

N.E.B. COPY

FINAL WELL REPORT

**^{NORTH}
RANGER LIARD P-66A**

Mount Flett Area, NT

1823



**MICROFILMED
SUR MICROFILM:**

FINAL WELL REPORT
NORTH
RANGER LIARD P-66A

Mount Flett Area, NT

1823

Prepared by Ken Kindjerski
November 1998

MICROFILMED
SUR MICROFILM:

INTRODUCTION

1. Program Summary

Ranger Oil Limited programmed to drill a 3489 m deep exploration well to evaluate hydrocarbon production potential from the Nahanni formation. The well had to be directionally drilled due to logistical constraints.

Cactus Drilling Rig # 26E was contracted to drill the well.

2. Location Map

Attached is a topographic map (1:50,000) showing the P-66 & P-66A well location and its relationship to geographic features, the winter road and the IPL pipeline.

GENERAL DATA

Well Name: Ranger et al Fort Liard P-66A

Exploration Licence: EL 363

Location: Unit P, Section 66
Grid Area: 60 ° 35' 55.66", 123° 41' 25.31"

Well Location: See attached well plan.

Unique Well Identifier: 300P66040123300

Operator: Ranger Oil Limited
1600, 321 – 6th Avenue S.W.
Calgary, Alberta
T2P 3H3

Drilling Contractor: Cactus Drilling Limited
Suite 3200, 715 – 5 Avenue S.W.
Calgary, Alberta
T2P 2X6

Drilling Rig: Continental Emsco D – 3 rated for 5000 m

Position Keeping
/Support Craft: N/A.

Difficulties & Delays:

The original surface location constructed slumped and became unstable to conduct any drilling operations. The site was moved and rebuilt to accommodate drilling operations. The original well was planned to be directionally drilled to the bottom hole target, moving the drilling site further away made the drilling operation very difficult due to the extra off set displacement. The majority of the well had to be directionally drilled, which significantly increased the drilling costs and time to complete the operation.

Logistics to the wellsite created problems for access and costly delays. An ice bridge had to be constructed to continue safe drilling operations. This operation resulted in approximately 30 day shut down period. The well was drilled to a total depth of 3121 m MD, and evaluated. A new bottom hole target was established and the well was plugged back to 1246 m MD. A second leg was drilled to a total depth of 3500 m MD, and production casing ran in the well.

SUMMARY OF DRILLING OPERATIONS

Total Well Costs: \$14,056,647 for P-66 wellbore section
\$24,720,719 for P-66A new bottom hole target

Elevations: GL ~~489.2~~ m ^{449.49}
KB ~~499.8~~ m ^{459.89}
CB – KB 10.55 m

Total Depth: P-66 TD @ 3121 m MD; P-66A TD @ 3500 m MD

Spud Date: 1997-01-12 @ 0900 Hours ^{July 14, 1997}

Rig Release Date: ~~08/02/19~~ 2400 Hours ^{march 9, 1998}

Well Status: Standing Cased

Hole Sizes: 660.4 mm to 265 m KB
444.5 mm to 1008 m KB
311.1 mm to 3121 m KB
plug back & redrill
311.1 mm to 3500 m KB

Casing Strings:

Conductor - 3 joints, 762 mm, A252 Grade B landed at 23.5 m GL.

Surface - 21 joints, 508 mm, 139.87 kg/m, K55, BT&C landed at 262.77 m KB

Cemented with 85.0 tonnes 0-1-0 "G" + 2% CaCl₂ + 10 cellophane
Top job 5.0 tonnes 0-1-0 "G" + 2% CaCl₂

339.7 mm x 1098

Intermediate - 51 joints, 244.5 mm, 79.62 kg/m, L-80, 662.42 m Buttress thread
180 joints, 244.5 mm, 69.94 kg/m, L-80, 2460.04 m, Buttress thread
Landed at 3114.80 m KB
Stage tool at 1300.40 m KB

1st Stage Cement

17 tonnes "G" + 35% D66 + 1.25% D160 + .5% D65 + .5% D28

2nd Stage Cement

68 tonnes "G" + .3% B71 + .5% D65

Production - 42 joints; 177.8 mm; N-80; 38.69 kg/m; LT&C; Algoma Rge 3; 589.57 m
Liner Set liner @ 3499 m top of liner at 2910 m

Cemented with 14.7 tonnes "G" + 35 % Silica + .5% D65 + .3% D28 + .2%
D121 + 100 litres D135 + 1960 litres D600 + 76 litres D47

Casing Bowl: Walker EGL – 22; 508 mm x 339.7 mm; 21 MPa, flanged side outlets

Drilling Fluid: see attached fluid summary for details.

Sidetracks/Fishing: Drilled 311 mm hole on the P-66 well section down to 1350 m, and became stuck in the hole. Tried fishing the drill string out, and left 53 m of drilling assembly in the hole. The bit is at 1336 m top of drilling assembly left in the hole is at 1283 m. A whipstock plug was set from 1261 to 1161 m with 3.8 tonnes of 0-1-0 "G" + 1% D65 + .3% B71. Tag the top of the plug at 1098 m, polish plug down and kick off around fish.

Drilled 311 mm hole down to 1398 m, and became stuck in the hole. Rigged in Tesco top drive unit and successfully pulled free. Drilled down to total depth of 3121 m. Evaluated the open hole section and ran a VSP survey to determine a new bottom hole target. Plug back the well as outlined below:

- Plug 1). 2825 - 2750 m
9.5 tonnes G-35%, D66 +. 5%D65 + .35%D28 with 30 % excess
Felt plug top @ 2734 m
- Plug 2). 1840 - 1765 m
13.9 tonnes G-35%, D66 +. 5%D65 + .5%D800 with 30 % excess
Felt plug top @ 1784 m
- Plug 3). 1784 - 1765 m
5.5 tonnes G-35%, D66 +1%D65 + .6%D800 with 30 % excess
No feel
- Plug 4). 1500 - 1375 m
16.7 tonnes G + 1%D65 + .6%D800 with 30 % excess
Felt plug top @ 1410 m

Kick off well at 1246 m and drill to the new bottom hole target reach total depth of 3115 m to run intermediate casing.

Well Kicks: Finished drilling P-66A to a total depth of 3500 m MD, pulled a wiper trip to log the well and took a gas kick. A fracture system had taken fluid, which resulted in a gas kick. Initial SIDPP 7900 kPa, SICP 11,300 kPa and the mud density of 1045 kg/m³. Circulated the gas out and the well was dead.

Lost Circulation: Directionally drilled into a fracture system while drilling the P-66A leg at 3292 – 3309 m and lost 29 m³, circulate and mix a calcium carbonate pill spot over 3280 – 3309 m. Regain full circulation. Reached total depth of 3500 m MD, pulled a wiper trip prior to logging the well and lost 25 m³.

Formation Fluids/Gas: Slightly gas cut mud occurred while directionally drilling P-66A at 2976m, background gas was 1250 units. The gas was coming from a fracture at 2973.6 m; mud density for this section was 1425 kg/m³.

Formation Leak-off Test: Leak off test was run at 265 m KB. The leak off test was resulted in a gradient of 12.16 kPa/m.

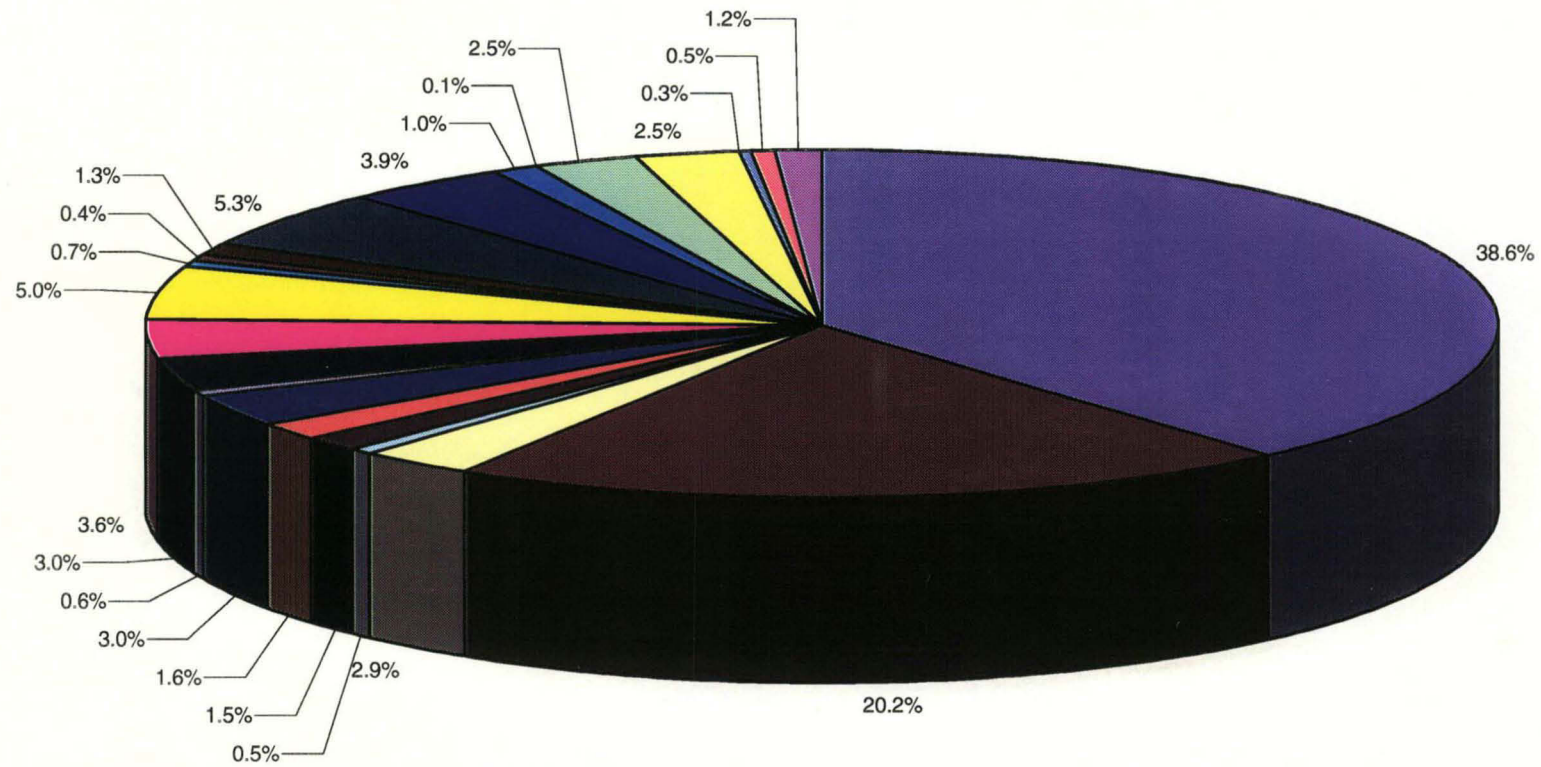
Deviation Surveys: Directional surveys were taken see attached for deviation surveys.

Abandonment Plugs: N/A.

Time Distribution:

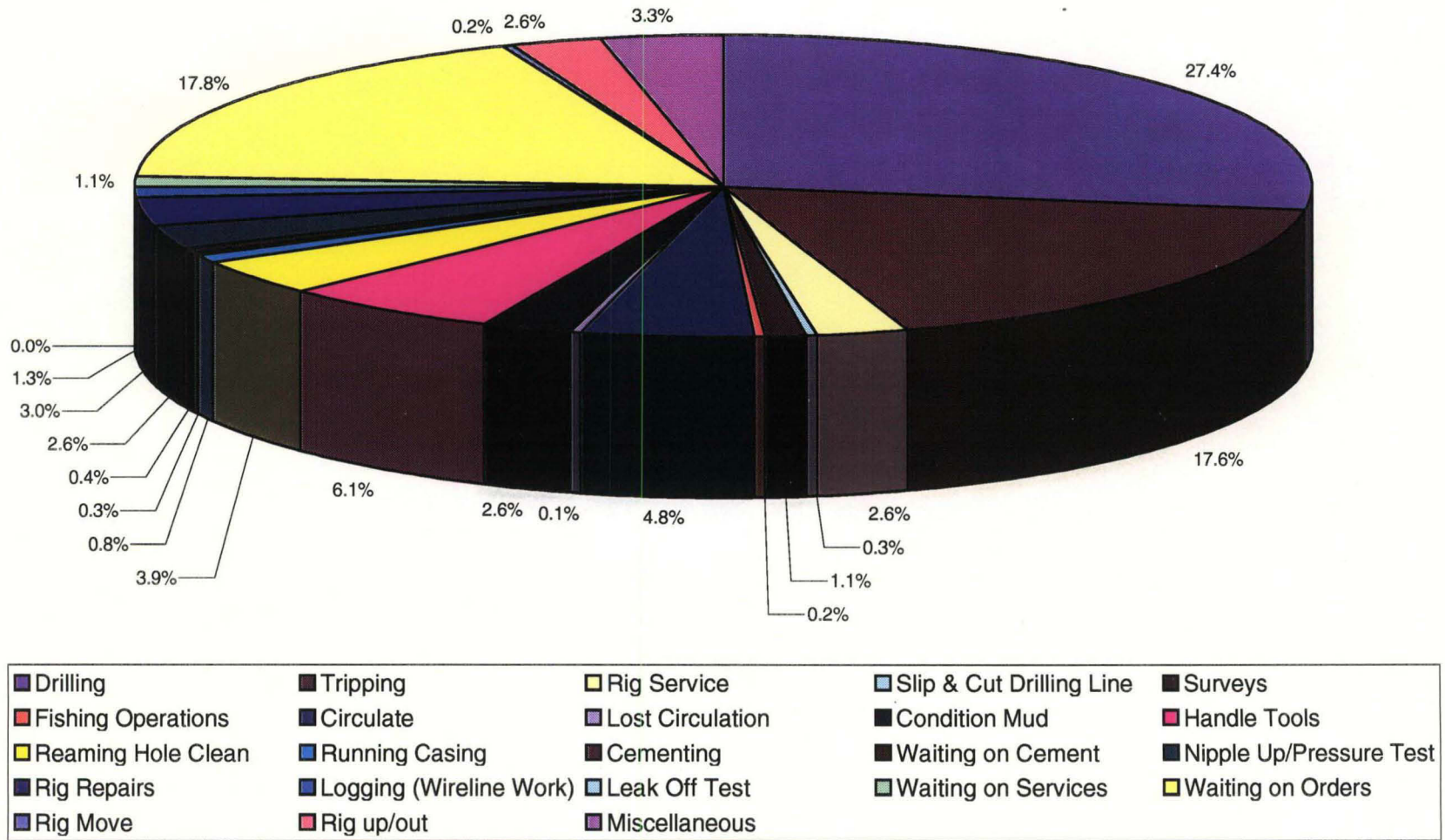
Operation	P-66 (hours)	P-66A (hours)	Total (hours)
Drilling	1671.25	1512.25	3183.5
Tripping	874.3	969	1843.3
Rig Service	124.5	141.25	265.75
Slip & Cut Drilling Line	21.3	18.8	40.1
Surveys	65.5	61.25	126.75
Fishing Operations	69.25	10.25	79.5
Circulate	131.5	264.5	396
Lost Circulation	26	6.75	32.75
Condition Mud	130.5	143.5	274
Handle Tools	156	337.75	493.75
Reaming Hole Clean	215.75	212.75	428.5
Running Casing	29.75	45.75	75.5
Cementing	17	17	34
Waiting on Cement	56	24	80
Nipple Up/Pressure Test	230.5	144.5	375
Rig Repairs	167.5	163	330.5
Logging (Wireline Work)	42	70	112
Leak Off Test	4	0	4
Waiting on Services	109.25	58.75	168
Waiting on Orders	106.3	981.8	1088.1
Rig Move	12	12	24
Rig up/out	21.25	145	166.25
Miscellaneous	50.5	180	230.5
Total Time (hours)	4185.65	5519.85	9705.5

Time Break Down to Drill P-66

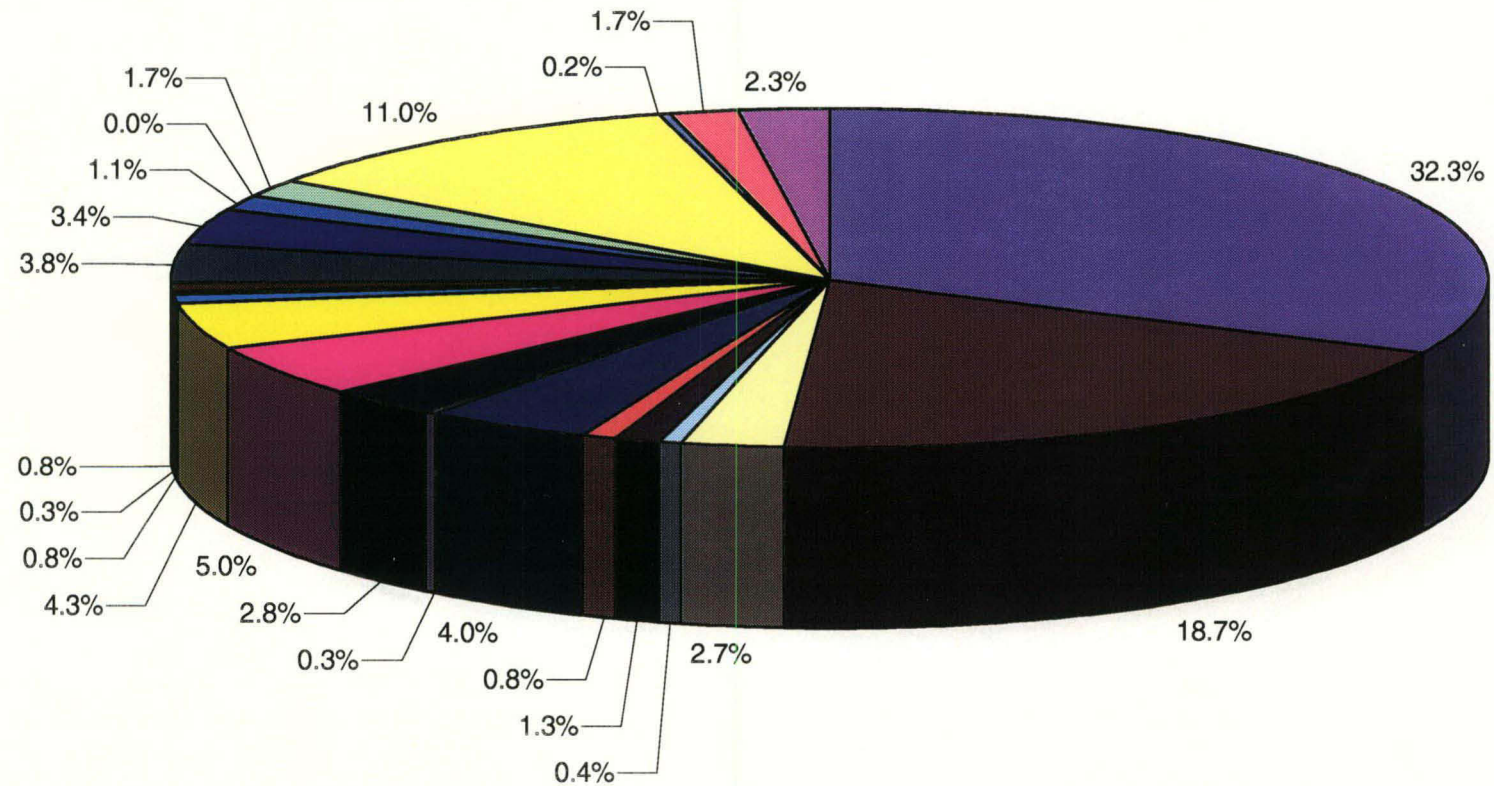


Drilling	Tripping	Rig Service	Slip & Cut Drilling Line	Surveys
Fishing Operations	Circulate	Lost Circulation	Condition Mud	Handle Tools
Reaming Hole Clean	Running Casing	Cementing	Waiting on Cement	Nipple Up/Pressure Test
Rig Repairs	Logging (Wireline Work)	Leak Off Test	Waiting on Services	Waiting on Orders
Rig Move	Rig up/out	Miscellaneous		

Time Break Down to Drill P-66A



Total Time Break Down to Drill Liard P-66 & P-66A



Drilling	Tripping	Rig Service	Slip & Cut Drilling Line	Surveys
Fishing Operations	Circulate	Lost Circulation	Condition Mud	Handle Tools
Reaming Hole Clean	Running Casing	Cementing	Waiting on Cement	Nipple Up/Pressure Test
Rig Repairs	Logging (Wireline Work)	Leak Off Test	Waiting on Services	Waiting on Orders
Rig Move	Rig up/out	Miscellaneous		

GEOLOGY

Drill Cuttings: Five-meter drill samples were taken from 1010 m to 3121m KB for P-66 wellbore. Five-meter drill samples obtained from 1325 to 3500 m KB for the P-66A section.

