1410
MS
WS
F
SULPHUR POINT LS @ 1367m (-657.7m)
LS 70%, predy off wh to tan, lt brn to dk brn, gy, cptx to med xln, mudst to wkst, brown rock frags in white arg lime matrix, ip pelletal, dolc ip, mot, chalky, lumpy to blky, tt with streaks of p pp por, assumed minor earthy por, no show, SH 30%, aa (cavings)
SULPHUR PT DOL @ 1379.0m (-669.7m)
DOL 100%, lt brn to brn, patchy dk brn oil stn, mcxln to f xln pckst to gnst, subhedral xl growth, streaks of fair pp/vug por, fair intxl por, 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 xl growth, streaks of fair pp/vug por, fair intxl por, local suc texture, tr fossil debris, sandy appnc ip, tr bit, brt yel flor, slow strm milky yel wh cut
DOL 100%, essentially aa, becoming coarser, becoming darker brown, scat cal and clear dol xl along cutting edges suggesting vug and/or fracture por, even bright yellow flor, slow strm milky yellow white cut
ANHY 50%, pearly to watery luster in part, wh to off wh, tan to brn, occ gy, crptxl to mcxln, amor ip, soft firm, sl dolc ip, dense, tt, DOL 50%, lt brn to dk brn o stained, mcxln to vf xln gnst, p vug por, streaks of fa to g intxl por, sandy appnc, lumpy to blky, dull gold to yel flor, slow stmg milky grn wh cut
MUSKEG @ 1401.0m (-691.7m)
500 Sonic (usec/m) 100
ANHY 50%,essentially aa, DOL 50%, lt brn to dk brn oil stained, mcxln to vf xln gnst, p vug por, streaks of fair to g intxl por, ip suc, scat subhedral to euhed xl growth, sandy appnc, yel flor, slow stmg milky greenish wh cut
ANHY 70%, pearly to watery luster in part, wh to off wh, tan to brn, occ gy, crptxl to mcxln, amor ip, soft firm, sl dolc ip, dense, tt, DOL 30%, lt brn to dk brn o stained, mcxln to vf xln gnst, p vug por, streaks of fa to g intxl por, sandy appnc, yel flor, slow stmg milky greenish wh cut
45 Neutron (% Dolo) -15
45 Density (% Dolo) -15
450 Density Correction (kg/m3) -50
0 PEF (b/e) 10
0.2 2
Shallow (ohmm) 0.2 2 20 200 2.0x10e3
Medium (usec/m) 20 200 2.0x10e3
Deep (ohmm) 20 200 2.0x10e3


Scale Change
ROP (min/m) 40
Gas (units) 500
Gamma (API) 150
x caliper (mm) 300
y caliper (mm) 300
Bit #2 200mm
VAREL CH34
tricone type
in@ 1423m
FOB: 11000daN
RPM: 90
PP: 6000kPa
P.O.: 1.25m3/min
ANN V: 58m/min
1415
1420
1425
1430
1435
1440
1445
1450
1455
1460
ROP (min/m) 40
Gas (units) 500
Gamma (API) 150
x caliper (mm) 300
y caliper (mm) 300
February 27, 2003
WT: 1080kg/m3
VISC: 52
WL: 12
pH: 10.5
ANHY 80%, pearly to watery luster in part, wh to off wh, tan to brn, occ gy, crptxl to mcxln, amor ip, soft firm, sl dolc ip, dense, tt, DOL 30%, lt brn to dk brn o stained, mcxln to vf xln gnst, p vug por, streaks of fa intxl por, sandy appnc, even dull gold to yel flor, slo stmg milky yellowish wh cut
ANHY 100%, wh to tan, occ gy to brn, pearly to watery luster, crptxl, sl dolc ip, amor to blocky, chalky ip to firm, dense, tt, mnr DOL stringers
KEG RIVER @ 1446.0m (-736.7m)
DOL 70%, lt brn to dk brn oil stained, mcxln to f xln gnst, tr vug/pp por, streaks of fair intxl por, scat med subhed to euhed xl growth and clusters suggest vug por, sandy appnc, blky, frm, yel flor, slow stmg milky greenish wh cut, ANHY 30%, as above
500 Sonic (usec/m) 100
DOL 100%, lt brn to dk brn oil stained, mcxln to vf xln gnst, tr vug/pp por, streaks of fair intxl por, scat med subhed to euhed xl growth and clusters suggest vug por, sandy appnc, blky, frm, yel flor, slow stmg milky greenish wh cut
CORE #1: 1457.0m-1470.0m
cut: 13m rec: 13m
For detailed core descriptions see Core Log @ bottom of the striplog
45 Neutron (% Dolo) -15
45 Density (% Dolo) -15
450 Density Correction (kg/m3) -50
0 PEF (b/e) 10
0.2
Shallow (ohmm)
2 20 200 2.0x10e3
Medium (usec/m)
2 20 200 2.0x10e3
Deep (ohmm)
0.2
2 20 200 2.0x10e3