Vial samples from the above were sent to Ranger Oil Limited Calgary office.

Bagged samples were sent to the Institute of Sedimentary and Petroleum Geology, Core & Sample Lab in Calgary, Alberta.

Formation Tops: See the attached summary.

Lithology: See the attached lithology report for sample description.

Cores: No cores were taken.

Open Hole Logs: P-66 section of the hole:

Open hole logs:

- | | |
|-----------------------|------------------|
| 1.) STI – GR/SED –BCS | 1005 – 3121 m MD |
| 2.) Dipmeter | 1005 – 3121 m MD |

P-66A section of the well:

Open hole logs:

- | | |
|--------------------|--------------------|
| 1.) XY – GR | 1005 – 3118.0 m MD |
| 2.) STI – BCS – RG | 1006 – 3116.4 m MD |

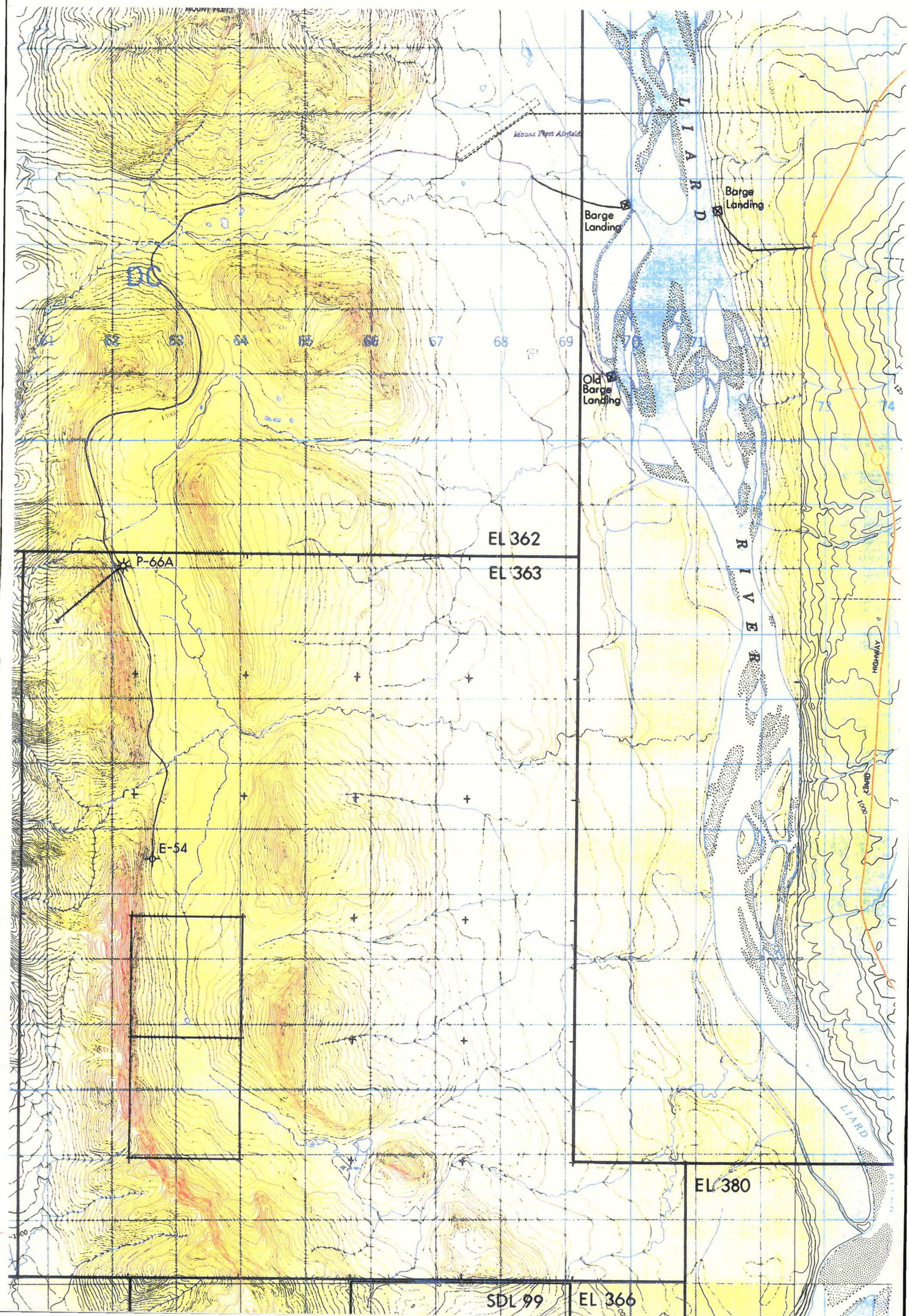
Cased hole logs:

- | | |
|-----------------|-----------------------------|
| 1.) STI – Sonic | 3112 – 3500 m MD cased hole |
| 2.) Density | 3112 – 3500 m MD cased hole |
| 3.) Neutron | 3112 – 3500 m MD cased hole |
| 4.) EMI | 3112 – 3500 m MD cased hole |

Formation Tests: No drill stem tests were run.

APPENDICIES TO WELL HISTORY REPORT

1. Area Topographic Map
2. Well Survey Plan
3. Drilling Fluid Summary
4. Composite Well Record
5. Directional Surveys
6. Formation Tops; Lithology Report; Geological Sample Report



Area Required For
Campsite:
0.920 ha.
2.27 Ac.

Area Required
For W/S:
1.99 ha.
4.92Ac.

Elevations:

LEASE: 449.49 W/C
Corners:
N.: 452.35 E.: 445.00
S.: 455.10 W.: 454.95

CAMP SITE:

N.: 457.20 W.: 457.25

GEODETIC AND UTM COORDINATES, (1927 NAD)

Station	Latitude	Longitude	Northings	Eastings
TRAVERSE STATIONS				
C100	60°35'27.711"	123°40'52.252"	6717223.94	462684.04
C101	60°35'25.980"	123°41'03.554"	6717172.17	462511.50
PROPOSED WELL				
Surface	60°35'55.664"	123°41'25.316"	6718093.96	462189.98
Bottom	60°35'19.098"	123°41'51.353"	6716966.91	461781.89

LEASE PLAN

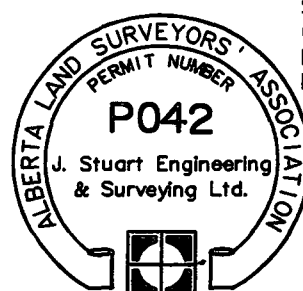
Scale: 1:5000

Proposed
Bottom
Hole
125.2 W. } G-66
341.6 S. }

OPERATOR:



RANGER OIL LIMITED



I CURTIS E. HENRIE, CERTIFY THAT THE
SURVEY REPRESENTED BY THIS PLAN IS
CORRECT AND TRUE TO THE BEST OF MY
KNOWLEDGE AND WAS COMPLETED ON THE
19th DAY OF NOVEMBER, 1996.

CANADA LANDS SURVEYOR

NOTE:
DISTANCES ARE GROUND AND ARE IN METRES
THIS WELL IS DIRECTIONALLY DRILLED TO G-66
FROM THIS SURFACE LOCATION IN P-66 (OPTION W/C #2)

RANGER FORT LIARD P-66 IN UNIT P, SECTION 66 GRID AREA 60°40' , 123°30'

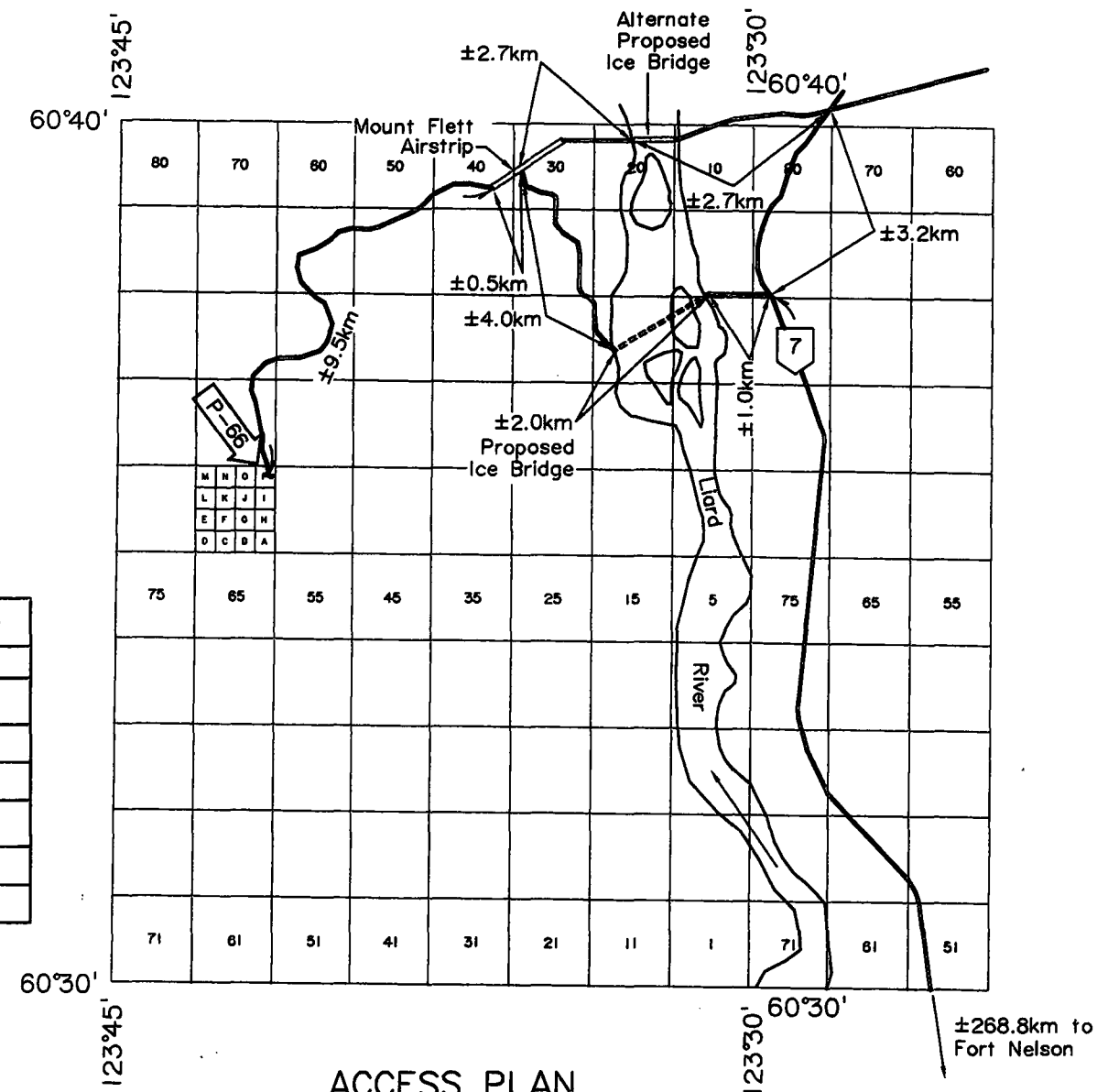


Surveyor: BL Calculator: CH
Draftsperson: DB

Job No.: 96K048

4.	Moved Bottom Hole	96/12/2
3.	Lease Moved	96/11/19
2.	Well Name	96/08/1
1.	Revised A/R & Access Plan	96/06/2
No.	Revision	Date

STUART ENGINEERING & SURVEYING LTD. 200, 517 - 10TH AVENUE S.W. CALGARY, ALBERTA, CANADA T2R 0A8 (403) 234-9018 FAX. (403) 266-2919



WF A66

Schlumberger

Dowell

Dowell Division of Schlumberger Canada Limited
2450 Monenco Place
801 - 6th Avenue S.W.
Calgary, Alberta T2P 3W2
(403) 261-2051
(403) 262-4092 (Fax)

WELL SUMMARY

FOR

RANGER OIL LTD.

RANGER FT. LIARD P-66 LAT 60 40' LONG 123 30'

(660mm HOLE and 444.5mm HOLE)

WELL SUMMARY**FOR****RANGER OIL LTD.****RANGER FT. LIARD P-66 LAT 60 40' LONG 123 30'****(660mm HOLE and 444.5mm HOLE)****CONTENTS**

- 1. WELL DATA**
- 2. INTERVAL/TOTAL CONSUMPTION & COST**
- 3. DISCUSSION BY INTERVAL**
- 4. CONCLUSIONS & RECOMMENDATIONS**
- 5. ION ADDITIONS**
- 6. DRILLING MUD PROPERTIES SUMMARY**
- 7. MUD REPORTS**

PREPARED BY**DOWELL DRILLING FLUIDS****TECHNICAL SERVICES DEPARTMENT****FEBRUARY 1997**

RANGER OIL LTD.**RANGER FT. LIARD P-66 LAT 60 40' LONG 123 30'****(660mm HOLE and 444.5mm HOLE)****WELL DATA**

RIG: CACTUS # 26 E
DATE SPUDDED: January 12, 1997
DATE Cased TO 1007m: February 19, 1997

HOLE (mm)	CASING (mm)	DEPTH (m)	FLUID TYPE	DAYS	INTERVAL COST	
					PROPOSAL	ACTUAL
660	508	263	VISPLEX Gel/Chemical	13	\$ 15,070.00	\$ 71,992.53
444.5	339.7	1007	VISPLEX	26	\$ 31,887.50	\$ 205,581.27
WELL TOTAL					\$ 46,957.50	\$ 277,573.80

OPERATOR REPRESENTATIVES:

Mr. Art Schritt
Mr. John Faulkner

CONTRACTOR REPRESENTATIVES:

Mr. Terry Gorgichuck
Mr. Dennis Brown

DOWELL ENGINEERS:

Mr. Dan Majocha
Mr. Ross Kovacs

RANGER OIL LTD.**RANGER FT. LIARD P-66 LAT 60 40' LONG 123 30'****(660mm HOLE and 444.5mm HOLE)****MATERIAL CONSUMPTION BY INTERVAL****HOLE SIZE: 660mm****FLUID TYPE: VISPLEX**

PRODUCT	UNIT SIZE	QUANTITY	UNIT PRICE	TOTAL COST
Bentonite, Natural	100 lb	1533	\$ 15.91	\$ 24,390.03
Bicarbonate	100 lb	10	79.00	790.00
Calcium Carbonate '325'	25 kg	10	10.00	100.00
Calcium Carbonate 'SC'	25 kg	23	10.00	230.00
Caustic Soda	50 lb	32	58.00	1,856.00
Cellophane	18 kg	31	42.00	1,302.00
Lignite	25 kg	11	20.00	220.00
Magna Fiber	50 lb	8	128.00	1,024.00
Mica Coarse	25 kg	30	37.00	1,110.00
Primaseal 'M'	18 kg	24	38.00	912.00
Sawdust	sack	551	6.50	3,581.50
Soda Ash	40 kg	4	36.00	144.00
VISPLEX	11 kg	99	367.00	36,333.00

INTERVAL TOTAL	\$	71,992.53
DISCOUNTED 50%		35,996.27
INTERVAL TOTAL	\$	35,996.26
COST/METER	\$	136.87

RANGER OIL LTD.**RANGER FT. LIARD P-66 LAT 60 40' LONG 123 30'****(660mm HOLE and 444.5mm HOLE)****MATERIAL CONSUMPTION BY INTERVAL****HOLE SIZE: 444.5mm****FLUID TYPE: VISPLEX**

PRODUCT	UNIT SIZE	QUANTITY	UNIT PRICE	TOTAL COST
Bentonite, Natural	100 lb	257	\$ 15.91	\$ 4,088.87
Bentonite, Natural	40 kg	240	18.06	4,334.40
Bicarbonate	100 lb.	6	79.00	474.00
Caustic Soda	50 lb	145	58.00	8,410.00
FLOPLEX	25 kg	135	192.00	25,920.00
Lignite	25 kg	7	20.00	140.00
VISPLEX	11 kg	442	367.00	162,214.00

INTERVAL TOTAL \$ 205,581.27**DISCOUNTED 50%****INTERVAL TOTAL \$ 102,790.63****COST/METER \$ 138.16**

RANGER OIL LTD.**RANGER FT. LIARD P-66 LAT 60 40' LONG 123 30'****(660mm HOLE and 444.5mm HOLE)****DISCUSSION BY INTERVALS****HOLE SIZE: 660mm****MUD TYPE: VISPLEX**

The **VISPLEX** system was premixed in the mud tanks prior to drilling out the conductor pipe. After drilling 4 metres of cement, the viscosity increased significantly, as the pH climbed to 12. The mud was treated with Sodium Bicarbonate and Lignite to reduce the rheology to reasonable values for drilling. At 33 metres the rig was down for major repairs for three days.

Bentonitic shales were drilled from 33 to 54 metres, which steadily increased the viscosity and rheology. Strong and continuous additions of water were used to obtain **VISPLEX** properties as the **VISPLEX** continued to interact with the native clays. Soda Ash was added in an effort to drop the Calcium level, but this caused a sudden drop in the funnel viscosity to 37 s/L, and a drop in the rheology.

High seepage losses occurred when drilling Gumbo shale, layered with sand and gravel sections from 54 to 160 meters. At 160 meters, total lost circulation was encountered and Bentonite and **VISPLEX** were added directly through the hopper in an effort to quickly build active volume in the mud tanks. At this point the rheology began to transform from high low-end **VISPLEX** properties to more conventional mud properties due to lack of prehydration of the Bentonite. An LCM pill consisting of Magna Fibre, Calcium Carbonate '325', 'Supercal' and Mica Coarse was pumped around while drilling ahead. The mud system was then maintained as a Gel/Chemical system, and a second LCM pill was mixed with Sawdust, Primaseal Medium, Cellophane and Mica. Drilling continued with a viscosity of 100 s/L.

At 254, metres circulation was again lost. Lost circulation material was mixed, and the bit was run in and reamed to bottom. The hole was then begun to be opened to 660mm and the viscosity was raised to 150 s/L.

At 152, metres while drilling with the 660mm hole opener, the mud volume in the tanks and the mud viscosity were increased to 135 s/L in order to prepare for the lost circulation zone at 160m. However, the lost circulation zone was drilled with continuous seepage losses and the total losses were recorded to be only 50m³.

The hole became tight at 245 metres, and a wiper trip was made. Twelve sacks of **VISPLEX** were added to raise the rheology while opening to TD, and another wiper trip was made. The viscosity was 90 s/L prior to pulling out to run the casing. The casing was run and the viscosity was reduced to 45 s/L prior to cementing. This reduction in viscosity was a natural thinning by the coal seams. No cement returns were observed while pumping the job, and a top up job was necessary to complete the cementing.

RANGER OIL LTD.**RANGER FT. LIARD P-66 LAT 60 40' LONG 123 30'****(660mm HOLE and 444.5mm HOLE)****DISCUSSION BY INTERVALS (Continued)****HOLE SIZE: 444mm****MUD TYPE: VISPLEX**

On January 25th, the shoe was drilled out with the **VISPLEX** system. Cement contamination increased the rheology of the mud and treatment with Sodium Bicarbonate and Lignite was necessary. As drilling continued, the viscosity and yield point were reduced with additions of water. Tight hole began to occur and the viscosity was raised to 49 s/L and the corresponding yield point was 5 Pa. During the bit trip at 356m, tight hole was still occurring on the trip out and reaming was necessary through tight sections while tripping in. Once back on bottom the viscosity was raised again to improve hole cleaning.

At 466m, the inclination climbed to 4.5 degrees and drilling was halted to wait on directional drilling equipment. After wiper trips were performed, drilling resumed with tight hole still occurring, especially on connections. The rheology was increased with additions of **VISPLEX** and the fluid loss was reduced to 8cc/30 min with additions of **FLOPLEX** in an effort to improve hole conditions.

The hole began to slough in during a bit trip at 662m. As the stands were pulled during the trip out, circulation was sometimes necessary to clean the hole. While tripping in, bridges were reamed from 446m to 510m and from 624 to 662m. At one point the hole packed off causing stuck pipe.

Once drilling resumed, the yield point was increased to 15 Pa and the fluid loss was reduced to 6cc. A wiper trip was performed at 720m to help stabilize the wellbore. The active mud volume was increased and typical **VISPLEX** system properties became more prominent with additions of Bentonite and **VISPLEX**. Flatter rheology was evident with a Pv of 22cp and a Yp of 17 Pa, and gel strengths of 10 Pa (10 s.) and 60 Pa (10 min) and corresponding funnel viscosities of 80 - 140 s/L. The deviation decreased to 0.4 degrees by 750m.

At 827 meters a bit trip was made without any problems and no fill was found on the trip in. The temperature began to climb and at 947m the temperature recorded at the flow line was 72 ° C. Water addition rates of 40 LPM were required to prevent dehydration of the **VISPLEX** system, however in comparison to a Gel/Chemical system, the **VISPLEX** system had excellent temperature stability.

Intermediate point was reached on February 9th at 1008m. A reaming assembly was then run to correct the deviation encountered earlier in the interval and the bit was re-run to bottom to clean out the hole. After circulating for four hours, logs were run successfully. A clean out trip after the logs encountered bridges and a ledge which required a total of eight hours of working the pipe and conditioning the hole. The rheology was increased to a yield point value of 21 Pa; Pv of 21cp and a funnel viscosity over 150 s/L, prior to conducting a wiper trip. After the wiper trip went well, the production casing was run and cemented without any problems.

RANGER OIL LTD.**RANGER FT. LIARD P-66 LAT 60 40' LONG 123 30'****(660mm HOLE and 444.5mm HOLE)****CONCLUSIONS AND RECOMMENDATIONS****HOLE SIZE: 660mm****MUD TYPE: VISPLEX**

Lost circulation was the prominent problem during the drilling of this interval. Some gravel, coal and bentonitic shale were encountered and significant interaction between the drilling fluid and these formations took place. Some tight hole did occur during the opening to 660mm.

It is recommended to drill out cement with water when possible. Cement will tend to increase the rheology and contaminate the **VISPLEX** system with Ca^{++} and OH^- , especially when the drilling fluid has been freshly built and does not contain solids. Once the shoe has been drilled out with water, the water can then be displaced by the **VISPLEX** system. If a large amount of cement is to be drilled and hole cleaning is a concern due to low annular velocities, viscous sweeps of **VISPLEX**, 5 m3 in volume can be pumped as required to clean the annulus.

Adequate "premix" volume on location is essential for prehydrating Bentonite if the **VISPLEX** system is to be formulated. The rig tanks volume was insufficient to have prehydrated Bentonite on standby and when lost circulation occurred, dry Bentonite was added to the active system to maintain volume requirements. This generally causes the rheology to have lower progressive gels at low shear values and also lowers the PV to YP ratio. These properties make it difficult for the drilling fluid to help reduce lost circulation, reduce seepage losses and improve hole cleaning.

As always with large holes, it is recommended to maintain high yield points due to the low annular velocities. Yield points up to 20 - 25 Pa were required during the drilling of the 660mm hole to clean the cuttings, gravel and shale from the hole.

Lost circulation increased the drilling fluid cost significantly for this interval. To maintain drilling fluid volume, an extra \$11,000 in Bentonite was required and a total of \$4000 in lost circulation material was used to help seal the hole.

In summary, the **VISPLEX** system was programmed for this interval to permit maximum hole cleaning while drilling large hole through potentially sloughing, faulted lithology. More of an effort needs to be developed to ensure that proper procedures are followed and the needed equipment be supplied for mixing this system in order to gain the full benefits of the unique rheological properties of **VISPLEX**.

RANGER OIL LTD.**RANGER FT. LIARD P-66 LAT 60 40' LONG 123 30'****(660mm HOLE and 444.5mm HOLE)****CONCLUSIONS AND RECOMMENDATIONS (Continued)****HOLE SIZE: 444mm****MUD TYPE: VISPLEX**

The problems encountered on this interval included wellbore instability, deviation and washout. Most of these problems occurred prior to reaching 720 metres and consisted of reaming and cleaning to bottom on trips, tight hole and stuck pipe. Flowline temperatures of 72°C did not degrade or present any dehydration problems to the **VISPLEX** system.

Properties, characteristic of the **VISPLEX** system did not reach their full potential until approximately 700 metres. From this point, good hole cleaning was evident as trips went well and little tight hole occurred. Yield points of 15-20 Pa were sufficient for cleaning the hole while drilling ahead. As in the previous section, formulation of the **VISPLEX** system requires prehydrated Bentonite. For this reason an adequate premix tank is essential for success. It is also worth while to note that the **VISPLEX** content will decrease in very reactive formations and additions up to 8.0-9.0kg/m³ may be necessary while drilling these formations.

It is not recommended to drill out cement with the **VISPLEX** system. Although the initial viscosity was low prior to drilling out, severe thickening to the rheology occurred. Drill out the shoe with water whenever rig logistics will allow.

It is also recommended to maintain tighter fluid loss fluid loss control with additions of **FLOPLEX**. By maintaining fluid loss less than 6 cc/30min, downhole conditions improved. Additions of **FLOPLEX** in low concentrations may actually thin the **VISPLEX** system. Therefore, **FLOPLEX** is added to the system and thinning is not desired, ensure the final concentration is in excess of 9kg/m³.

Coal will tend to thin the **VISPLEX** system, especially inferior coal which has not been exposed to heat or pressure during consolidation. If a large amount of this coal is suspect to be drilled, it is recommended to formulate the **VISPLEX** system with 43kg/m³ of NaCl Brine. With Brine concentrations in the **VISPLEX** system, Lignite will have little or no thinning effect.

Overall it must be stated that without the tremendous rheological properties which were available with the **VISPLEX** system, it is unlikely that the hole could have been stabilized sufficiently to run the 240mm casing to bottom.

DRILLING MUD PROPERTIES RECORD

WELLNAME RANGER FORT LIARD
 STOCK POINT GRANDE PRAIRIE
 AREA FORT LIARD
 CONTRACTOR CACTUS # 26E
 ENGINEERS DAN MAJOCHA

P-66 LAT60.40' LONG123. 30'

MUD SYSTEM VISPLEX II
 TREATMENT # 2911-0721

REPORT No.	DATE	DEPTH (m)	DENSITY (kg/m3)	VISCOSITY (s/L)	A.V. (mPa.s)	P.V. (mPa.s)	Y.P. (Pa.)	GELS (Pa.)	pH	HTHP FILTRATE (cm3)	API FILTRATE (cm3)	FILTERCAKE (mm)	Pf	Mf	Pm	TOT. HARDNESS (mg/L)	Ca (mg/L)	CL (mg/L)	SAND CONTENT	SOLIDS CONTENT	OIL/WATER CONTENT	MBT (Kg/m3)	ELECTRICAL STABILIT	OIL WATER RATIO	E.C.D. kg/m^3	"n"	"K"
1	10-Jan-97	SPUD REPORT																									
2	12-Jan-97	33	1020	0	35	20	15	14/13	12.0		0.0	0.0	2.90	3.10	0.00	120		100	0.00	1.22	0	30		0.0	1023.5	0.01	3.08
3	16-Jan-97	54	1030	57	35	10	25	12/12	11.7		0.0	0.0	2.50	3.00	0.00	30		100	0.30	1.83	0	34		0.0	1032.3	0.17	0.71
3A	16-Jan-97	158	1090	44	17	10	7	10/17	11.2		0.0	0.0	1.40	1.60	0.00		0	100	0.30	5.49	0	30		0.0	1094.5	0.02	2.16
4	17-Jan-97	160	1090	35	8	7	1	0	11.0		0.0	0.0	1.00	1.20	0.00		0	100	0.50	5.49	0	20		0.0	1092.1	0.37	0.34
4A	17-Jan-97	160	1090	0	34	23	11	5/22	11.0		0.0	0.0	0.60	0.90	0.00		0	100	0.50	5.49	0	30		0.0	1095.2	0.31	0.88
4b	17-Jan-97	181	1065	115	54	38	16	5//	10.5		0.0	0.0	0.30	0.45	0.00		0	100	0.50	3.96	0	0		0.0	1071.9	0.36	0.96
5	18-Jan-97	255	1075	105	69	47	22	2.5//9	10.0		0.0	0.0	0.35	0.50	0.00		0	100	0.50	4.57	0	58		0.0	1078.8	0.59	0.32
6	19-Jan-97	267	1075	150	73	53	20	3//20	9.8		0.0	0.0	0.20	0.40	0.00	20		100	0.50	4.57	0	60		0.0	1079.2	0.57	0.43

35440 ARRIVE ON LOCATION 22:30 JAN 09/97 SPOT PRODUCTS

35441 MUD TANKS CLEAN FILLED W/ WATER

35442 SPUD @ 09:00 W/ VISPLEX SYSTEM DRILLED 4 m OF CEMENT, MUD BECAME UNPUMPABLE TREATED W/ BICARB AND LIGNITE

FUTURE HOLES SHOULD SPUD W/ VISPLEX W/ LOW pH OR DRILL W/ WATER AND DISPLACE TO VISPLEX

Drilled to 33 m table bearings siezed, Down for rig repairs

35443 Rig Repairs

35445 Make up BHA RIH drill ahead from 33 m - 54m @ 24:00 visplex show sall properties except it does not seem to shear down, drilling bentonitic shales should start w/ lower concentration of gel

35446 Drill from 54 - 160 m, Gumbo shale, (no mud rings), gravel encountered (high seepage losses), full losses @ 160 m trip out of hole build volume and mix LCM pill
 VISPLEX System : The properties remained consistent while running water in excess of 60 l/m while drilling gravel, until soda ash was added to treat calcium viscosity dropped to 37, Gel and visplex added directly through the hopper and caustic was added properties started to return when circulation was lost35447 Pumped LCM pill containing mgna fiber calcarb and mica (did not spot contiued to drill bypassed the shaker for one circ) build volume mixed gel and proper amounts of Visplex (no properties) turned system to Gel chem system raised vis to 100 +s/l mixed LCM pill Containing sawdust prima seal CelloPhane and mcia
 Pump 5m^3 LCM pill drill ahead w/ 100+ s/l vis Gel Chem system

DRILLING MUD PROPERTIES RECORD

P-66 LAT60.40' LONG123.3

WELLNAME
STOCK POINT
AREA
CONTRACTOR
ENGINEERS

[illegible]

35448 Drill to 254 m POH pick up monel mix LCM @ surface RIH Lost circulation mix LCM ream and clean to bottom survey, POH pick up hole opener, open 17.5 hole w/ Gel Chem system 150 s/l; bentonitic shale, coarse sand, gravel

35449 Drill to 152 m (just above lost circ zone) build volume raise vis to 135 s/l drill ahead through lost circ zone no losses initially lost 50 m³ by morning

35450 Hole became tight @ 245 m pulled wiper trip top mixed LCM, RIH drill w/ hole opener start adding visplex (mixed first 12 sx through chem bbl) to increase rheology no

35451 Pull wiper trip to 11 inch collars RIH circ 1 hr, Vis @ 90 s/l POH to run casing Run 20 inch surface casing circulate casing Viscosity dropped to 45 s/l due to lignitic st set slips run 127 mm pipe stab in and cement. some cement contaminated mud returns were disposed of. No cement returns.

Cut conductor off and run 2 7/8 tubing down annulus. Top off job and get 4 m3 returns to surface. WOC Nipple up and pressure test BOP's.

Run in and drill out cement from 246m . Circulated and treated cement contaminated mud. Drill out 19:15 hrs- 97-01-25. Drill 5 m and run leak off test.

Drill ahead while conditioning mud. Dumped approximately 70 m³ fluid as we were unable to keep mud on shakers. Increase viscosity as soon as possible.

Increased the viscosity to 52s/l. Hole and mud seemed stable. The tight hole stopped and connections were okay. Drilled to 356m and circulated.

Pull out of the hole. Tight on way out. Pick up the new BHA and run in the hole. Ream and work pipe to get to bottom. Hole not cleaning sufficiently.

Ream and work pipe as conditioning mud. Raise viscosity to 70 to 90 sL. Drill ahead with bit 1B from 356m and condition mud. Viscosity drops were made at various times.

Dispersion rings were evident in shaker box and mud tanks every time drops occurred in viscosity. Drill ahead survey increasing in direction away from target.

At 466m survey was 4.5 degrees at N74.5E. The decision was made to stop drilling ahead and wait on directional tools and drillers. Wiper trip and circulate.

Wiper trip and circulate.

DRILLING MUD PROPERTIES RECORD

WELLNAME RANGER FORT LIARD
 STOCK POINT GRANDE PRAIRIE
 AREA FORT LIARD
 CONTRACTOR CACTUS # 26E
 ENGINEERS Dan Majocha

P-66 LAT60.40' LONG123.30

MUD SYSTEM VISPLEX II
 TREATMENT # 2911-0721

REPORT No.	DATE	DEPTH (m)	DENSITY (kg/m3)	VISCOSITY (s/L)	A.V. (mPa.s)	P.V. (mPa.s)	Y.P. (Pa.)	GELS (Pa.)	pH	HTHP FILTRATE (cm3)	API FILTRATE (cm3)	FILTERCAKE (mm)	PI	MI	PM	TOT. HARDNESS (mg/L)	Ca (mg/L)	CL (mg/L)	SAND CONTENT	SOLIDS CONTENT	OIL/WATER CONTENT	MBT (Kg/m3)	ELECTRICAL STABILITY	OIL WATER RATIO	E.C.D. kg/m³	n'	k'
14	30-Jan-97	466	1095	60	30	23	7	2/19	11.5		9.4	3.0	2.70	4.50	0.00	40		470	0.30	5.79	0	52		0.0	1098.0	0.50	0.39
15	31-Jan-97	492	1095	64	34	26	8	1/17/42	11.7		8.0	2.0	4.50	6.20	0.00	40		1000	0.30	5.79	0	58		0.0	1096.7	0.65	0.19
16	01-Feb-97	581	1120	67	38	27	11	2/30/60	11.0		7.5	3.0	3.00	4.50	0.00	20		1100	0.30	7.32	0	60		0.0	1121.3	0.70	0.14
17	02-Feb-97	662	1120	60	38	28	10	1.5/22	10.0		7.0	2.0	1.70	3.60	0.00		0	1400	0.30	7.32	0	62		0.0	1121.9	0.58	0.27
18	03-Feb-97	697	1150	95	43	28	15	4.5/29	10.0		6.0	2.0	1.80	3.70	0.00		0	1400	0.30	9.15	0	64		0.0	1153.1	0.35	0.78
19	04-Feb-97	757	1140	125	39	22	17	10/41	10.0		6.0	2.0	2.00	4.00	0.00		0	1400	0.30	8.54	0	62		0.0	1143.8	0.14	1.71
21	06-Feb-97	856	1160	130	36	22	14	9.5/44	10.0		6.0	1.5	2.00	3.90	0.00		0	1500	0.30	9.76	0	62		0.0	1164.3	0.11	2.09
22	07-Feb-97	905	1165	120	33	17	16	10/50	10.5		6.5	1.5	2.20	4.30	0.00		0	1500	0.30	10.06	0	63		0.0	1168.3	0.11	1.59
23	08-Feb-97	947	1150	140	28	14	14	9.5/60	11.0		8.0	1.5	2.90	5.20	0.00		0	1200	0.30	9.15	0	64		0.0	1153.0	0.10	1.54
24	09-Feb-97	997	1150	165	31	19	12	9/65	11.5		9.0	2.0	4.00	8.00	0.00		0	1000	0.30	9.15	0	62		0.0	1154.2	0.08	2.24
25	11-Feb-97	790	1160	115	33	17	16	14.5/47	11.0		8.5	1.5	3.50	7.10	0.00		0	900	0.30	9.76	0	62		0.0	1163.8	0.01	2.74
26	11-Feb-97	872	1160	75	34	17	17	11.5/44	10.7		7.0	1.5	3.30	6.70	0.00		0	1300	0.30	9.76	0	64		0.0	1162.4	0.09	1.75
27	12-Feb-97	1008	1160	95	31	15	16	9/50	11.5		8.0	1.5	3.80	7.90	0.00		0	1400	0.30	9.76	0	64		0.0	1162.8	0.15	1.18
28	13-Feb-97	1008	1150	230	43	22	21	19.5/70	11.7		6.5	1.5	4.40	8.20	0.00		0	1500	0.30	9.15	0	66		0.0	1154.2	0.00	3.12

Circulate and condition hole while waiting on tools and directional drillers. Wiper trip. Pull out and lay down BHA. Work on pumps.

Wait on bit sub and work on pumps. RIH break circulation drill to 468 m pull 8stands work on pump.

Control drill correcting angle drill to 470 m hole tight on 2 connections start additions of floplex and visplex 8 and 4 sx per circulation hole cleaned up fluid loss @ 8 ml

Drill no problems drilling rate up to 8 m per hour average 4.2 m/hr between sliding and rotating

Drill to 662 m trip Bit # 2, hole started to unload (hydraulic pipe out) pump out singles

RIH to 446 m ream 446 - 510 m RIH to 510 - 624 m ream 624 - 662 m drill ahead (while tripping became stuck and formation was overpressured, slooughing shales since.)

Drill to 720 m wiper trip to casing RIH clean to bottom drill ahead. Built volume added 28 m³ 10 kg.m³ Gel and 3 Kg/m³ visplex Ph 12.5. deviation .4 degrees @ 750 m

Drill to 827 m POH for mud motor, RIH test MWD @ 300 m RIH to bottom no fill drill ahead.

Drill to 947 m mud temp 72 degrees C change pump heads on a regular basis due to high temp mud started to dehydrate increased water to 60 s/l for 3 circulations

ran water @ 40 s/l for regular maintenance

Drill to 1008 m (Intermediate T.D.) @ 04:45 Feb 09, circulated 2 hours POH RIH to 479m w/ reamer assembly ream from 479-738 m POH rack small ID collars RIH ream from 70

Ream to 993 m pipe tourqued up back spinning kelly broke 2 tool joints free POH check and retourque tool joints RIH ream to 1008 m circ 4 hrs on bottom POH to log Logs to bot

WELL LOGGED succsesfully logs showed substantial wash out from 1008 - 650 m Rih for clean out trip hit bridge @ 880 ream to 950 m workledge for ~ 8 hours

shale returns minimal @ 950 raised viscosity to 230 s/l YP 20.5 ream to 1008 m

DRILLING MUD PROPERTIES RECORD

WELLNAME
STOCK POINT
AREA
CONTRACTOR
ENGINEERS

RANGER FT. LIARD P-66
0
CACTUS #26E
JOE SMITH

P-66 LAT 60 40' LONG 123

MUD SYSTEM

REPORT No.	DATE	DEPTH (m)	DENSITY (kg/m3)	VISCOSITY (s/L)	A.V. (mPa.s)	P.V. (mPa.s)	Y.P. (Pa.)	GELS (Pa.)	pH	HTHP FILTRATE (cm3)	API FILTRATE (cm3)	FILTERCAKE (mm)		Pom	EXCESS LIME KG/M3	TOT. HARDNESS (mg/	Ca (mg/L)	CL (mg/L)	SAND CONTENT	SOLIDS CONTENT	OIL CONTENT	WATER CONTENT	ELECT. STABILITY	OIL WATER RATIO	CaCl2 w/w%	"n"	"K"
31	18-Feb-97	1006	980	0	6	5	1	.5//1	0.0	20.0		1.0	0.00	2.60	9.62		0	0	0.00	4.00	94	2	1900.0	98//2	0.0	0.31	0.60
32	19-Feb-97	1012	1000	39	6	5	1	.5//1	0.0	22.0		1.5	0.00	1.40	5.18		0	0	0.00	6.00	90	4	1300.0	96//4	0.0	0.31	0.60
33	21-Feb-97	1040	1055	39	12	9	3	1.5//3	0.0	10.0		1.5	0.00	1.30	4.81		0	0	0.00	10.00	86	4	1700.0	96//4	0.0	0.25	2.01
33a	21-Feb-97	1040	1055	39	12	9	3	1.5//3	0.0	10.0		1.5	0.00	1.30	4.81		0	0	0.00	10.00	86	4	1700.0	96//4	0.0	0.25	2.01
34	22-Feb-97	1078	1085	41	14	9	5	1.5//3.5	0.0	10.0		1.5	0.00	1.50	5.55		0	0	0.35	13.00	83	4	1440.0	95//5	0.0	0.35	1.69
34a	22-Feb-97	1122	1040	41	11	7	4	1.5//3.0	0.0	10.0		1.5	0.00	1.20	4.44		0	0	0.75	10.00	86	4	1290.0	96//4	0.0	0.29	1.88
35	23-Feb-97	1218	1065	38	14	8	6	2.5//3.5	0.0	10.0		1.5	0.00	3.20	11.84		0	0	1.20	12.00	84	4	1085.0	95//5	0.0	0.24	3.36
36	24-Feb-97	1303	1075	39	15	9	6	3.0//4.5	0.0	10.0		1.5	0.00	4.00			0	0	0.75	14.00	85	1	1210.0	99//1	0.0	0.20	4.36
37	25-Feb-97	1344	1055	37	14	9	5	2.5//4.0	0.0	10.0		1.5	0.00	4.00			0	0	0.75	12.50	87	1	1930.0	99.5//.5	0.0	0.21	3.58
38	26-Feb-97	1344	1055	37	14	9	5	2.5//4.0	N/A	10.0		1.5	0.00	4.10			0	0	0.75	12.50	87	1	1930.0	99.5//.5	0.0	0.21	3.58
39	27-Feb-97	1292																									
40	STUCK PIPE																										
41	STUCK PIPE																										
42	STUCK PIPE																										