Bit #2RR
Varel CH34
tricone type
in @ 1470m
February 28, 2003
FOB: 14000daN
RPM: 75
PP: 7000kPa
PO: 1.3m3/min
SURVEY: 1.00deg
WT: 1070kg/m3
VISC: 42s/L
WL: 9.0
pH:11
ROP (min/m) 40
Gas (units) 500
Gamma (API) 150
x caliper (mm) 300
y caliper (mm) 300
TD @ 21:05 February 28, 2003
1470
1475
1480
1485
1490
1495
1500
1505
1510
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 tight 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 fluor, wk gn cut
PRECAMBRIAN @ 1485.0m (-774.7m)
GRANITE / GNEISS, gy to black, dk green, pink, pred hornblende, com green chlorite, orange feldspar, angular clear quartz fragments, c gr to granule sized, poor srt, ang, arkosic ip, trace pyrite, very hard, weathered, abrasive, tt
500 Sonic (usec/m) 100
TOTAL DEPTH 1505.0m (-795.7m)
45 Neutron (% Dolo) -15
45 Density (% Dolo) -150.2 2
450 Density Correction (kg/m3) -50
0 PEF (b/e) 100.2 2
0.2 2
Shallow (ohmm)
20 200 2.0x10e3
Medium (usec/m)
20 200 2.0x10e3
Deep (ohmm)
20 200 2.0x10e3

Scale 1:48 (25"=100') Metric

| | | | |
|---|---|---|---|
| Well Name: | Para et al Cameron M-49 | | |
| Location: | M-49 Grid Area: Lat 60° 10' N Long 117° 30' W | | |
| Licence Number: | 1974 | Region: | Camern Hills, NWT |
| Spud Date: | | Drilling Completed: | |
| Surface Coordinates: | Latitude: 60° 08' 52.585" North<br>Longitude: 117° 39' 16.552" West | | |
| Bottom Hole Coordinates: | | | |
| Ground Elevation (m): | 704.43m | K.B. Elevation (m): | 709.28m |
| Logged Interval (m): | 1457.0m To: 1470.0m | Total Depth (m): | |
| Formation: | Keg River | | |
| Type of Drilling Fluid: | Gelchem | | |

Printed by STRIP.LOG from WellSight Systems Inc. 1-800-447-1534 www.wellsight.com

## OPERATOR

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

## GEOLOGIST

| | |
|---|---|
| Name: | Brad Powell, B.Sc. |
| Company: | Running Horse Resources Inc. |
| Address: | 66A New Street S.E.<br>Calgary, Alberta T2G 3X9<br>(403) 660-9883 |

## Cores

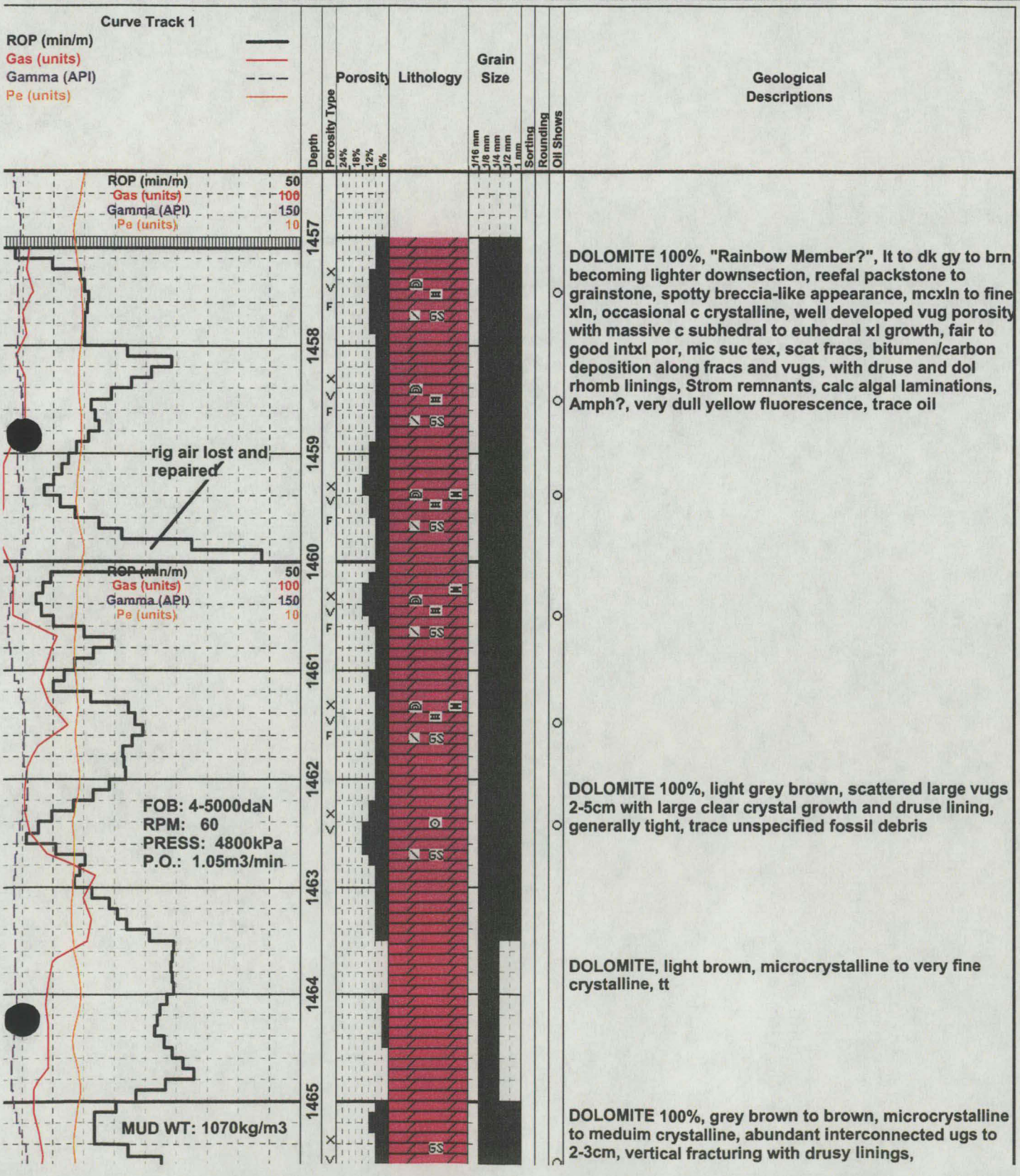
Attempted to cut 18m but core jammed off after only cutting 13m. General observations upon core recovery: there was no H2S present, and the core had a strong hydrocarbon odor. Spotty bleeding oil among fractures and vugs. Core was rubble and broken up in intervals of high porosity. Sections with very large vugs 2-3cm. Overall very pale yellow fluorescence under UV light.