PRESSURE TEST

DRILL out cement and shoe @ 14:15 Feb 19, Tagged cement @ 987m started to displace hole to TRUDRILL while drilling pump froze up due to insufficient cleaning of the mud tanks (water left in the plumbing) water froze when hit w/ -20 degree Trudrill. While thawing mud suction lines TRUDRILL and water flipped in the hole 30m³ pumped to Drill to 1012 performed leak off test drill to 1041m connections tight, circ 3/4 hr flow check pump pill lay down 1 single stuck pipe work stuck pipe (no jars) P/U surface jars jar pipe free in 1 1/4 hrs pull into casing circ and condition TRUDRILL (raise YP to 3 density to 1050) POH pick up directional BHA RIH CTB 1008M-1041M. RIH CTB 1008M-1041M 1008M-1041M). DRILL AHEAD AND SURVEY. DRILL AND SURVEY POOH for MWD at 1079m. RIH CTB 8M (.25 Hours) DRILL and SURVEY to 1349m. Attempt to make connection. PIPE STUCK 8:15 AM Feb 25 free point back off fish feb 27 POH , RIH w/ new BHA Circ and condition Attempt to POH hole tight Circ and Condition mud POH RIH w/ jars Jarred on fish. ~ 7 hrs moved fish 5 m up. Backed off above jars POH RIH open ended to run whipstock plug

Schlumberger

DRILLING MUD PROPERTIES RECORD

WELLNAME
STOCK POINT
AREA
CONTRACTOR
ENGINEERS

RANGER FT. LIARD P-66
GRANDE PRAIRIE (FORMULA)
CACTUS #26E
DAN MAJOCHA

P-66 LAT 60 40' LONG 123 30

MUD SYSTEM INVERT DRILL

REPORT No.	DATE	DEPTH (m)	DENSITY (kg/m ³)	VISCOSITY (s/L)	A.V. (mPa.s)	P.V. (mPa.s)	Y.P. (Pa.)	GELS (Pa.)	pH	HTHP FILTRATE (cm ³)	API FILTRATE (cm ³)	FILTERCAKE (mm)	Pom	EXCESS LIME KG/M ³	TOT. HARDNESS (mg/)	Ca (mg/L)	CL (mg/L)	SAND CONTENT	SOLIDS CONTENT	OIL CONTENT	WATER CONTENT	ELECT. STABILITY	OIL WATER RATIO	CaCl ₂ w/w%	γ _n	γ _k
43	04-Mar-97	1292	1115	54	24	13	11	7.0/9.5	0.0	13.2		2.0	0.00	4.00	14.80	0	0	0.65	13.00	87	1	2000.0	99.5//.5	0.0	0.11	11.77
44	05-Mar-97	1115	1115	55	25	13	12	7.0/9.5	0.0	10.0		2.5	0.00	3.70	13.69	0	0	0.65	14.00	83	3	1500.0	97//3	0.0	0.14	11.12
45																										
46	07-Mar-97	1192	1140	50	28	15	13	8//10	0.0	9.0		2.0	0.00	3.60	13.32	0	0	0.60	15.00	83	2	1650.0	97.6//2.4	0.0	0.13	13.00
47	08-Mar-97	1224	1170	54	32	16	16	9//12	0.0	8.5		1.8	0.00	3.60	13.32	0	0	0.55	16.00	83	1	2000+	99//1	0.0	0.14	14.30
48	09-Mar-97	1265	1155	47	29	16	13	9//11	0.0	7.0		2.0	0.00	3.90	14.43	0	0	0.55	15.00	84	1	2000+	99//1	0.0	0.10	15.40
49	09-Mar-97	1314	1140	51	31	16	15	9//10	0.0	7.0		1.5	0.00	4.00	14.80	0	0	0.50	16.00	84	0	2000+	100//0	0.0	0.13	14.50
50	11-Mar-97	1288	1210	70	34	20	14	10//12	0.0	6.5		1.5	0.00	4.00	14.80	0	0	0.50	18.00	82	0	2000+	100//0	0.0	0.09	17.21
50b	11-Mar-97	1369	1210	56	32	18	14	10//11	0.0	9.0		2.0	0.00	3.50	12.95	0	0	0.50	20.00	80	0	2000+	100//0	0.0	0.08	17.58
51	12-Mar-97	1375	1205	56	33	19	14	10//11	0.0	8.0		2.0	0.00	3.50	12.95	0	0	0.50	20.00	79	1	2000+	99//1	0.0	0.09	17.27
52	13-Mar-97	1411	1220	59	35	20	15	10//12	0.0	8.0		1.5	0.00	3.60	13.32	0	0	0.50	21.00	79	0	2000+	100//1	0.0	0.11	16.74
53	14-Mar-97	STUCK PIPE																								
54	15-Mar-97	1005	1255	77	44	25	19	12//14	0.0	4.0		2.0	0.00	2.70	9.99	0	258222	0.50	18.00	72	10	1240.0	88//12	31.2	0.12	19.60

RIH OPEN ENDED PLUG BACK PLUG DOWN @ 12:00 NOON MAR 04 PO PLUG CIRCULATE POH

RIH HIT BRIDGE @ 1093 M (THOUGHT IT WAS CEMENT TOP CIRCULATED STARTED TO POLISH PLUG REAMTHROUGH BRIDGE TAG CEMENT @ 1164 M

POLISH PLUG TO 1172 M POH FOR DIRECTIONAL BHA RIH WASH 1153 - 1172 m Control drill to 1175 m (no cement in samples possibly side tracked while polishing plug)

Drill ahead building angle Drill to 1195 m POH for MWD (PULSER) RIH Wash 2 singles to BTM DRILL TO 1204 M POH for MWD (PROBE) RIH wash 1141 - 1195 drill ahead

Drill to 1265 m Pipe became stuck after sliding 4 m worked pipe free (near bit stabilizer hanging up (Possibly differential sticking trip gas after RIH) POH for JARS (QUIT FIRING) RI

RIH wash one single to bottom drill ahead building angle 25 derees @ 1292m

DRILL to 1369 m pull wiper trip to the casing RIH one single off bottom broke circ good returns pressured up, work tight hole no circulation, jarred pipe free POH RIH slick string

RIH clean to 1369 m pump HIVIS sweep pull wiper trip to the casing clean to 1369 m POH

RIH W/ DIRECTIONAL BHA, TO 1007 SLIP & CUT RIH CLEAN 1307 - 1369 m SURVEY 30.7 DEGREES @ 1350 m, DRILL AHEAD

DRILL TO 1405 @ 24:00 33.5 DEGREES @ 1389 m 204 8 AZMUTH

DRILL TO 1411 m drilling rate slowed to less than 1/2 m per hour pump pill attempt to POH pipe pulled tight right away pulled one single kelly'd up no circulation jar one single out

wait on wire line truck RIH w/ wire line pull MWD probe, free point and back off one collar above jars. circulate no sloughing shales over the shaker POH Make up bit and new Bha

RIH to 1005 Convert truddrill to 90/10 invert RIH to top of fish circ and condition INVERT pull into casing circulate, wait on top drive

DAILY MUD REPORT

WELL NAME		RANGER FORT LIARD		LOCATION P-66 LAT 60.40' LONG 123.30'		DATE		10-Jan-97	
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS # 26E		REPORT No		1	
REPORT FOR Mr.		ART SCHRIT		REPORT FOR Mr. TERRY GORGICHUCK		SPUD DATE			
ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min	
BIT SIZE (mm)		LENGTH (m)		SIZE (mm)		TANKS	175	PUMP #1	165X254
BIT NUMBER						HOLE		M3/STK	OPPOSITE DP
DRILL PIPE #1(mm)	127.0					TOTAL	175	PUMP #2	165X254
DRILLPIPE #2(mm)				LINER	TOP/BOT.	STAND BY		M3/STK	CIRC. TIME
COLLAR #1(mm)	279.0							S.P.M.	BOTTOMS UP
COLLAR #2(mm)	225.0							M3/MIN	
HOLE DATA		DESANDER DESILTER		DRILLING FLUID SPECIFICATIONS					
MUD TYPE - VISPLEX		FLOWLINE WT.		kg/m3		MUD WT.		1060-1200 Kg/m3	
HOLE COND.-		UNDERFLOW WT.		kg/m3		VISCOSITY		60-90 s/L	
DEVIATION-		OVERFLOW WT.		kg/m3		FILTRATE		N/C cm3/30 min.	
CURRENT OP.-RIG UP		UNDERFLOW RT.		m3/min		pH		11.0-11.5	
EQUIPMENT:		X DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE	
		XX DOUBLE DECK OR HIGH SPEED SHAKER		SCREEN SIZE		325			
MUD PROPERTIES		INVENTORY							
TIME SAMPLE TAKEN		MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE
SAMPLE FROM			RECEIVED	LAST	USED LAST	USED TO	REMAINING	COST	COST
PRESENT DEPTH			TO DATE	24 HOURS	24 HOURS	DATE	ON LOCATION		
FLOWLINE TEMPERATURE (C)									
DENSITY									
FUNNEL VISCOSITY (s/L)									
600 READING									
300 READING									
APPARENT VISCOSITY (mPa.s)									
PLASTIC VISCOSITY (mPa.s)									
YIELD POINT (Pa)									
GELS 0/10 min. (Pa)									
pH	STRIP X METER								
FILTRATE (cm3)	AP X HTHP								
FILTER CAKE (mm)									
PF									
MF									
PM									
TOTAL HARDNESS (mg/l)	Ca								
CHLORIDES (mg/L)	NaCl								
SAND CONTENT %	FR								
SOLIDS CONTENT %	FR								
OIL/WATER CONT %	FR								
MBT (Kg/m3)	OIL RET								
ELECTRICAL STABILITY		PREVIOUS COST		STARTING VOLUME					
OIL WATER RATIO		DAILY COST		VOL. BUILT					
E.C.D. kg/m ³		CUM. COST		VOL. LOST ON SURFACE					
#VALUE!		ENGINEERING		\$480.00		VOL. LOST ON SUB SURFACE			
"n"		DISCOUNTED COST		END VOLUME					
"k"		TRUCKING		CUM. VOL BUILT.					
COMMENTS		PREP TO SPUD							
CLEAN ALL MUD TANKS THOROUGHLY IN THE PREMIX TANK - PREHYDRATE GEL @ 90 KG/M³ e.g.: 50 M³ = 112.5 40 KG SAX IN THE ACTIVE SYSTEM - PREHYDRATE GEL @ 40 KG / M³ ALLOW TO HYDRATE FOR SIX HOURS MINIMUM e.g.: 175 M³ = 175 40 KG SAX - RAISE pH TO 10.5 W/ CAUSTIC - ADD 30 SAX OF VISPLEX THROUGH THE CHEMICAL BBL 2 SAX PER BBL CONTROL VISCOSITY @ 60 - 90 s/L W/ ADDITIONS OF CAUSTIC THROUGH THE CHEM BBL DO NOT ADD ANY SAWDUST FOR LOST CIRCULATION SEVERE LOSSES WE WILL PUMP HIGH VISCOSITY VISPLEX PILLS CONTAINING CAL CARB, MAGNA FIBRE AND OR MICA CALL ME IF YOU HAVE ANY QUESTIONS OR PROBLEMS									
STOCK POINT		FORMULA TRANSPORT, GRANDE PRAIRIE		DOWELL ENGINEER		DAN MAJOCHA		On Location	
PHONE		532 - 5078		Camp		Room # 27			
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.									

437- 7390

DAILY MUD REPORT

WELL NAME		RANGER FORT LIARD		LOCATION P-66 LAT 60.40' LONG 123.30'		DATE		12-Jan-97		TREATMENT #		2911-0721					
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS # 26E		REPORT No		2									
REPORT FOR Mr.		ART SCHMIT		REPORT FOR Mr.		TERRY GORGICHUCK		SPUD DATE		12-Jan-97							
ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min									
BIT SIZE (mm)	660.0	LENGTH (m)		SIZE (mm)	LENGTH (m)	TANKS	175	PUMP #1	165X254	OPPOSITE DP							
BIT NUMBER	1A					HOLE	10	M3/STK	0.0158	OPPOSITE DC							
DRILL PIPE #1 (mm)	127.0					TOTAL	185	PUMP #2	165X254	CIRC. TIME							
DRILL PIPE #2 (mm)				LINER	TOP/BOT.	STAND BY		M3/STK	0.0158	BOTTOMS UP							
COLLAR #1 (mm)	279.0	28						S.P.M.	200								
COLLAR #2 (mm)	225.0							M3/MIN	3.1593								
HOLE DATA		DESANDER DESILTER				DRILLING FLUID SPECIFICATIONS											
MUD TYPE - VISPLEX		FLOWLINE WT.		1020		kg/m3		MUD WT.		1060-1200 Kg/m3							
HOLE COND. - GOOD		UNDERFLOW WT.				kg/m3		VISCOSITY		60-90 s/L							
DEVIATION-		OVERFLOW WT.				kg/m3		FILTRATE		N/C cm3/30 min.							
CURRENT OP. - DRILLING		UNDERFLOW RT.				m3/min		pH		11.0-11.5							
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE									
		XX DOUBLE DECK OR HIGH SPEED SHAKER		SCREEN SIZE		325											
MUD PROPERTIES				INVENTORY													
TIME SAMPLE TAKEN		21:00		MATERIALS		MATERIALS		RECEIVED		MATERIALS		MATERIALS		DAILY		CUMULATIVE	
SAMPLE FROM		FLOWLINE		RECEIVED		LAST		USED LAST		USED TO		REMAINING		COST		COST	
PRESENT DEPTH		33		TO DATE		24 HOURS		24 HOURS		DATE		ON LOCATION					
FLOWLINE TEMPERATURE (C)		23.9		CAUSTIC		180		4		4		176		\$232.00		\$232.00	
DENSITY		1020		X-CIDE 207		48						48					
FUNNEL VISCOSITY (s/L)				NAT BENTON		440		120		120		320		\$1,909.20		\$1,909.20	
600 READING		70		LIGNITE		56		4		4		52		\$80.00		\$80.00	
300 READING		50		LIME		54						54					
APPARENT VISCOSITY (mPa.s)		35		SODA ASH		40						40					
PLASTIC VISCOSITY (mPa.s)		20		BICARB		25		4		4		21		\$316.00		\$316.00	
YIELD POINT (Pa)		15		MICA COARS		48						48					
GELS 0/10 min. (Pa)		14/13		IDF-FLR		7						7					
pH		12		VISPLEX II		303		42		42		261		\$15,414.00		\$15,414.00	
FILTRATE (cm3)		AP X HTHP		ID FREE 208L		4						4					
FILTER CAKE (mm)				CELLOPHANE		100						100					
PF		2.9		MICA MEDIUM		50						50					
MF		3.1		FLOPLEX		50						50					
PM				P. SEAL "C"		50						50					
TOTAL HARDNESS (mg/l)		X Ca		P. SEAL "M"		60						60					
CHLORIDES (mg/L)		X NaCl		CALCARB "32"		224						224					
SAND CONTENT		% FR.		CALCARB "50"		224						224					
SOLIDS CONTENT		% X FR.		CALCARB "10"		224						224					
OIL/WATER CONT		% FR.		DETERGENT		20						20					
MBT (Kg/m3)		X OIL RET		30		PREVIOUS COST						STARTING VOLUME					
ELECTRICAL STABILITY				DAILY COST		\$17,951.20						VOL. BUILT					
OIL/WATER RATIO				CUM. COST		\$17,951.20						VOL. LOST ON SURFACE					
E.C.D. kg/m3		1023.52		ENGINEERING CHARGES		\$1,440.00						VOL. LOST ON SUB SURFACE					
"n"		0.01		ISCT'D COST / CUM TOTAL		\$8,975.60		\$10,415.60				END VOLUME					
"k"		3.08		TRUCKING								CUM. VOL BUILT.					
COMMENTS														SPUD @ 09:00			
IN THE PREMIX TANK - PREHYDRATE GEL @ 90 KG/M³ e.g.: 50 M³ = 112.5 40 KG SAX IN THE ACTIVE SYSTEM - START CIRCULATION OF 4 SX OF BICARB OVER ONE CIRCULATION - CONTROL EXCESSIVE VISCOSITY'S W/ ADDITIONS OF LIGNITE 1-2 SAX PER CIRCULATION - IF VISCOSITY DROPS BELOW 60 s/L START CIRCULATION OF CAUSTIC SEVERE LOSSES WE WILL PUMP HIGH VISCOSITY VISPLEX PILLS CONTAINING CAL CARB, MAGNA FIBRE AND OR MICA CALL ME IF YOU HAVE ANY QUESTIONS OR PROBLEMS																	
STOCK POINT		GRANDE PRAIRIE				DOWELL ENGINEER		DAN MAJOCHA		On Location							
PHONE		532 - 5078						Camp		Room # 27							
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.																	

DAILY MUD REPORT

WELL NAME		RANGER FORT LIARD		LOCATION P-68 LAT60.40' LONG123.30'		DATE		16-Jan-97		TREATMENT #		2911-0721							
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS # 26E		REPORT No		3											
REPORT FOR Mr.		ART SCHRIT		REPORT FOR Mr.		TERRY GORGICHUCK		SPUD DATE		12-Jan-97									
ASSEMBLY		CASINO		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min											
BIT SIZE (mm)		444.5		LENGTH (m)		SIZE (mm)		LENGTH(m)		TANKS		180							
BIT NUMBER		2A								HOLE		14							
DRILL PIPE #1(mm)										TOTAL		174							
DRILLPIPE #2(mm)						LINER		TOP/BOT.		STAND BY									
COLLAR #1(mm)		279.0		54		660.0				M3/STK		0.0158							
COLLAR #2(mm)						33				S.P.M.		190							
										M3/MIN		3.0014							
HOLE DATA		DESANDER DESILTER		DRILLING FLUID SPECIFICATIONS															
MUD TYPE - VISPLEX		FLOWLINE WT.		1030		kg/m3		MUD WT.		1060-1200 Kg/m3									
HOLE COND.-GOOD		UNDERFLOW WT.				kg/m3		VISCOSITY		60-90 s/L									
DEVIATION-		OVERFLOW WT.				kg/m3		FILTRATE		N/C cm3/30 min.									
CURRENT OP.-DRILLING		UNDERFLOW RT.				m3/min		pH		11.0-11.5									
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE											
		XX DOUBLE DECK OR HIGH SPEED SHAKER		SCREEN SIZE		110													
MUD PROPERTIES		INVENTORY																	
TIME SAMPLE TAKEN		23:59		MATERIALS		MATERIALS		RECEIVED		MATERIALS		MATERIALS		MATERIAL		DAILY		CUMULATIVE	
SAMPLE FROM		FLOWLINE				RECEIVED		LAST		USED LAST		USED TO		REMAINING		COST		COST	
PRESENT DEPTH		54				TO DATE		24 HOURS		24 HOURS		DATE		ON LOCATION					
FLOWLINE TEMPERATURE (C)		23.9		CAUSTIC		180						4		176				\$232.00	
DENSITY		1030		X-CIDE 207		48								48					
FUNNEL VISCOSITY (s/L)		57		NAT BENTON		440						120		320				\$1,909.20	
600 READING		69		LIGNITE		56				2		6		50		\$40.00		\$120.00	
300 READING		59		LIME		54								54					
APPARENT VISCOSITY (mPa.s)		34.5		SODA ASH		40								40					
PLASTIC VISCOSITY (mPa.s)		10		BICARB		25				8		12		13		\$632.00		\$948.00	
YIELD POINT (Pa)		24.5		MICA COARS		48								48					
GELS 0/10 min. (Pa)		12/12		IDF-FLR		7								7					
pH		STRIP		METER X		11.7		VISPLEX II		303				42		261		\$15,414.00	
FILTRATE (cm3)		AP X		HTHP				ID FREE 208L		4						4			
FILTER CAKE (mm)								CELLOPHANE		100						100			
PF						2.5		MICA MEDIUM		50						50			
MF						3		FLOPLEX		50						50			
PM								P. SEAL "C"		50						50			
TOTAL HARDNESS (mg/l)		X		Ca		30		P. SEAL "M"		60						60			
CHLORIDES (mg/L)		X		NaCl		100		CALCARB "32"		224						224			
SAND CONTENT		%X		FR.		0.3		CALCARB "SC"		224						224			
SOLIDS CONTENT		%X		FR.		1.8		CALCAARB "C"		224						224			
OIL/WATER CONT		%		FR.				DETERGENT		20						20			
MBT (Kg/m3)		X		OIL RET		34		PREVIOUS COST		\$17,951.20						STARTING VOLUME			
ELECTRICAL STABILITY								DAILY COST		\$672.00						VOL. BUILT			
OIL WATER RATIO								CUM. COST		\$18,623.20						VOL. LOST ON SURFACE			
E.C.D. kg/m3						1032.25		ENGINEERING CHARGES		\$3,360.00						VOL. LOST ON SUB SURFACE			
"n"						0.17		ISCTD COST / CUM TOTAL		\$9,311.60		\$12,671.60				END VOLUME			
"k"						0.71		TRUCKING								CUM. VOL BUILT			
COMMENTS																			
START CENTRIFUGE'S CONTROL DENSITY AS LOW AS POSSIBLE ADD REMAINING BBL OF CAUSTIC																			
IN THE ACTIVE SYSTEM -																			
- CONTROL EXCESSIVE VISCOSITY'S W/ ADDITIONS OF LIGNITE 1-2 SAX PER CIRCULATION - IF VISCOSITY DROPS BELOW 60 S/L START CIRCULATION OF CAUSTIC																			
SEVERE LOSSES WE WILL PUMP HIGH VISCOSITY VISPLEX PILLS CONTAINING CAL CARB, MAGNA FIBRE AND OR MICA																			
CALL ME IF YOU HAVE ANY QUESTIONS OR PROBLEMS																			
STOCK POINT GRANDE PRAIRIE DOWELL ENGINEER DAN MAJOCHA On Location																			
PHONE 532 - 5078 Camp Room # 5																			
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.																			