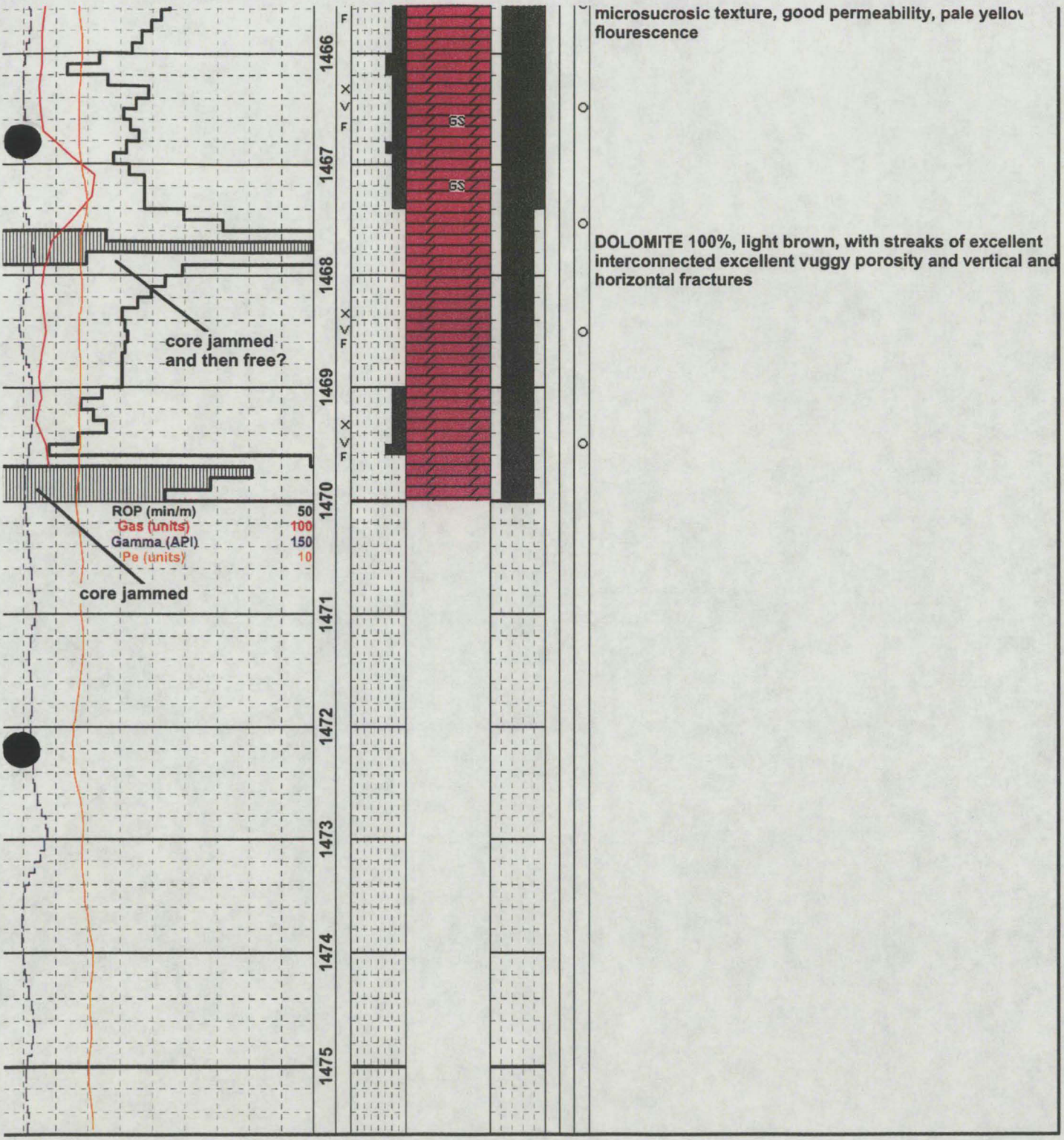
## Comments

This well was drilled by Presicion Drilling Rig #117.
A Continental gas detector was run.
Gamma data provided by Computalog.
Paramount AFE #02N310150

# CORE

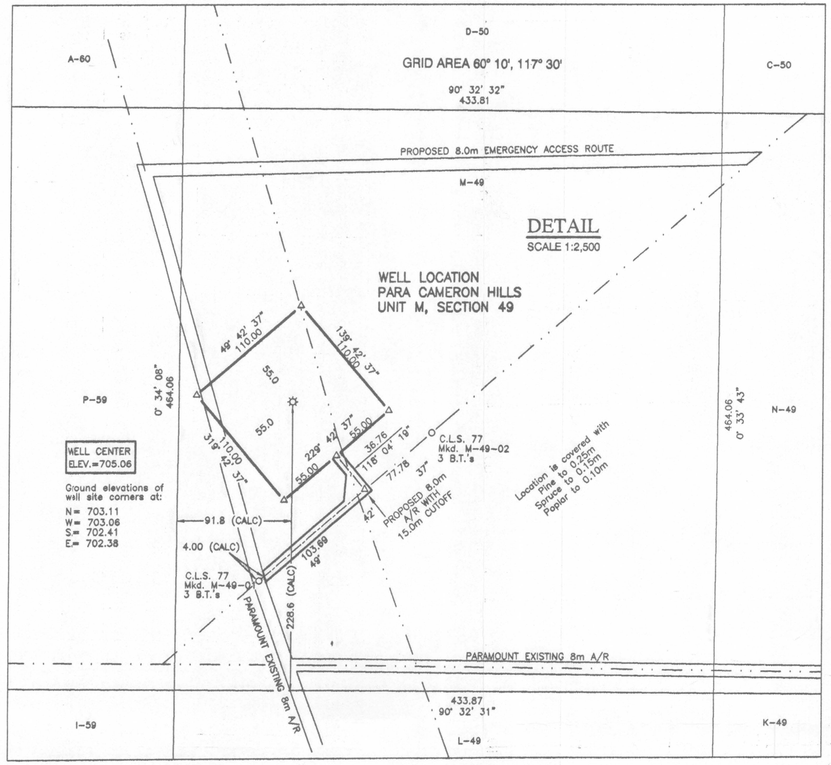
| | |
|---|---|
| **Contractor:** | **Baker Hughes** |
| **Core #:** | **1** |
| **Formation:** | **Keg River** |
| **Core Interval:** | **From: 1457.0m Cut: 13.0m** |
| | **To: 1470.0m Recovered: 13.0m** |
| **Bit type:** | **BHC409** |
| **Size:** | **199mm x 102mm** |
| **Coring Time:** | **4hr56min** |