DAILY MUD REPORT

WELL NAME		RANGER FORT LIARD		LOCATION P-66 LAT60.40' LONG123.30'		DATE		17-Jan-97		TREATMENT #		2911-0721	
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS # 26E		REPORT No		4					
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr. TERRY GORGICHUCK		SPUD DATE		12-Jan-97					
ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min					
BIT SIZE (mm)	444.5	LENGTH (m)		SIZE (mm)	LENGTH(m)	TANKS	107	PUMP #1	165X254	OPPOSITE DP	10		
BIT NUMBER	3a					HOLE	31	M3/STK	0.0158	OPPOSITE DC	30		
DRILL PIPE #1(mm)	127.0	18				TOTAL	138	PUMP #2	165X254	CIRC. TIME	39		
DRILLPIPE #2(mm)	178.0	46	LINER	TOP/BOT.	STAND BY			M3/STK	0.0158	BOTTOMS UP	7		
COLLAR #1(mm)	279.0	35	660.0					S.P.M.	214				
COLLAR #2(mm)	228.0	61		33				M3/MIN	3.3805				
HOLE DATA		DESANDER DESILTER		DRILLING FLUID SPECIFICATIONS									
MUD TYPE - VISPLEX		FLOWLINE WT. 1090		kg/m3		MUD WT.		1060-1200 Kg/m3					
HOLE COND.-LOST CIRCULATION		UNDERFLOW WT.		kg/m3		VISCOSITY		60-80 s/L					
DEVIATION-3/4 deg @ 105		OVERFLOW WT.		kg/m3		FILTRATE		N/C cm3/30 min.					
CURRENT OP.-CONDITION MUD		UNDERFLOW RT.		m3/min		pH		11.0-11.5					
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE					
		XX DOUBLE DECK OR HIGH SPEED SHAKER		SCREEN SIZE									
MUD PROPERTIES		INVENTORY											
TIME SAMPLE TAKEN	23:59	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE				
SAMPLE FROM	FLOWLINE	RECEIVED	TO DATE	LAST 24 HOURS	USED LAST 24 HOURS	USED TO DATE	REMAINING ON LOCATION	COST	COST				
PRESENT DEPTH	160												
FLOWLINE TEMPERATURE (C)	36.7	CAUSTIC	180			4	176		\$232.00				
DENSITY	1090	X-CIDE 207	48				48						
FUNNEL VISCOSITY (s/L)		NAT BENTON	440			120	320		\$1,909.20				
600 READING	68	LIGNITE	56			6	50		\$120.00				
300 READING	45	LIME	54				54						
APPARENT VISCOSITY (mPa.s)	34	SODA ASH	40				40						
PLASTIC VISCOSITY (mPa.s)	23	BICARB	25			12	13		\$948.00				
YIELD POINT (Pa)	11	MICA COARS	48				48						
GELS 0/10 min. (Pa)	5/22	IDF-FLR	7				7						
pH	STRIF	METER X	11	VISPLEX II	303		42	261	\$15,414.00				
FILTRATE (cm3)	AP X	HTHP		ID FREE 208L	4			4					
FILTER CAKE (mm)				CELLOPHANE	100			100					
PF		0.6		MICA MEDIUM	50			50					
MF		0.9		FLOPLEX	50			50					
PM				P. SEAL "C"	50			50					
TOTAL HARDNESS (mg/l)		Ca		P. SEAL "M"	60			60					
CHLORIDES (mg/L)	X	NaCl	100	CALCARB "32"	224			224					
SAND CONTENT	% X	FR.	0.5	CALCARB "SC"	224			224					
SOLIDS CONTENT	% X	FR.	5.5	CALCAARB "C"	224			224					
OIL/WATER CONT	%	FR.		DETERGENT	20			20					
MBT (Kg/m3)	X	OIL RET	30	PREVIOUS COST	\$18,623.20			600 RPM	68				
ELECTRICAL STABILITY				DAILY COST	\$19,282.43			300 RPM	45				
OIL WATER RATIO				CUM. COST	\$37,905.63			200 RPM	35				
E.C.D. kg/m3		1095.24		ENGINEERING CHARGES	\$3,840.00			100 RPM	23				
"H"		0.31		ISCT'D COST / CUM TOTAL	\$18,952.82	\$22,792.82		6 RPM	10				
"K"		0.88		TRUCKING				3 RPM	8				
COMMENTS													
Above Inventory is Not Valid, See Attached Material Sheet For Inventory													
GAUGE ALL TANKS ON A REGULAR BASIS AND RECORD IN THE TOUR BOOK FOR EVERY 8 M ³ VOLUME BUILT ADD 8SX OF NATURAL GEL AND 3 SX OF VISPLEX													
MIX IN THE ACTIVE SYSTEM 70 SX OF NATURAL GEL AND 25 SX OF VISPLEX MAINTAIN pH @ 11.0 W/ ADDITIONS OF CAUSTIC													
CALL ME IF YOU HAVE ANY QUESTIONS OR PROBLEMS													
STOCK POINT	GRANDE PRAIRIE			DOWELL ENGINEER	DAN MAJOCHA			On Location					
PHONE	532 - 5078				Camp			Room # 5					
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.													

DAILY MUD REPORT

WELL NAME		RANGER FORT LIARD		LOCATION P-68 LAT60.40' LONG123.30'		DATE		17-Jan-97		TREATMENT #		2911-0721	
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS # 26E		REPORT No		4A					
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr.		TERRY GORGICHUCK		SPUD DATE		12-Jan-97			
ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min					
BIT SIZE (mm)	444.5	LENGTH (m)		SIZE (mm)	LENGTH(m)	TANKS	107	PUMP #1	165X254	OPPOSITE DP	10		
BIT NUMBER	3a					HOLE	31	M3/STK	0.0158	OPPOSITE DC	30		
DRILL PIPE #1(mm)	127.0	18				TOTAL	138	PUMP #2	165X254	CIRC. TIME	39		
DRILLPIPE #2(mm)	178.0	48		LINER	TOP/BOT.	STAND BY		M3/STK	0.0158	BOTTOMS UP	7		
COLLAR #1(mm)	279.0	35		660.0				S.P.M.	214				
COLLAR #2(mm)	228.0	61			33			M3/MIN	3.3805				
HOLE DATA		DESANDER DESILTER		DRILLING FLUID SPECIFICATIONS									
MUD TYPE - VISPLEX		FLOWLINE WT.		1090		kg/m3		MUD WT.		1060-1200 Kg/m3			
HOLE COND.-LOST CIRCULATION		UNDERFLOW WT.				kg/m3		VISCOSITY		60-90 s/L			
DEVIATION-3/4 deg @ 105		OVERFLOW WT.				kg/m3		FILTRATE		N/C cm3/30 min.			
CURRENT OP.-CONDITION MUD		UNDERFLOW RT.				m3/min		pH		11.0-11.5			
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE					
		XX DOUBLE DECK OR HIGH SPEED SHAKER		SCREEN SIZE									
MUD PROPERTIES		INVENTORY											
TIME SAMPLE TAKEN	23:59		MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE			
SAMPLE FROM	FLOWLINE		RECEIVED	LAST	USED LAST	USED TO	REMAINING	COST	COST				
PRESENT DEPTH	160		TO DATE	24 HOURS	24 HOURS	DATE	ON LOCATION						
FLOWLINE TEMPERATURE (C)	36.7		CAUSTIC	180		4	176		\$232.00				
DENSITY	1090		X-CIDE 207	48			48						
FUNNEL VISCOSITY (s/L)	103		NAT BENTON	440		120	320		\$1,909.20				
600 READING	110		LIGNITE	56		6	50		\$120.00				
300 READING	70		LIME	54			54						
APPARENT VISCOSITY (mPa.s)	55		SODA ASH	40			40						
PLASTIC VISCOSITY (mPa.s)	40		BICARB	25		12	13		\$948.00				
YIELD POINT (Pa)	15		MICA COARS	48			48						
GELS 0/10 min. (Pa)	2.5/17		IDF-FLR	7			7						
pH	STRIF	METER X	10	VISPLEX II	303		42	261		\$15,414.00			
FILTRATE (cm3)	AP X	HTHP		ID FREE 208L	4			4					
FILTER CAKE (mm)			CELLOPHANE	100			100						
PF	0.3		MICA MEDIUM	50			50						
MF	0.45		FLOPLEX	50			50						
PM			P. SEAL "C"	50			50						
TOTAL HARDNESS (mg/l)		Ca		P. SEAL "M"	60			60					
CHLORIDES (mg/L)	X	NaCl	100	CALCARB "32"	224			224					
SAND CONTENT	% X	FR.	0.5	CALCARB "SC"	224			224					
SOLIDS CONTENT	% X	FR.	5.5	CALCAARB "C"	224			224					
OIL/WATER CONT	%	FR.		DETERGENT	20			20					
MBT	(Kg/m3)	OIL RET		PREVIOUS COST	\$18,623.20			600 RPM	110				
ELECTRICAL STABILITY			DAILY COST	\$19,282.43				300 RPM	70				
OIL WATER RATIO			CUM. COST	\$37,905.63				200 RPM	53				
E.C.D. kg/m ³	1095.18		ENGINEERING CHARGES	\$3,840.00				100 RPM	32				
"n"	0.55		ISCTD COST / CUM TOTAL	\$18,952.82	\$22,792.82			6 RPM	7				
"K"	0.40		TRUCKING					3 RPM	5				
COMMENTS													
Above inventory is Not Valid, See Attached Material Sheet For Inventory													
GAUGE ALL TANKS ON A REGULAR BASIS AND RECORD IN THE TOUR BOOK													
RAISE VIS TO 100 S/L W GEL													
ADD SAWDUST AND PRIMASEAL 5 : 1 RATIO													
CELLOPHANE 1SX PER M ³													
PUMP LCM PILL AND ALLOW TO STAND													
MAINTAIN VISCOSITY @ 100+ S/L W NATURAL GEL													
pH @ 10.5 - 11.0 W/CAUSTIC													
ADD SAWDUST AND PRIMA SEAL @ THE SUCTION WHILE CIRCULATING UNTL FULL CIRCULATION HAS RETURNED													
STOCK POINT GRANDE PRAIRIE DOWELL ENGINEER DAN MAJOCHA On Location													
PHONE 532 - 5078 Camp Room # 5													
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.													

INVENTORY

TREATMENT # 2911-0721

WELL NAME RANGER FORT LIARD

LOCATION P-66 LAT60.40' LONG123. 30'

DATE 17-Jan-97

OPERATOR RANGER OIL LTD.

CONTRACTOR **CACTUS #26E**

REPORT No 4A

REPORT FOR Mr. ART SCHRIFF

REPORT FOR Mr. TERRY GORGICHUCK

SPUD DATE 12-Jan-87

[illegible]**TOTALS**

\$19,282.43

\$37,905.63

DAILY MUD REPORT

WELL NAME		RANGER FORT LIARD		LOCATION P-66 LAT60.40' LONG123. 30'		DATE		18-Jan-97		TREATMENT #		2911-0721					
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS # 26E		REPORT No		5									
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr. TERRY GORGICHUCK		SPUD DATE		12-Jan-97									
ASSEMBLY		CASING		MUD VOL. (m3)		PUMP OUTPUT		ANNULAR VEL. m/min									
BIT SIZE (mm)	444.5	LENGTH (m)		SIZE (mm)	LENGTH(m)	TANKS	161	PUMP #1	165X254	OPPOSITE DP	25						
BIT NUMBER	3a					HOLE	78	M3/STK	0.0163	OPPOSITE DC	31						
DRILL PIPE #1(mm)	127.0	75				TOTAL	239	PUMP #2	165X254	CIRC. TIME	59						
DRILLPIPE #2(mm)	178.0	84	LINER	TOP/BOT.	STAND BY			M3/STK	0.0163	BOTTOMS UP	12						
COLLAR #1(mm)	279.0	35	660.0					S.P.M.	215								
COLLAR #2(mm)	228.0	61		33				M3/MIN	3.5013								
HOLE DATA		DESANDER DESILTER		DRILLING FLUID SPECIFICATIONS													
MUD TYPE - GEL CHEM		FLOWLINE WT.		1075		kg/m3		MUD WT.		1060-1200 Kg/m3							
HOLE COND.-		UNDERFLOW WT.				kg/m3		VISCOSITY		100 + s/L							
DEVIATION-2 deg @ 238		OVERFLOW WT.				kg/m3		FILTRATE		N/C cm3/30 min.							
CURRENT OP.-DRILLING		UNDERFLOW RT.				m3/min		pH		10.5-11.0							
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE									
		XX DOUBLE DECK OR HIGH SPEED SHAKER		SCREEN SIZE													
MUD PROPERTIES		INVENTORY															
TIME SAMPLE TAKEN		7:30		MATERIALS		MATERIALS		RECEIVED		MATERIALS		MATERIALS		DAILY		CUMULATIVE	
SAMPLE FROM		FLOWLINE				RECEIVED		LAST		USED LAST		USED TO		REMAINING		COST	
PRESENT DEPTH		255				TO DATE		24 HOURS		24 HOURS		DATE		ON LOCATION			
FLOWLINE TEMPERATURE (C)		36.7		CAUSTIC		180						4		176		\$232.00	
DENSITY		1075		X-CIDE 207		48								48			
FUNNEL VISCOSITY (s/L)		105		NAT BENTON		440						120		320		\$1,909.20	
600 READING		138		LIGNITE		56						6		50		\$120.00	
300 READING		91		LIME		54								54			
APPARENT VISCOSITY (mPa.s)		69		SODA ASH		40								40			
PLASTIC VISCOSITY (mPa.s)		47		BICARB		25						12		13		\$948.00	
YIELD POINT (Pa)		22		MICA COARS		207								207			
GELS 0/10 min. (Pa)		2.5/9		IDF-FLR		7								7			
pH	STRIP	METER	X	10	VISPLEX II	303					42	261				\$15,414.00	
FILTRATE (cm3)	AP	X	HTHP		ID FREE 208L	4						4					
FILTER CAKE (mm)					CELLOPHANE	300						300					
PF				0.35	MICA MEDIUM	110						110					
MF				0.5	FLOPLEX	50						50					
PM					P. SEAL "C"	50						50					
TOTAL HARDNESS (mg/l)		Ca			P. SEAL "M"	60						60					
CHLORIDES (mg/L)	X	NaCl		100	CALCARB "32"	224						224					
SAND CONTENT	%	FR.		0.5	CALCARB "50"	336						336					
SOLIDS CONTENT	%	FR.		4.6	CALCARB "10"	224						224					
OIL/WATER CONT	%	FR.			DETERGENT	20						20					
MBT:	(Kg/m3)	X	OIL RET	57.5	PREVIOUS COST	\$38,005.63						600 RPM	138				
ELECTRICAL STABILITY					DAILY COST	\$15,496.23						300 RPM	91				
OIL WATER RATIO					CUM. COST	\$53,501.86						200 RPM	70				
E.C.D. kg/m*3			1078.84		ENGINEERING CHARGES	\$4,320.00						100 RPM	44				
"n"			0.59		ISCTD COST / CUM TOTAL	\$26,750.93	\$31,070.93					6 RPM	7				
"k"			0.32		TRUCKING							3 RPM	6				
COMMENTS																	
Above Inventory Is Not Valid, See Attached Material Sheet For Inventory																	
MAINTAIN VISCOSITY @ 100+ s/L W NATURAL GEL pH @ 10.5 - 11.0 W/CAUSTIC DENSITY AS LOW AS POSSIBLE RUN CENTRIFUGES RUN WATER ASREQUIRED TO MAINTAIN VOLUME ANY LOSSES PUMP PILL IN DEGASSER TANK PREMIX LCM PILL: ~ 20 M*3 ADD SAWDUST AND PRIMA SEAL 10:1 RATIO, CELLOPHANE 15-20 SX, ANY LOSSES PUMP PILL IN DEGASSER TANK ANY PROBLEMS PLEASE CALL																	
STOCK POINT		GRANDE PRAIRIE		DOWELL ENGINEER		DAN MAJOCHA		On Location									
PHONE		532 - 5078		Camp		Room # 5											
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.																	

TREATMENT # 2911-0721

DATE 18-Jan-97

REPORT No 5

SPUD DATE 12-Jan-97

TOTALS	\$15,496.23	\$53,501.86
---------------	--------------------	--------------------

DAILY MUD REPORT

WELL NAME		RANGER FORT LIARD		LOCATION P-66 LAT60.40' LONG123.30'		DATE		19-Jan-97		TREATMENT #		2911-0721	
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS # 26E		REPORT No		6					
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr. TERRY GORGICHUCK		SPUD DATE		12-Jan-97					
ASSEMBLY		CASING		MUD VOL. (MS)		PUMP OUTPUT		ANNULAR VEL. m/min					
BIT SIZE (mm)	444.5	LENGTH (m)		SIZE (mm)	LENGTH(m)	TANKS	140	PUMP #1	165X254	OPPOSITE DP	10		
BIT NUMBER HOLE OPENER						HOLE	91	M3/STK	0.0163	OPPOSITE DC	28		
DRILL PIPE #1(mm)	127.0	87				TOTAL	231	PUMP #2	165X254	CIRC. TIME	68		
DRILLPIPE #2(mm)	178.0	84	LINER	TOP/BOT.	STAND BY			M3/STK	0.0163	BOTTOMS UP	24		
COLLAR #1(mm)	279.0	35	660.0					S.P.M.	200	PUMP PRESS.	8000		
COLLAR #2(mm)	228.0	61		128				M3/MIN	3.2570				
HOLE DATA		DESANDER DESILTER		DRILLING FLUID SPECIFICATIONS									
MUD TYPE - GEL CHEM		FLOWLINE WT.		1075		kg/m3		MUD WT.		1060-1200 Kg/m3			
HOLE COND.-LOST CIRC		UNDERFLOW WT.				kg/m3		VISCOSITY		100 + s/L			
DEVIATION-2 deg @ 238		OVERFLOW WT.				kg/m3		FILTRATE		N/C cm3/30 min.			
CURRENT OP.-DRILLING		UNDERFLOW RT.				m3/min		pH		10.5-11.0			
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE					
		XX DOUBLE DECK OR HIGH SPEED SHAKER		SCREEN SIZE									
MUD PROPERTIES		INVENTORY											
TIME SAMPLE TAKEN	10:30	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE			
SAMPLE FROM	FLOWLINE		RECEIVED	LAST	USED LAST	USED TO	REMAINING	COST	COST				
PRESENT DEPTH	267		TO DATE	24 HOURS	24 HOURS	DATE	ON LOCATION						
FLOWLINE TEMPERATURE (C)	36.7	CAUSTIC	180			4	176		\$232.00				
DENSITY	1075	X-CIDE 207	48				48						
FUNNEL VISCOSITY (s/L)	150	NAT BENTON	1240			120	1120		\$1,909.20				
600 READING	145	LIGNITE	56			6	50		\$120.00				
300 READING	92	LIME	54				54						
APPARENT VISCOSITY (mPa.s)	72.5	SODA ASH	40				40						
PLASTIC VISCOSITY (mPa.s)	53	BICARB	25			12	13		\$948.00				
YIELD POINT (Pa)	19.5	MICA COARS	207				207						
GELS 0/10 min. (Pa)	3/20	IDF-FLR	7				7						
pH	STRIP	METER X	9.8	VISPLEX II	303		42	261		\$15,414.00			
FILTRATE (cm3)	API X	HTHP		ID FREE 208L	4			4					
FILTER CAKE (mm)				CELLOPHANE	300			300					
PF	0.2	MICA MEDIUM	110				110						
MF	0.4	FLOPLEX	50				50						
PM		P. SEAL "C"	50				50						
TOTAL HARDNESS (mg/l)	X	Ca	20	P. SEAL "M"	60		60						
CHLORIDES (mg/L)	X	NaCl	100	CALCARB "32	224		224						
SAND CONTENT	%X	FR.	0.5	CALCARB "SC	336		336						
SOLIDS CONTENT	%X	FR.	4.6	CALCAARB "C	224		224						
OIL/WATER CONT	%	FR.		DETERGENT	20		20						
MBT	(kg/m3) X	OIL RET	60	PREVIOUS COST	\$53,343.86			600 RPM	145				
ELECTRICAL STABILITY				DAILY COST	\$9,410.67			300 RPM	92				
OIL WATER RATIO				CUM. COST	\$62,754.53			200 RPM	71				
E.C.D. kg/m3	1079.21	ENGINEERING CHARGES	\$4,800.00					100 RPM	45				
"n"	0.57	ISCTD COST / CUM TOTAL	\$31,377.27	\$36,177.27				6 RPM	7				
"k"	0.43	TRUCKING						3 RPM	6				
COMMENTS													
Above Inventory is Not Valid, See Attached Material Sheet For Inventory													
MAINTAIN VISCOSITY @ 100+ s/L W NATURAL GEL RAISE AS REQUIRED TO CLEAN THE HOLE pH @ 10.5 - 11.0 W/CAUSTIC DENSITY AS LOW AS POSSIBLE RUN CENTRIFUGES RUN WATER AS REQUIRED TO MAINTAIN VOLUME LOST CIRCULATION MIX SAWDUST, PRIMA SEAL, CELLOPHANE, AND MICA AS REQUESTED ANY PROBLEMS PLEASE CALL													
STOCK POINT		GRANDE PRAIRIE		DOWELL ENGINEER		DAN MAJOCHA		On Location					
PHONE		532 - 5078				Camp		Room # 5					
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.													

TOTALS	\$9,410.67	\$62,754.53
---------------	-------------------	--------------------

DAILY MUD REPORT

WELL NAME RANGER FORT LIARD			LOCATION P-66 LAT60.40' LONG123.30'			DATE 20-Jan-97			TREATMENT # 2911-0721		
OPERATOR RANGER OIL LTD.			CONTRACTOR CACTUS # 26E			REPORT No 7					
REPORT FOR Mr. ART SCHRITT			REPORT FOR Mr. TERRY GORGICHUCK			SPUD DATE 12-Jan-97					
ASSEMBLY			CASING			MUD VOL. (M3)			PUMP OUTPUT		
BIT SIZE (mm)	444.5	LENGTH (m)	SIZE (mm)	LENGTH(m)	TANKS	147	PUMP #1	165X254	OPPOSITE DP	10	
BIT NUMBER HOLE OPENER						HOLE	122	M3/STK	0.0163	OPPOSITE DC	28
DRILL PIPE #1(mm)	127.0	87				TOTAL	269	PUMP #2	165X254	CIRC. TIME	83
DRILLPIPE #2(mm)	178.0	84	LINER	TOP/BOT.	STAND BY		M3/STK	0.0163	BOTTOMS UP	37	
COLLAR #1(mm)	279.0	35	660.0				S.P.M.	200	PUMP PRESS.	13000	
COLLAR #2(mm)	228.0	61		250			M3/MIN	3.2570			
HOLE DATA			DESANDER DESILTER			DRILLING FLUID SPECIFICATIONS					
MUD TYPE - GEL CHEM			FLOWLINE WT. 1090			kg/m3			MUD WT. 1060-1200 Kg/m3		
HOLE COND.-TIGHT			UNDERFLOW WT.			kg/m3			VISCOSITY 100 + s/L		
DEVIATION-2 deg @ 238			OVERFLOW WT.			kg/m3			FILTRATE N/C cm3/30 min.		
CURRENT OP.-DRILLING			UNDERFLOW RT.			m3/min			pH 10.5-11.0		
EQUIPMENT:			XX DEGASSER			DESILTER			DESANDER		
			XX DOUBLE DECK OR HIGH SPEED SHAKER			SCREEN SIZE			XXX CENTRIFUGE		
MUD PROPERTIES			INVENTORY								
TIME SAMPLE TAKEN 16:30			MATERIALS			RECEIVED			MATERIALS		
SAMPLE FROM FLOWLINE			RECEIVED			LAST			USED LAST		
PRESENT DEPTH 267			TO DATE			24 HOURS			USED TO		
FLOWLINE TEMPERATURE (C) 36.7			CAUSTIC 180						4		
DENSITY 1090			X-CIDE 207 48						176		
FUNNEL VISCOSITY (s/L) 58			NAT BENTON 2160						120		
600 READING 69			LIGNITE 56						6		
300 READING 43			LIME 54						54		
APPARENT VISCOSITY (mPa.s) 34.5			SODA ASH 40						40		
PLASTIC VISCOSITY (mPa.s) 26			BICARB 25						12		
YIELD POINT (Pa) 8.5			MICA COARS 207						207		
GELS 0/10 min. (Pa) 1.5/15			IDF-FLR 7						7		
pH STRIP METER X 10.5			VISPLEX II 383						42		
FILTRATE (cm3) API X HTHP			ID FREE 208L 4						4		
FILTER CAKE (mm)			CELLOPHANE 300						300		
PF 0.4			MICA MEDIUM 110						110		
MF 0.5			FLOPLEX 50						50		
PM			P. SEAL "C" 260						260		
TOTAL HARDNESS (mg/l) X Ca 20			P. SEAL "M" 160						160		
CHLORIDES (mg/L) X NaCl 100			CALCARB "32" 224						224		
SAND CONTENT %X FR. 0.3			CALCARB "SC" 336						336		
SOLIDS CONTENT %X FR. 5.5			CALCAARB "C" 224						224		
OIL/WATER CONT % FR.			DETERGENT 20						20		
MBT (Kg/m3) X OIL RET 50			PREVIOUS COST \$62,754.53						600 RPM 69		
ELECTRICAL STABILITY			DAILY COST \$8,214.00						300 RPM 43		
OIL WATER RATIO			CUM. COST \$70,968.53						200 RPM 32		
E.C.D. kg/m^3 1090.94			ENGINEERING CHARGES \$5,280.00						100 RPM 20		
"n" 0.55			ISCTD COST / CUM TOTAL \$35,484.27 \$40,764.27						6 RPM 4		
"k" 0.32			TRUCKING						3 RPM 3		
COMMENTS											
Above Inventory is Not Valid, See Attached Material Sheet For Inventory											
MAINTAIN VISCOSITY @ 90 SL W / ADDITIONS OF VISPLEX @ 7 SX PER CIRCULATION pH @ 11.0 - 11.5 W/CAUSTIC DENSITY AS LOW AS POSSIBLE RUN CENTRIFUGES RUN WATER AS REQUIRED TO MAINTAIN VOLUME ANY PROBLEMS PLEASE CALL											
STOCK POINT GRANDE PRAIRIE			DOWELL ENGINEER			DAN MAJOCHA			On Location		
PHONE 532 - 5078						Camp Room # 5					
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.											

DAILY MUD REPORT

WELL NAME		RANGER FORT LIARD		LOCATION P-66 LAT 60.40' LONG 123.30'		DATE		24-Jan-97		TREATMENT #		2911-0721							
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS # 26E		REPORT No		-25											
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr.		TERRY GORGICHUCK		SPUD DATE		12-Jan-97									
ASSEMBLY				CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min									
BIT SIZE (mm)		444.5		LENGTH (m)		SIZE (mm)		LENGTH (m)		TANKS		148							
BIT NUMBER		1B				508.0		263		HOLE		40							
DRILL PIPE #1 (mm)		127.0		11						TOTAL		188							
DRILL PIPE #2 (mm)		178.0		80		LINER		TOP/BOT.		STAND BY		M3/STK							
COLLAR #1 (mm)		279.0		56						S.P.M.		200							
COLLAR #2 (mm)		228.0		106						M3/MIN		3.2570							
HOLE DATA				DESANDER DESILTER				DRILLING FLUID SPECIFICATIONS											
MUD TYPE - GEL CHEM				FLOWLINE WT.				1060		kg/m3		MUD WT.							
HOLE COND. - TIGHT				UNDERFLOW WT.						kg/m3		VISCOSITY							
DEVIATION - 2 deg @ 238				OVERFLOW WT.						kg/m3		FILTRATE							
CURRENT OP. - DRILLING				UNDERFLOW RT.						m3/min		pH							
EQUIPMENT:				XX DEGASSER				DESILTER				DESANDER							
				XX DOUBLE DECK OR HIGH SPEED SHAKER				SCREEN SIZE				XXX CENTRIFUGE							
MUD PROPERTIES				INVENTORY															
TIME SAMPLE TAKEN				16:30		MATERIALS		MATERIALS		RECEIVED		MATERIALS		MATERIALS		DAILY		CUMULATIVE	
SAMPLE FROM				FLOWLINE				RECEIVED		LAST		USED LAST		USED TO		REMAINING		COST	
PRESENT DEPTH								TO DATE		24 HOURS		24 HOURS		DATE		ON LOCATION			
FLOWLINE TEMPERATURE (C)				36.7		CAUSTIC		180						4		176		\$232.00	
DENSITY				1060		X-CIDE 207		48								48			
FUNNEL VISCOSITY (s/L)				58		NAT BENTON		2160						120		2040		\$1,909.20	
600 READING				69		LIGNITE		56						6		50		\$120.00	
300 READING				43		LIME		54								54			
APPARENT VISCOSITY (mPa.s)				34.5		SODA ASH		40								40			
PLASTIC VISCOSITY (mPa.s)				26		BICARB		25						12		13		\$948.00	
YIELD POINT (Pa)				8.5		MICA COARS		207								207			
GELS 0/10 min. (Pa)				1.5/15		IDF-FLR		7								7			
pH				STRIP		METER		X		10.5		VISPLEX II		370				42	
FILTRATE (cm3)				AP		X		HTHP				ID FREE 208L		4				4	
FILTER CAKE (mm)												CELLOPHANE		300				300	
PF										0.4		MICA MEDIUM		110				110	
MF										0.5		FLOPLEX		50				50	
PM												P. SEAL "C"		260				260	
TOTAL HARDNESS (mg/l)				X		Ca		20				P. SEAL "M"		160				160	
CHLORIDES (mg/L)				X		NaCl		100				CALCARB "32"		224				224	
SAND CONTENT				X		FR		0.3				CALCARB "30"		336				336	
SOLIDS CONTENT				X		FR		3.7				CALCARB "0"		224				224	
OIL/WATER CONT				X		FR						DETERGENT		20				20	
MBT (Kg/m3)				X		OIL RET		50				PREVIOUS COST		\$82,816.33				600 RPM	
ELECTRICAL STABILITY												DAILY COST						300 RPM	
OIL WATER RATIO												CUM. COST		\$82,816.33				200 RPM	
E.C.D. kg/m3								1062.75				ENGINEERING CHARGES		\$7,200.00				100 RPM	
"n"								0.55				ISCTD COST / CUM TOTAL		\$41,408.17		\$48,608.17		6 RPM	
"k"								0.32				TRUCKING						3 RPM	
COMMENTS																			
FILL THE DEGASSER TANK (~ 30 M ³) W/ MUD AND ISOLATE, ADD 32 SX OF GEL TO MAKE 90 KG/M ³																			
IN THE ACTIVE SYSTEM : TOP OFF TO 150 M ³ W/ WATER ADD 35 SX OF VISPLEX																			
DRILL OUT REPORT : ISOLATE # 2 SUCTION TANK ADD 2 SX OF BICARB, START ANOTHER 2 SX ONCE DRILLING CEMENT. MAINTAIN VOLUME @ ~ 50 % ADD WATER AS REQUIRED TO MAINTAIN VOLUME KEEP PUMP RATE DOWN WHILE DRILLING CEMENT ONCE CEMENT IS DRILLED AND CEMENT IS TREATED INCORPORATE HIGH pH MUD INTO THE ACTIVE SYSTEM																			
STOCK POINT		GRANDE PRAIRIE				DOWELL ENGINEER				DAN MAJOCHA				On Location					
PHONE		532 - 5078								Camp				Room # 5					
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.																			

DAILY MUD REPORT

WELL NAME		RANGER FORT LIARD		LOCATION P-68 LAT60.40' LONG123.30'		DATE		25-Jan-97		TREATMENT #		2811-0721								
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS # 26E		REPORT No		9												
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr. TERRY GORGICHUCK		SPUD DATE		12-Jan-97												
ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min												
BIT SIZE (mm)	444.5	LENGTH (m)	SIZE (mm)	LENGTH (m)	TANKS	134	PUMP #1	165X254	OPPOSITE DP	22										
BIT NUMBER	1B		508.0	263	HOLE	58	M3/STK	0.0163	OPPOSITE DC	33										
DRILL PIPE #1(mm)	127.0	43			TOTAL	191	PUMP #2	165X254	CIRC. TIME	50										
DRILL PIPE #2(mm)	178.0	90	LINER	TOP/BOT.	STAND BY		M3/STK	0.0179	BOTTOMS UP	14										
COLLAR #1(mm)	279.0	56					S.P.M.	220	PUMP PRESS.	11270										
COLLAR #2(mm)	228.0	106					M3/MIN	3.7456												
HOLE DATA		DESANDER DESILTER		DRILLING FLUID SPECIFICATIONS																
MUD TYPE - VISPLEX		FLOWLINE WT.		1070		kg/m3		MUD WT.		1060-1200 Kg/m3										
HOLE COND. -GOOD		UNDERFLOW WT.				kg/m3		VISCOSITY		60-90 s/L										
DEVIATION-2 deg @ 238		OVERFLOW WT.				kg/m3		FILTRATE		N/C cm3/30 min.										
CURRENT OP.-DRILLING		UNDERFLOW RT.				m3/min		pH		10.5-11.0										
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE												
		XX DOUBLE DECK OR HIGH SPEED SHAKER		SCREEN SIZE																
MUD PROPERTIES		INVENTORY																		
TIME SAMPLE TAKEN		22:00		MATERIALS		MATERIALS		RECEIVED		MATERIALS		MATERIALS		MATERIAL		DAILY		CUMULATIVE		
SAMPLE FROM		FLOWLINE				RECEIVED		LAST		USED LAST		USED TO		REMAINING		COST		COST		
PRESENT DEPTH		295				TO DATE		24 HOURS		24 HOURS		DATE		ON LOCATION						
FLOWLINE TEMPERATURE (C)		10.0		CAUSTIC		180						4		176				\$232.00		
DENSITY		1070		X-CIDE 207		48								48						
FUNNEL VISCOSITY (s/L)		34		NAT BENTON		2160						120		2040				\$1,909.20		
600 READING		17		LIGNITE		56						6		50				\$120.00		
300 READING		10		LIME		54								54						
APPARENT VISCOSITY (mPa.s)		8.5		SODA ASH		40								40						
PLASTIC VISCOSITY (mPa.s)		7		BICARB		25						12		13				\$948.00		
YIELD POINT (Pa)		1.5		MICA COARS		207								207						
GELS 0/10 min. (Pa)		0.53		IDF-FLR		7								7						
pH		STRIP		METER X		10.5		VISPLEX II		370		42		328				\$15,414.00		
FILTRATE (cm3)		AP X		HTHP		9		ID FREE 208L		4				4						
FILTER CAKE (mm)						3		CELLOPHANE		300				300						
PF						1.2		MICA MEDIUM		110				110						
MF						1.7		FLOPLEX		50				50						
PM								P. SEAL "C"		260				260						
TOTAL HARDNESS (mg/l)		X		Ca		40		P. SEAL "M"		160				160						
CHLORIDES (mg/L)		X		NaCl		260		CALCARB "32"		224				224						
SAND CONTENT		% X		FR.		0.3		CALCARB "50"		336				336						
SOLIDS CONTENT		% X		FR.		4.3		CALCARB "10"		224				224						
OIL/WATER CONT.		% X		FR.				DETERGENT		20				20						
MBT (Kg/m3)		X		OIL RET		45		PREVIOUS COST		\$82,816.33				600 RPM		17				
ELECTRICAL STABILITY								DAILY COST		\$1,080.78				300 RPM		10				
OIL WATER RATIO								CUM. COST		\$83,897.11				200 RPM		7				
E.C.D. kg/m³						1071.65		ENGINEERING CHARGES		\$7,680.00				100 RPM		4				
"n"						0.42		ISCTD COST / CUM TOTAL		\$41,948.56		\$49,628.56		6 RPM		1				
"k"						0.26		TRUCKING						3 RPM		1				
COMMENTS		Above Inventory is Not Valid, See Attached Material Sheet For Inventory																		
WEIGHT 1080 KG/M3 OR LESS WITH SOLIDS CONTROL, AND RUN WATER TO MAINTAIN VOLUME MAINTAIN VIS FROM 60-90 SL OR AS HOLE DICTATES USE PREMIX GEL 10M3 AND 8 SKS VISPLEX OVER 1 CIRCULATION PH AT 11-11.5 WITH CAUSTIC THRU BARREL ***** NOTE !! PH CONTROLS VISCOSITY, IF PH GOES UP SO DOES VIS AND PH GOES DOWN, VIS GOES DOWN																				
STOCK POINT		GRANDE PRAIRIE		DOWELL ENGINEER		KOVACS/TURGEON		On Location												
PHONE		532 - 5078		Camp		Room # 5# 31														
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.																				

INVENTORY

TREATMENT # 2911-0721

WELL NAME RANGER FORT LIARD

LOCATION P-66 LAT60.40' LONG123.30'

DATE 25-Jan-97

OPERATOR RANGER OIL LTD.