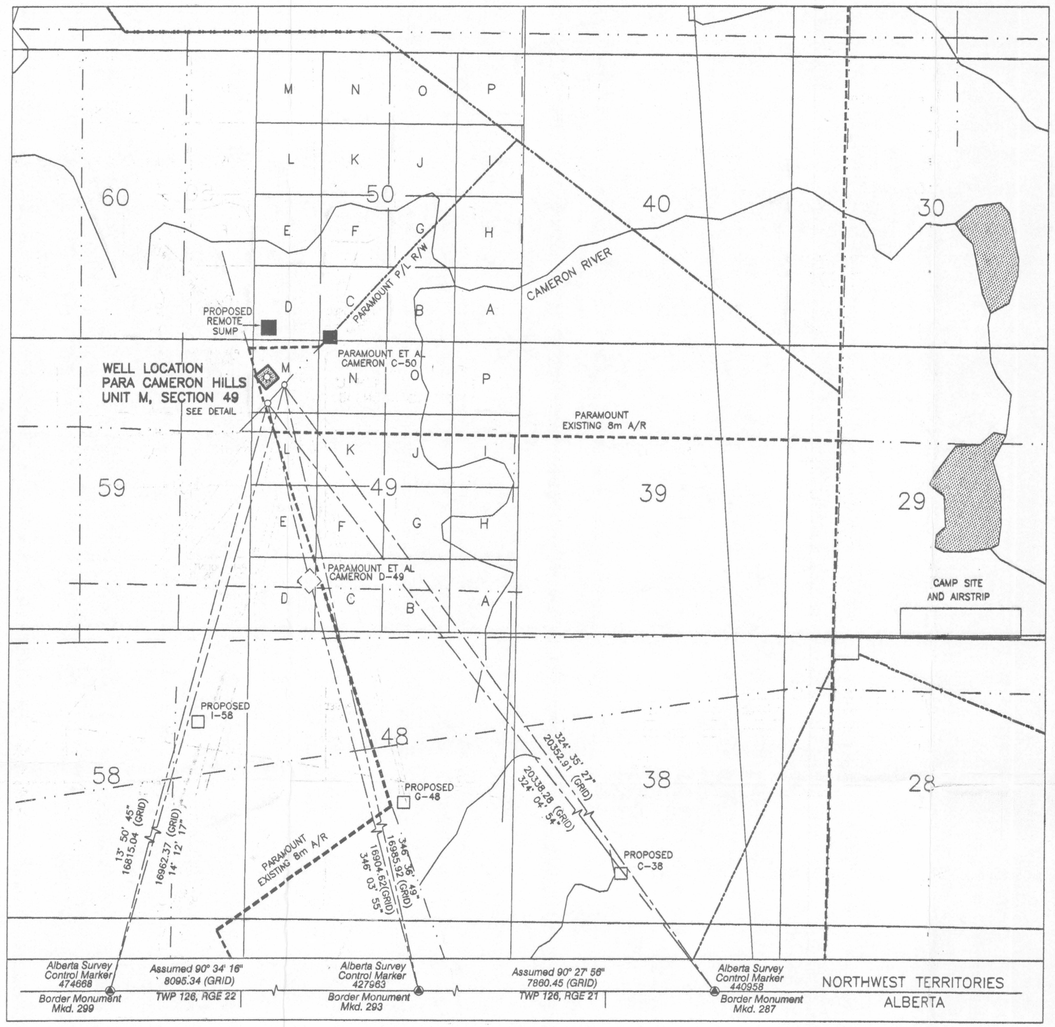


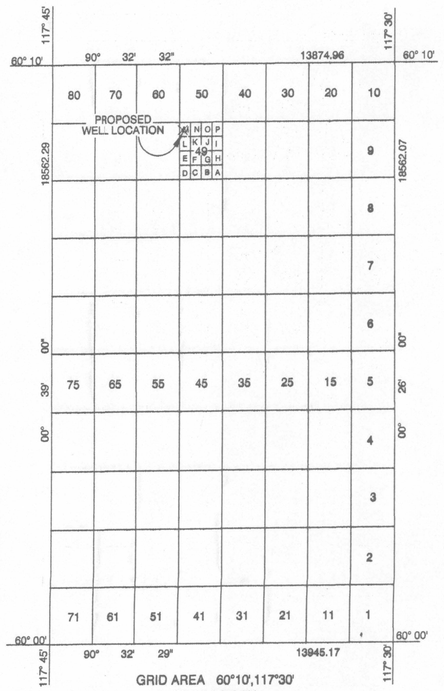



microsucrosic texture, good permeability, pale yellow flourescence

DOLOMITE 100%, light brown, with streaks of excellent interconnected excellent vuggy porosity and vertical and horizontal fractures




## AREA REQUIRED:

| | | |
|---|---|---|
| WELLSITE: | 110m x 110m = | 1.21 ha. |
| TOTAL: | | 1.21 ha. |

## BEARING TREES

| STATION | BEARING | DISTANCE | TREE |
|---|---|---|---|
| M - 49 - 01 | 280°21'22" | 18.18 | 20cm Spruce |
| | 21°57'28" | 20.97 | 8cm Spruce |
| | 112°31'29" | 15.93 | 5cm Spruce |
| M - 49 - 02 | 280°36'12" | 10.20 | 15cm Spruce |
| | 82°32'14" | 11.87 | 7cm Spruce |
| | 193°25'58" | 12.05 | 15cm Pine |