CONTRACTOR CACTUS # 26E

REPORT No. 9

REPORT FOR Mr. ART SCHRIFF

REPORT FOR Mr. TERRY GORGICHUCK

SPUD DATE 12-Jan-97

[illegible]**TOTALS**

\$1,080.78

\$83,897.11

DAILY MUD REPORT

WELL NAME RANGER FORT LIARD LOCATION P-66 LAT60.40' LONG123.30' DATE 97-01-26 TREATMENT # 2911-0721

OPERATOR RANGER OIL LTD. CONTRACTOR CACTUS # 26E REPORT No 10

REPORT FOR Mr. ART SCHRITT REPORT FOR Mr. TERRY GORGICHUCK SPUD DATE 12-Jan-87

ASSEMBLY			CASING		MUD VOL (M3)		PUMP OUTPUT		ANNULAR VEL. m/min	
BIT SIZE (mm)	444.5	LENGTH (m)	SIZE (mm)	LENGTH(m)	TANKS	140	PUMP #1	165X254	OPPOSITE DP	22
BIT NUMBER	RR4A		508.0	283	HOLE	57	M3/STK	0.0163	OPPOSITE DC	32
DRILL PIPE #1(mm)	127.0	80			TOTAL	197	PUMP #2	165X254	CIRC. TIME	51
DRILLPIPE #2(mm)	178.0	90	LINER	TOP/BOT.	STAND BY		M3/STK	0.0163	BOTTOMS UP	13
COLLAR #1(mm)	279.0	56					S.P.M.	228	PUMP PRESS.	15000
COLLAR #2(mm)	228.0	106					M3/MIN	3.7130		

HOLE DATA		DESANDER DESILTER		DRILLING FLUID SPECIFICATIONS	
MUD TYPE - VISPLEX	FLOWLINE WT.	1070	1070 kg/m3	MUD WT.	1060-1200 Kg/m3
HOLE COND.-GOOD	UNDERFLOW WT.	1705	1720 kg/m3	VISCOSITY	60 TO 90 s/L
DEVIATION-312m @2deg N64E	OVERFLOW WT.	1055	1055 kg/m3	FILTRATE	N/C cm3/30 min.
CURRENT OP.-DRILLING	UNDERFLOW RT.	2	2 m3/min	pH	10.5-11.0

EQUIPMENT: XX DEGASSER DESILTER DESANDER XXX CENTRIFUGE
XX DOUBLE DECK OR HIGH SPEED SHAKER SCREEN SIZE

MUD PROPERTIES				INVENTORY					
TIME SAMPLE TAKEN	5:45			MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL
SAMPLE FROM	FLOWLINE				RECEIVED	LAST	USED LAST	USED TO	REMAINING
PRESENT DEPTH	332				TO DATE	24 HOURS	24 HOURS	DATE	ON LOCATION
FLOWLINE TEMPERATURE (C)	16.0		CAUSTIC	180				4	176
DENSITY	1070		X-CIDE 207	48					48
FUNNEL VISCOSITY (s/L)	49		NAT BENTON	2160				120	2040
600 READING	31		LIGNITE	56				6	50
300 READING	20		LIME	54					54
APPARENT VISCOSITY (mPa.s)	15.5		SODA ASH	40					40
PLASTIC VISCOSITY (mPa.s)	11		BICARB	25				12	13
YIELD POINT (Pa)	4.5		MICA COARSE	207					207
GELS 0/10 min. (Pa)	23/35		IDF-FLR	7					7
pH	STRIP	METER	X	11	VISPLEX II	370		42	328
FILTRATE (cm3)	API	X	HTHP	9	ID FREE 208L	4			4
FILTER CAKE (mm)				2	CELLOPHANE	300			300
PF				2	MICA MEDIUM	110			110
MF				2.6	FLOPLEX	50			50
PM					P. SEAL "C"	260			260
TOTAL HARDNESS (mg/l)	X	Ca		60	P. SEAL "M"	160			160
CHLORIDES (mg/L)	X	NaCl		280	CALCARB "32"	224			224
SAND CONTENT	%	X	FR.	0.3	CALCARB "SC"	336			336
SOLIDS CONTENT	%	X	FR.	4.3	CALCAARB "O"	224			224
OIL/WATER CONT	%		FR.		DETERGENT	20			20
MBT (Kg/m3)	X	OIL RET		40					
ELECTRICAL STABILITY				PREVIOUS COST		\$83,897.11			
OIL WATER RATIO				DAILY COST		\$456.00			
E.C.D. kg/m3				CUM. COST		\$84,353.11			
"n"				ENGINEERING CHARGES		#VALUE!			
"k"				DISCTD COST / CUM TOTAL		\$42,176.56	#VALUE!		
				TRUCKING					
							600 RPM		31
							300 RPM		20
							200 RPM		16
							100 RPM		12
							6 RPM		7
							3 RPM		7

COMMENTS

Above Inventory Is Not Valid, See Attached Material Sheet For Inventory

- 1.WEIGHT AT 1080 OR LESS WITH SOLIDS CONTROL AND RUN WATER TO MAINTAIN VOLUME
- 2.MAINTAIN VIS FROM 60 TO 90 S/L
USE PREMIXED GEL. 10 M3 PREMIX AND 8 SX VISPLEX OVER 1 HOUR
- 3.PH AT 11 TO 11.5 WITH CAUSTIC THRU THE BARREL
*** NOTE!! PH CONTROLS VISCOSITY,IF PH COMES UP SO DOES VIS AND IF PH GOES DOWN SO DOES THE VIS
- 4.AS SOON AS POSSIBLE MIX GEL IN THE PREMIX FOR A 120SVL AND ROLL IF POSSIBLE.

STOCK POINT GRANDE PRAIRIE DOWELL ENGINEER ROSS AND WAYNE On Location
PHONE 532 - 5078 Camp Room # 5

THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.

INVENTORY

TREATMENT # 2911-0721

WELL NAME RANGER FORT LIARD

LOCATION P-66 LAT60.40' LONG123. 30'

DATE 97-01-26

OPERATOR RANGER OIL LTD.

CONTRACTOR CACTUS # 26E

REPORT No 10

REPORT FOR Mr. ART SCHRITT

REPORT FOR Mr. TERRY GORGICHUCK

SPUD DATE 12-Jan-87

[illegible]**TOTALS**

\$456.00

\$84,353.11

DAILY MUD REPORT

WELL NAME		RANGER FORT LIARD		LOCATION P-66 LAT80.40' LONG123.30'		DATE		27-Jan-97		TREATMENT #		2911-0721	
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS #26E		REPORT No		11					
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr. TERRY GORGICHUCK		SPUD DATE		12-Jan-97					
ASSEMBLY				CASING		MUD VOL (M3)		PUMP OUTPUT		ANNULAR VEL. m/min			
BIT SIZE (mm)		444.5		LENGTH (m)		SIZE (mm)		LENGTH(m)		TANKS		125	
BIT NUMBER		1B				508.0		263		HOLE		65	
DRILL PIPE #1(mm)		127.0		117						TOTAL		190	
DRILLPIPE #2(mm)		178.0		84		LINER		TOP/BOT.		STAND BY		M3/STK	
COLLAR #1(mm)		279.0		53						S.P.M.		220	
COLLAR #2(mm)		228.0		106						M3/MIN		3.7488	
HOLE DATA				DESANDER DESILTER				DRILLING FLUID SPECIFICATIONS					
MUD TYPE - VISPLEX		FLOWLINE WT.		1070		1070 kg/m3		MUD WT.		1060-1200 Kg/m3			
HOLE COND.-GOOD		UNDERFLOW WT.		1705		1720 kg/m3		VISCOSITY		60-90 s/L			
DEVIATION-2 deg at 344 M		OVERFLOW WT.		1055		1055 kg/m3		FILTRATE		N/C cm3/30 min.			
CURRENT OP.-DRILLING		UNDERFLOW RT.		0.002		0.002 m3/min		pH		10.5-11.0			
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE					
		XX DOUBLE DECK OR HIGH SPEED SHAKER		SCREEN SIZE									
MUD PROPERTIES				INVENTORY									
TIME SAMPLE TAKEN		5:30		MATERIALS		RECEIVED		MATERIALS		MATERIALS		MATERIAL	
SAMPLE FROM		FLOWLINE		RECEIVED		LAST		USED LAST		USED TO		REMAINING	
PRESENT DEPTH		360		TO DATE		24 HOURS		24 HOURS		DATE		ON LOCATION	
FLOWLINE TEMPERATURE (C)		39.0		CAUSTIC		180				4		176	
DENSITY		1070		X-CIDE 207		48						48	
FUNNEL VISCOSITY (s/L)		67		NAT BENTON		2160				120		2040	
FOO READING		51		LIGNITE		56				6		50	
FOO READING		32		LIME		54						54	
APPARENT VISCOSITY (mPa.s)		25.5		SODA ASH		40						40	
PLASTIC VISCOSITY (mPa.s)		19		BICARB		25				12		13	
IELD POINT (Pa)		6.5		MICA COARS		207						207	
IELS 0/10 min. (Pa)		750		IDF-FLR		7						7	
pH		STRIF		METER		X		11.5		VISPLEX II		370	
ILTRATE (cm3)		API 8		HTHP		9		ID FREE 208L		4		4	
ILTER CAKE (mm)		3		CELLOPHANE		300						300	
F		2.1		MICA MEDIUM		110						110	
MF		2.9		FLOPLEX		50						50	
M				P. SEAL "C"		260						260	
OTAL HARDNESS (mg/l)		X		Ca		40		P. SEAL "M"		160		160	
HLORIDES (mg/L)		X		NaCl		300		CALCARB "32"		224		224	
SAND CONTENT		%X		FR.		0.3		CALCARB "SC"		336		336	
OLIDS CONTENT		%X		FR.		4.3		CALCAARB "C"		224		224	
ILWATER CONT		%		FR.				DETERGENT		20		20	
mBT		(Kg/m3)		X OIL RET		50		PREVIOUS COST		\$84,353.11		600 RPM	
ELECTRICAL STABILITY								DAILY COST		\$13,480.80		300 RPM	
IL WATER-RATIO								CUM. COST		\$97,833.91		200 RPM	
C.D. kg/m^3						1074.35		ENGINEERING CHARGES		\$8,640.00		100 RPM	
"n"						0.27		ISCTD COST / CUM TOTAL		\$48,916.96		\$57,556.96	
"L"						1.07		TRUCKING				3 RPM	
OMMENTS		Above inventory is Not Valid, See Attached Material Sheet For Inventory											
WEIGHT 1080 KG/M3 OR LESS WITH SOLIDS CONTROL, AND RUN WATER TO MAINTAIN VOLUME													
MAINTAIN VIS FROM 60-90 SL OR AS HOLE DICTATES													
USE PREMIX GEL 10M3 AND 8 SKS VISPLEX OVER 1 CIRCULATION													
+ AT 11-11.5 WITH CAUSTIC THRU BARREL													
S SOON AS POSSIBLE MIX GEL IN PREMIX FOR +120 VIS AND ROLL OVER IF POSSIBLE													
STOCK POINT		GRANDE PRAIRIE		DOWELL ENGINEER		KOVACS/TURGEON		On Location					
PHONE		532 - 5078		Camp		Room # 5# 31							
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.													

INVENTORY

TREATMENT # 2911-0721

WELL NAME RANGER FORT LIARD

LOCATION P-66 LAT60.40' LONG123. 30'

DATE 27-Jan-97

OPERATOR RANGER OIL LTD.

CONTRACTOR

CACTUS # 26E

REPORT No 11

REPORT FOR Mr. ART SCHRITT

REPORT FOR Mr. TERRY GORGICHUCK

SPUD DATE 12-Jan-97

[illegible]**TOTALS**

\$13,480.80

\$97,833.91

DAILY MUD REPORT

WELL NAME		RANGER FORT LIARD		LOCATION		P-66 LAT60.40' LONG123.30'		DATE		28-Jan-97		TREATMENT #		2911-0721									
OPERATOR		RANGER OIL LTD.		CONTRACTOR		CACTUS # 28E		REPORT No		12													
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr.		TERRY GORGICHUCK		SPUD DATE		12-Jan-97													
ASSEMBLY				CASING				MUD VOL. (M3)				PUMP OUTPUT				ANNULAR VEL. m/min							
BIT SIZE (mm)		444.5		LENGTH (m)				SIZE (mm)		LENGTH(m)		TANKS		160		PUMP #1		165X254		OPPOSITE DP		28	
BIT NUMBER		RR4A						508.0		263		HOLE		78		M3/STK		0.0163		OPPOSITE DC		31	
DRILL PIPE #1(mm)		127.0		193								TOTAL		238		PUMP #2		165X254		CIRC. TIME		61	
DRILLPIPE #2(mm)		178.0		84		LINER		TOP/BOT.				STAND BY		25		M3/STK		0.0163		BOTTOMS UP		16	
COLLAR #1(mm)		279.0		53												S.P.M.		220		PUMP PRESS.		13900	
COLLAR #2(mm)		228.0		106												M3/MIN		3.5827					
HOLE DATA				DESANDER DESILTER				DRILLING FLUID SPECIFICATIONS															
MUD TYPE - VISPLEX				FLOWLINE WT.				1075				1075 kg/m3				MUD WT.				1060-1200 Kg/m3			
HOLE COND.-GOOD				UNDERFLOW WT.				1730				1705 kg/m3				VISCOSITY				70 to 90 s/L			
DEVIATION-344m2degN64E				OVERFLOW WT.				1055				1055 kg/m3				FILTRATE				N/C cm3/30 min.			
CURRENT OP.-DRILLING				UNDERFLOW RT.				2				2 m3/min				pH				10.5-11.0			
EQUIPMENT:				XX DEGASSER				DESILTER				DESANDER				XXX CENTRIFUGE							
				XX DOUBLE DECK OR HIGH SPEED SHAKER				SCREEN SIZE															
MUD PROPERTIES				INVENTORY																			
TIME SAMPLE TAKEN		5:30		MATERIALS		MATERIALS		RECEIVED		MATERIALS		MATERIALS		MATERIAL		DAILY		CUMULATIVE					
SAMPLE FROM		FLOWLINE				RECEIVED		LAST		USED LAST		USED TO		REMAINING		COST		COST					
PRESENT DEPTH		436				TO DATE		24 HOURS		24 HOURS		DATE		ON LOCATION									
FLOWLINE TEMPERATURE (C)		44.0		CAUSTIC		180						4		176				\$232.00					
DENSITY		1070		X-CIDE 207		48								48									
FUNNEL VISCOSITY (s/L)		66		NAT BENTON		2320						120		2200				\$1,909.20					
600 READING		61		LIGNITE		56						6		50				\$120.00					
300 READING		37		LIME		54								54									
APPARENT VISCOSITY (mPa.s)		30.5		SODA ASH		40								40									
PLASTIC VISCOSITY (mPa.s)		24		BICARB		25						12		13				\$948.00					
YIELD POINT (Pa)		6.5		MICA COARSE		207								207									
GELS 0/10 min. (Pa)		429		IDF-FLR		7								7									
pH		STRIP		METER		X		11.5		VISPLEX II		530		42		488		\$15,414.00					
FILTRATE (cm3)		API		X		HTHP		6.5		ID FREE 208L		4				4							
FILTER CAKE (mm)				3		CELLOPHANE		300						300									
PF				1.8		MICA MEDIUM		110						110									
MF				2.4		FLOPLEX		50						50									
PM						P. SEAL "C"		260						260									
TOTAL HARDNESS (mg/l)		X		Ca		40		P. SEAL "M"		160				160									
CHLORIDES (mg/L)		X		NaCl		440		CALCARB "32"		224				224									
SAND CONTENT		% X		FR.		0.3		CALCARB "SC"		336				336									
SOLIDS CONTENT		% X		FR.		4.3		CALCAARB "D"		224				224									
OIL/WATER CONT		% X		FR.				DETERGENT		20				20									
WBT (Kg/m3)		X		OIL RET		50		PREVIOUS COST		\$97,833.91						600 RPM		61					
ELECTRICAL STABILITY								DAILY COST		\$44,911.19						300 RPM		37					
OIL WATER RATIO								CUM. COST		\$142,745.10						200 RPM		28					
E.C.D. kg/m^3				1073.45				ENGINEERING CHARGES		\$9,120.00						100 RPM		17					
"n"				0.49				DISCT'D COST / CUM TOTAL		\$71,372.55		\$80,492.55				6 RPM		3					
"k"				0.43				TRUCKING								3 RPM		3					

COMMENTS

Above Inventory Is Not Valid, See Attached Material Sheet For Inventory

1. WEIGHT AT 1080 OR LESS WITH SOLIDS CONTROL AND RUN WATER TO MAINTAIN VOLUME
2. MAINTAIN VIS FROM 60 TO 90 SL
USE PREMIXED GEL. 10 M3 PREMIX AND 8 SX VISPLEX OVER 1 HOUR
3. PH AT 11 TO 11.5 WITH CAUSTIC THRU THE BARREL
MIX 2 SX AT A TIME AS IT IS A LARGE BARREL
4. KEEP PREMIX READY TO GO WITH 150 SL VIS OR HIGHER

STOCK POINT

GRANDE PRAIRIE

DOWELL ENGINEER

ROSS AND WAYNE

On Location

PHONE

532 - 5078

Camp Room # 5

THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.

\$44,911.19 \$142,745.10

DAILY MUD REPORT

WELL NAME		RANGER FORT LIARD		LOCATION P-66 LAT60.40' LONG123.30'		DATE		29-Jan-97		TREATMENT #		2911-0721					
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS # 26E		REPORT No		13									
REPORT FOR Mr.		JOHN FAULKNER		REPORT FOR Mr.		TERRY GORGICHUCK		SPUD DATE		12-Jan-97							
ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min									
BIT SIZE (mm)	444.5	LENGTH (m)	SIZE (mm)	LENGTH (m)	TANKS	138	PUMP #1	165X254	OPPOSITE DP	27							
BIT NUMBER	RR4A		508.0	263	HOLE	89	M3/STK	0.0163	OPPOSITE DC	30							
DRILL PIPE #1 (mm)	127.0	223			TOTAL	227	PUMP #2	165X254	CIRC. TIME	59							
DRILLPIPE #2 (mm)	178.0	84	LINER	TOP/BOT.	STAND BY	20	M3/STK	0.0163	BOTTOMS UP	19							
COLLAR #1 (mm)	279.0	53					S.P.M.	214	PUMP PRESS.	14000							
COLLAR #2 (mm)	228.0	106					M3/MIN	3.4850									
HOLE DATA		DESANDER DESILTER		DRILLING FLUID SPECIFICATIONS													
MUD TYPE - VISPLEX		FLOWLINE WT.		1100		1100 kg/m3		MUD WT.		1060-1200 Kg/m3							
HOLE COND.-GOOD		UNDERFLOW WT.		1785		1760 kg/m3		VISCOSITY		70 to 90 s/L							
DEVIATION-466m 4.5deg@N74.5E		OVERFLOW WT.		1075		1080 kg/m3		FILTRATE		N/C cm3/30 min.							
CURRENT OP.-CIRCULATE		UNDERFLOW RT.		2		3 m3/min		pH		11.0 TO 11.5							
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE									
		XX DOUBLE DECK OR HIGH SPEED SHAKER		SCREEN SIZE													
MUD PROPERTIES		INVENTORY															
TIME SAMPLE TAKEN		5:30		MATERIALS		MATERIALS		RECEIVED		MATERIALS		MATERIALS		DAILY		CUMULATIVE	
SAMPLE FROM		FLOWLINE				RECEIVED		LAST		USED LAST		USED TO		REMAINING		COST	
PRESENT DEPTH		466				TO DATE		24 HOURS		24 HOURS		DATE		ON LOCATION			
FLOWLINE TEMPERATURE (C)		54.0		CAUSTIC		180						4		176		\$232.00	
DENSITY		1100		X-CIDE 207		48								48			
FUNNEL VISCOSITY (s/L)		65		NAT BENTON		2320						120		2200		\$1,909.20	
500 READING		68		LIGNITE		58						6		50		\$120.00	
300 READING		42		LIME		54								54			
APPARENT VISCOSITY (mPa.s)		34		SODA ASH		40								40			
PLASTIC VISCOSITY (mPa.s)		26		BICARB		25						12		13		\$948.00	
YIELD POINT (Pa)		8		MICA COARSE		207								207			
GELS Q/10 min. (Pa)		2/22		IDF-FLR		7								7			
pH		STRIP		METER		X		11.5		VISPLEX II		530		42		488	
FILTRATE (cm3)		API		X		HTHP		8		ID FREE 208L		4				4	
FILTER CAKE (mm)								3		CELLOPHANE		300				300	
PF								3.5		MICA MEDIUM		110				110	
MF								5.3		FLOPLEX		50				50	
PM										P. SEAL "C"		260				260	
TOTAL HARDNESS (mg/l)		X		Ca		40				P. SEAL "M"		160				160	
CHLORIDES (mg/L)		X		NaCl		460				CALCARB "32"		224				224	
SAND CONTENT		% X		FR.		0.3				CALCARB "SC"		336				336	
SOLIDS CONTENT		% X		FR.		6.1				CALCAARB "D"		224				224	
OIL/WATER CONT		% X		FR.						DETERGENT		20				20	
MBT (Kg/m3)		X		OIL RET		55				PREVIOUS COST		\$142,745.10				600 RPM	
ELECTRICAL STABILITY										DAILY COST		\$23,575.61				300 RPM	
OIL WATER RATIO										CUM. COST		\$166,320.71				200 RPM	
C.D. kg/m3						1103.04				ENGINEERING CHARGES		\$9,600.00				100 RPM	
"n"						0.53				DISCTD COST / CUM TOTAL		\$83,160.36		\$92,760.36		6 RPM	
"k"						0.35				TRUCKING						3 RPM	
COMMENTS		Above Inventory is Not Valid, See Attached Material Sheet For Inventory															
1. WEIGHT AT 1080 OR LESS WITH SOLIDS CONTROL AND RUN WATER TO MAINTAIN VOLUME 2. MAINTAIN VIS FROM 60 TO 90 SL USE PREMIXED GEL. 10 M3 PREMIX AND 8 SX VISPLEX OVER 1 HOUR 3. PH AT 11 TO 11.5 WITH CAUSTIC THRU THE BARREL ADD 1 SX EVERY 2 HOURS 4. KEEP PREMIX READY TO GO WITH 150 SL VIS OR HIGHER																	
STOCK POINT		GRANDE PRAIRIE		DOWELL ENGINEER		ROSS AND WAYNE		On Location									
PHONE		532 - 5078		Camp		Room # 5											
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.																	