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 was held fixed. Adjusted values for Alberta Survey Control Markers 427982 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" | 6651467.12 | 475477.85 | 713.96 |
| M - 49 - 1 (Adj.) | 60° 08' 48.376" | 117°39'23.273" | 6667938.05 | 463546.63 | 701.86 |
| M - 49 - 2 (Adj.) | 60° 08' 52.211" | 117°39'14.379" | 6668055.35 | 463684.99 | 701.22 |
| Alberta Survey Control Marker 427963 (Adj.) | 59° 59' 59.280" | 117°34'50.034" | 6651531.00 | 467617.52 | 726.45 |
| Alberta Survey Control Marker 427963 (Pub.) | 59° 59' 59.280" | 117° 34' 50.034" | 6651531.00 | 467617.52 | 726.52 |
| Alberta Survey Control Marker 474668 (Adj.) | 59° 59' 59.304" | 117°43'32.508" | 6651611.65 | 459522.63 | 745.75 |
| Alberta Survey Control Marker 474668 (Pub.) | 59° 59' 59.309" | 117° 43' 32.526" | 6651611.82 | 459522.35 | 746.08 |
| PROPOSED WELL | | | | | |
| M - 49 | 60°08'52.954" | 117°39'21.965" | 6668079.43 | 463572.85 | 705.06 |

GRID AREA 60°10', 117° 30' - GEOGRAPHIC AND UTM COORDINATES, (1927 NAD)

| | | | | |
|---|---|---|---|---|
| NE | 60° 10' 00" | 117° 30' 00" | 6669871.56 | 472250.85 |
| NW | 60° 10' 00" | 117° 45' 00" | 6670002.85 | 458376.31 |
| SW | 60° 00' 00" | 117° 45' 00" | 6651441.75 | 458165.71 |
| SE | 60° 00' 00" | 117° 30' 00" | 6651310.02 | 472110.25 |
| M - 49, N.E. | 60° 09' 00.205" | 117° 38' 54.375" | 6668093.38 | 463994.56 |
| M - 49, N.W. | 60° 09' 00.200" | 117° 39' 22.500" | 6668097.49 | 463560.76 |
| M - 49, S.W. | 60° 08' 45.200" | 117° 39' 22.500" | 6667833.48 | 463556.16 |
| M - 49, S.E. | 60° 08' 45.206" | 117° 38' 54.375" | 6667829.35 | 463990.00 |
| PROPOSED WELL | | | | |
| M-49 | 60° 08' 52.585" | 117° 39' 16.552" | 6667861.02 | 463650.18 |

## LEGEND

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

Distances are expressed in metres and decimals hereof.

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

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

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

| | |
|---|---|
| Alberta Survey Control Monument | ⊕ |
| Areas Dealt With Shown Thus | |
| Spikes placed are shown thus | △ |
| Hubs placed are shown thus | □ |
| Monuments placed are shown thus | ○ |
| Bearing Trees | B.T.'s. |
| Access Road | A/R |
| Seismic Line | S/L |
| Seismic Lines are shown thus | |
| Pipeline Rights of Way are shown thus | |

Mkr. denotes metal marker post 2.0m long placec 0.30m away from Post.

Elevations were derived from Alberta Survey Control Marker 440958 Elev. = 713.96m. (Geoid Separation: HT1-01)

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

PLAN AND FIELD NOTES

OF SURVEY OF

**PROPOSED EXPLORATORY WELL**

**PARA CAMERON HILLS**

**IN UNIT M, SECTION 49**

**GRID AREA 60° 10' , 117° 30'**

NORTHWEST TERRITORIES

CANADA OIL AND GAS LAND REGULATIONS
EXPLORATORY WELL

SCALE 1:20,000

400m 200 0m 400 800 1200 1600m

SURVEYED FOR

**PARAMOUNT RESOURCES LTD.**

BY : John E. Landry, 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 19th day of August2002.

Canada Lands Surveyor

PARAMOUNT RESOURCES LTD.

Dave Blood

WITNESS

4/9/02

DATE

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

JOHN E. LANDRY
CANADA LANDS SURVEYOR

McELHANNEY LAND SURVEYS LTD.
PROFESSIONAL LAND SURVEYORS
136, 14315-118 Avenue
Edmonton, Alberta
PH: (780) 451-5420 FAX: (780) 452-0000

| | |
|---|---|
| Date: | Aug.19,2002 |
| Plan No.: | 1 of 1 |
| Job No.: | 321113191 |
| Scale: | As Shown |
| File No.: | 13191WS |