TREATMENT # 2911-0721

DATE 29-Jan-97

REPORT No 13

SPUD DATE 12-Jan-07

TOTALS	\$23,575.61	\$166,320.71
--------	-------------	--------------

DAILY MUD REPORT

WELL NAME		RANGER FORT LIARD		LOCATION P-66 LAT60.40' LONG123.30'		DATE		30-Jan-97		TREATMENT #		2811-0721					
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS # 26E		REPORT No		14									
REPORT FOR Mr.		JOHN FAULKNER		REPORT FOR Mr. TERRY GORGICHUCK		SPUD DATE		12-Jan-97									
ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min									
BIT SIZE (mm)	444.5	LENGTH (m)		SIZE (mm)	508.0	LENGTH(m)	263	HOLE	93	PUMP #1	152X254	OPPOSITE DP	25				
BIT NUMBER	1B							TOTAL	219	PUMP #2	152X254	OPPOSITE DC	29				
DRILL PIPE #1(mm)	127.0	223						STAND BY	25	M3/STK	0.0138	CIRC. TIME	60				
DRILLPIPE #2(mm)	178.0	84	LINER	TOP/BOT.						M3/STK	0.0138	BOTTOMS UP	21				
COLLAR #1(mm)	279.0	53								S.P.M.	240	PUMP PRESS.					
COLLAR #2(mm)	228.0	106								M3/MIN	3.3168						
HOLE DATA		DESANDER DESILTER		DRILLING FLUID SPECIFICATIONS													
MUD TYPE - VISPLEX		FLOWLINE WT.		1095		1100 kg/m3		MUD WT.		1060-1200 Kg/m3							
HOLE COND. -GOOD		UNDERFLOW WT.		1785		1775 kg/m3		VISCOSITY		60-90 s/L							
DEVIATION-4 1/4 deg at 449 m		OVERFLOW WT.		1760		1080 kg/m3		FILTRATE		N/C cm3/30 min.							
CURRENT OP.-W.O.O.		UNDERFLOW RT.		0.002		0.003 m3/min		pH		11-11.5							
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE									
		XX DOUBLE DECK OR HIGH SPEED SHAKER		SCREEN SIZE													
MUD PROPERTIES		INVENTORY															
TIME SAMPLE TAKEN		5:30		MATERIALS		MATERIALS		RECEIVED		MATERIALS		MATERIALS		DAILY		CUMULATIVE	
SAMPLE FROM		TANKS				RECEIVED		LAST		USED LAST		USED TO		REMAINING		COST	
PRESENT DEPTH		466				TO DATE		24 HOURS		24 HOURS		DATE		ON LOCATION			
FLOWLINE TEMPERATURE (C)		NA		CAUSTIC		180						4		176		\$232.00	
DENSITY		1095		X-CIDE 207		48								48			
FUNNEL VISCOSITY (s/L)		60		NAT BENTON		2320						120		2200		\$1,909.20	
600 READING		60		LIGNITE		56						6		50		\$120.00	
300 READING		37		LIME		54								54			
APPARENT VISCOSITY (mPa.s)		30		SODA ASH		40								40			
PLASTIC VISCOSITY (mPa.s)		23		BICARB		25						12		13		\$948.00	
YIELD POINT (Pa)		7		MICA COARS		207								207			
GELS Q/10 min. (Pa)		2119		IDF-FLR		7								7			
pH		STRIF		METER		X		11		VISPLEX II		530				488	
FILTRATE (cm3)		AP		X		HTHP		9.4		ID FREE 208L		4				4	
FILTER CAKE (mm)		3		CELLOPHANE		300								300			
PF		2.7		MICA MEDIUM		110								110			
MF		4.5		FLOPLEX		50								50			
PM				P. SEAL "C"		260								260			
TOTAL HARDNESS (mg/l)		X		Ca		40		P. SEAL "M"		160				160			
CHLORIDES (mg/L)		X		NaCl		470		CALCARB "32"		224				224			
SAND CONTENT		%X		FR.		0.3		CALCARB "SC"		336				336			
SOLIDS CONTENT		%X		FR.		5.8		CALCAARB "C"		224				224			
OIL/WATER CONT		%X		FR.				DETERGENT		20				20			
MBT. (Kg/m3)		X		OIL RET		52		PREVIOUS COST		\$168,320.71				600 RPM		60	
ELECTRICAL STABILITY								DAILY COST		\$16,689.00				300 RPM		37	
OIL WATER RATIO								CUM. COST		\$183,009.71				200 RPM		28	
E.C.D. kg/m3				1097.96				ENGINEERING CHARGES		\$10,080.00				100 RPM		16	
"n"				0.50				ISCTD COST / CUM TOTAL		\$91,504.86		\$101,584.86		6 RPM		3	
"k"				0.39				TRUCKING						3 RPM		3	
COMMENTS														Above Inventory is Not Valid, See Attached Material Sheet For Inventory			
WEIGHT 1080 KG/M3 OR LESS WITH SOLIDS CONTROL, AND RUN WATER TO MAINTAIN VOLUME MAINTAIN VIS FROM 60-90 SL OR AS HOLE DICTATES USE PREMIX GEL 10M3 AND 8 SKS VISPLEX OVER 1 CIRCULATION PH AT 11-11.5 WITH CAUSTIC THRU BARREL, WITH 1 SACK EVERY 2 HOURS KEEP PREMIX READY TO GO AT 150 SL OR HIGHER																	
STOCK POINT		GRANDE PRAIRIE		DOWELL ENGINEER		KOVACS/TURGEON		On Location									
PHONE		532 - 5078		Camp		Room # 518 31											
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.																	

INVENTORY

TREATMENT # 2911-0721

WELL NAME RANGER FORT LIARD

LOCATION P-66 LAT 60.40' LONG 123.30'

DATE 30-Jan-97

OPERATOR RANGER OIL LTD.

CONTRACTOR **CACTUS # 28E**

REPORT No 14

REPORT FOR Mr. JOHN FAULKNER

REPORT FOR Mr. TERRY GORGICHUCK

SPUD DATE 12-Jan-97

[illegible]

TOTALS

\$16,689.00

\$183,009.71

540-1557

K.R.V. BARTLETT

Schlumberger

Dowell

DAILY MUD REPORT

WELL NAME		RANGER FORT LIARD		LOCATION P-68 LAT 60.40' LONG 123.30'		DATE		31-Jan-97		TREATMENT #		2911-0721					
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS # 26E		REPORT No		15									
REPORT FOR Mr.		JOHN FAULKNER		REPORT FOR Mr. TERRY GORGICHUCK		SPUD DATE		12-Jan-97									
ASSEMBLY		CASING		MUD VOL. (MG)		PUMP OUTPUT		ANNULAR VEL. m/min									
BIT SIZE (mm)	444.5	LENGTH (m)		SIZE (mm)	508.0	LENGTH (m)	263	TANKS	131	PUMP #1	152X254	OPPOSITE DP	22				
BIT NUMBER	2B RR					HOLE	88	M3/STK	0.0138			OPPOSITE DC	27				
DRILL PIPE #1 (mm)	127.0	267				TOTAL	219	PUMP #2	152X254			CIRC. TIME	63				
DRILLPIPE #2 (mm)	127.0	54	LINER	TOP/BOT.	STAND BY			M3/STK	0.0138			BOTTOMS UP	20				
COLLAR #1 (mm)	178.0	84						S.P.M.	226			PUMP PRESS.	15400				
COLLAR #2 (mm)	228.0	87						M3/MIN	3.1233								
HOLE DATA		DESANDER DESILTER		DRILLING FLUID SPECIFICATIONS													
MUD TYPE - VISPLEX		FLOWLINE WT.		1095		1095 kg/m3		MUD WT.		1060-1200 Kg/m3							
HOLE COND. - GOOD		UNDERFLOW WT.		1760		1775 kg/m3		VISCOSITY		70 to 90 s/L							
DEVIATION - 470m 4.3DEG 74.2AZ		OVERFLOW WT.		1075		1080 kg/m3		FILTRATE		N/C cm3/30 min.							
CURRENT OP. - DRILLING		UNDERFLOW RT.		4		3 m3/min		pH		11.0 TO 11.5							
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE									
		XX DOUBLE DECK OR HIGH SPEED SHAKER		SCREEN SIZE													
MUD PROPERTIES		INVENTORY															
TIME SAMPLE TAKEN		5:00		MATERIALS		MATERIALS		RECEIVED		MATERIALS		MATERIALS		DAILY		CUMULATIVE	
SAMPLE FROM		FLOWLINE		RECEIVED		LAST		24 HOURS		USED LAST		USED TO		REMAINING		COST	
PRESENT DEPTH		492		TO DATE		24 HOURS		24 HOURS		DATE		ON LOCATION					
FLOWLINE TEMPERATURE (C)		48.9		CAUSTIC		180				4		176				\$232.00	
DENSITY		1095		X-CIDE 207		96						96					
FUNNEL VISCOSITY (s/L)		64		NAT BENTON		2320				120		2200				\$1,909.20	
600 READING		68		LIGNITE		56				6		50				\$120.00	
300 READING		42		LIME		648						648					
APPARENT VISCOSITY (mPa.s)		34		SODA ASH		40						40					
PLASTIC VISCOSITY (mPa.s)		26		BICARB		25				12		13				\$948.00	
YIELD POINT (Pa)		8		MICA COARS		207						207					
GELS 0/10 min. (Pa)		117 15358 42		IDF-FLR		7						7					
pH		STRIP		METER		X		11.7		VISPLEX II		770		42		728	
FILTRATE (cm3)		AP		X		HTHP		8		ID FREE 208L		4				4	
FILTER CAKE (mm)		2		CELLOPHANE		300						300					
PF		4.5		MICA MEDIUM		110						110					
MF		6.2		FLOPLEX		100						100					
PM				P. SEAL "C"		260						260					
TOTAL HARDNESS (mg/l)		X		Ca		40		P. SEAL "M"		160		160					
CHLORIDES (mg/L)		X		NaCl		1000		CALCARB "32"		224		224					
SAND CONTENT		% X		FR.		0.3		CALCARB "SC"		336		336					
SOLIDS CONTENT		% X		FR.		5.8		CALCAARB "C"		224		224					
OIL/WATER CONT.		% X		FR.				DETERGENT		52		52					
MBT (Kg/m3)		X		OIL RET		58		PREVIOUS COST		\$183,009.71				600 RPM		68	
ELECTRICAL STABILITY								DAILY COST		\$20,678.00				300 RPM		42	
OIL WATER RATIO								CUM. COST		\$203,687.71		GELS		200 RPM		30	
E.C.D. kg/m3						1096.70		ENGINEERING CHARGES		\$10,560.00		10 s		2		100 RPM	
"n"						0.65		ISCTD COST / CUM TOTAL		\$101,843.86		\$112,403.86		10 m		17	
"k"						0.19		TRUCKING				20 m		42		3 RPM	
COMMENTS		Above Inventory Is Not Valid, See Attached Material Sheet For Inventory															

1. WEIGHT AT 1080 OR LESS WITH SOLIDS CONTROL AND RUN WATER TO MAINTAIN VOLUME
2. MAINTAIN VIS FROM 60 TO 90 SL
W/ ADDITIONS OF 8 SX OF FLOPLEX AND 4 SX OF VISPLEX
3. PH AT 11 TO 11.5 WITH CAUSTIC THRU THE BARREL
4. KEEP PREMIX READY TO GO WITH 150 SL VIS OR HIGHER

STOCK POINT

GRANDE PRAIRIE

DOWELL ENGINEER

Dan Majocha

On Location

PHONE

532 - 5078

Camp

Room # 5

THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.

INVENTORY

TREATMENT # 2911-0721

WELL NAME RANGER FORT LIARD

LOCATION P-66 LAT60.40' LONG123.30'

DATE 31-Jan-87

OPERATOR RANGER OIL LTD.

CONTRACTOR

CACTUS # 26E

REPORT No 15

REPORT FOR Mr. JOHN FAULKNER

REPORT FOR Mr. TERRY GORGICHUCK

SPUD DATE 12-Jan-87

PRODUCTS	MATERIALS RECEIVED TO DATE	MATERIALS USED LAST 24 HOURS	MATERIALS USED TO DATE	MATERIAL REMAINING ON LOCATION	DAILY COST	CUMULATIVE COST
CAUSTIC 10	180	1	91	89	\$58.00	\$5,278.00
X-CIDE 207 10	96			96		
NAT BENTONITE 103	2320		1931	389		\$30,722.21
LIGNITE 1	56		18	38		\$360.00
LIME 1	648			648		
SODA ASH 103	40		4	36		\$144.00
BICARB 10	25		16	9		\$1,264.00
MICA COARSE 1034	207		30	177		\$1,110.00
IDF-FLR 1	7			7		
VISPLEX II 10	770	52	415	355	\$19,084.00	\$152,305.00
ID FREE 208L 10	4			4		
CELLOPHANE 103	300		34	266		\$1,428.00
MICA MEDIUM 1042	110			110		
FLOPLEX 10	100	8	20	80	\$1,536.00	\$3,840.00
P. SEAL "C" 104	260		50	210		\$1,900.00
P. SEAL "M" 104	160		15	145		\$570.00
CALCARB "325" 1045	224		10	214		\$100.00
CALCARB "SC" 1045	336		23	313		\$230.00
CALCAARB "O" 1045	224			224		
DETERGENT 10	52			52		
BARITE 10	4880			4880		
CALC CHLORIDE	20			20		
MAGNA FIBER	32		8	24		\$1,024.00
MICA FINE	239			239		
SAWDUST	1400		525	875		\$3,412.50
CALC CARB "FG"	168			168		
TRUDRILL	160			160		
NATURAL GEL	200			200		
TRUVIS	360			360		
HYMUL	32			32		
XCD	160			160		
INTERDRILL S	600			600		
EMUL	20			20		
INTER FL	20			20		
OW	32			32		
ZINC CARB	80			80		

TOTALS

\$20,678.00

\$203,687.71

DAILY MUD REPORT

WELL NAME		RANGER FORT LIARD		LOCATION P-66 LAT60.40' LONG123.30'		DATE		1-Feb-97		TREATMENT #		2911-0721					
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS # 29E		REPORT No		16									
REPORT FOR Mr.		JOHN FAULKNER		REPORT FOR Mr. TERRY GORGICHUCK		SPUD DATE		12-Jan-97									
ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min									
BIT SIZE (mm)	444.5	LENGTH (m)		SIZE (mm)	LENGTH(m)	TANKS	134	PUMP #1	152X254	OPPOSITE DP	21						
BIT NUMBER	2B RR			508.0	263	HOLE	103	M3/STK	0.0138	OPPOSITE DC	27						
DRILL PIPE #1(mm)	127.0	356				TOTAL	237	PUMP #2	152X254	CIRC. TIME	70						
DRILLPIPE #2(mm)	127.0	54	LINER	TOP/BOT.	STAND BY			M3/STK	0.0138	BOTTOMS UP	25						
COLLAR #1(mm)	178.0	84						S.P.M.	220	PUMP PRESS.	14700						
COLLAR #2(mm)	228.0	87						M3/MIN	3.0404								
HOLE DATA		DESANDER DESILTER				DRILLING FLUID SPECIFICATIONS											
MUD TYPE - VISPLEX		FLOWLINE WT.		1120		1120 kg/m3		MUD WT.		1060-1200 Kg/m3							
HOLE COND. -GOOD		UNDERFLOW WT.		1895		1890 kg/m3		VISCOSITY		70 to 90 s/L							
DEVIATION-557 m 2.8deg AZ 129.6		OVERFLOW WT.		1100		1100 kg/m3		FILTRATE		N/C cm3/30 min.							
CURRENT OP.-DRILLING		UNDERFLOW RT.		10		5 m3/min		pH		11.0 TO 11.5							
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE									
		XX DOUBLE DECK OR HIGH SPEED SHAKER		SCREEN SIZE													
MUD PROPERTIES				INVENTORY													
TIME SAMPLE TAKEN		5:00		MATERIALS		MATERIALS		RECEIVED		MATERIALS		MATERIALS		DAILY		CUMULATIVE	
SAMPLE FROM		FLOWLINE				RECEIVED		LAST		USED LAST		USED TO		REMAINING		COST	
PRESENT DEPTH		581				TO DATE		24 HOURS		24 HOURS		DATE		ON LOCATION			
FLOWLINE TEMPERATURE (C)		62.2		CAUSTIC		180						4		176		\$232.00	
DENSITY		1120		X-CIDE 207		96								96			
FUNNEL VISCOSITY (s/L)		67		NAT BENTON		2320						120		2200		\$1,909.20	
600 READING		75		LIGNITE		56						6		50		\$120.00	
300 READING		48		LIME		648								648			
APPARENT VISCOSITY (mPa.s)		37.5		SODA ASH		40								40			
PLASTIC VISCOSITY (mPa.s)		27		BICARB		25						12		13		\$948.00	
YIELD POINT (Pa)		10.5		MICA COARS		207								207			
GELS 0/10 min. (Pa)		20119		IDF-FLR		7								7			
pH		STRIF X METER		11		VISPLEX II		770				42		728		\$15,414.00	
FILTRATE (cm3)		API X HTHP		7.5		ID FREE 208L		4						4			
FILTER CAKE (mm)				3		CELLOPHANE		300						300			
PF				3		MICA MEDIUM		110						110			
MF				4.5		FLOPLEX		100						100			
PM						P. SEAL "C"		260						260			
TOTAL HARDNESS (mg/l)		X Ca		20		P. SEAL "M"		160						160			
CHLORIDES (mg/L)		X NaCl		1100		CALCARB "32		224						224			
SAND CONTENT		% X FR.		0.3		CALCARB "SC		336						336			
SOLIDS CONTENT		% X FR.		7.3		CALCAARB "C		224						224			
OIL/WATER CONT		% FR.				DETERGENT		52						52			
MBT (Kg/m3)		X OIL-RET		60		PREVIOUS COST		\$203,687.71						600 RPM		75	
ELECTRICAL STABILITY						DAILY COST		\$6,008.00						300 RPM		48	
OIL WATER RATIO						CUM. COST		\$209,695.71		GELS				200 RPM		36	
E.C.D. kg/m^3				1121.33		ENGINEERING CHARGES		\$10,560.00		10 s		2		100 RPM		21	
"n"				0.70		ISCTD COST / CUM TOTAL		\$104,847.86 \$115,407.86		10 m		30		6 RPM		3	
"k"				0.14		TRUCKING				20 m		55		3 RPM		2	
COMMENTS																	
Above Inventory is Not Valid, See Attached Material Sheet For Inventory																	
1. WEIGHT AS LOW AS POSSIBLE WITH SOLIDS CONTROL AND RUN WATER TO MAINTAIN VOLUME																	
2. MAINTAIN VIS FROM 70 TO 90 SL																	
W/ ADDITIONS OF 8 SX OF FLOPLEX AND 4 SX OF VISPLEX																	
3. PH AT 11 TO 11.5 WITH CAUSTIC THRU THE BARREL																	
4. KEEP PREMIX READY TO GO WITH 150 SL VIS OR HIGHER																	
ON TRIPS RIH BREAK CIRCULATION BELOW SHOE AND EVERY 10 - 15 STANDS																	
STOCK POINT		GRANDE PRAIRIE				DOWELL ENGINEER				Dan Majocha				On Location			
PHONE		532 - 5078								Camp				Room # 5			
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.																	

INVENTORY

TREATMENT # 2911-0721

WELL NAME RANGER FORT LIARD

LOCATION P-66 LAT60.40' LONG123.30'

DATE 1-Feb-97

OPERATOR RANGER OIL LTD.

CONTRACTOR

CACTUS # 26E

REPORT No 16

REPORT FOR Mr. JOHN FAULKNER

REPORT FOR Mr. TERRY GORGICHUCK

SPUD DATE 12-Jan-97

PRODUCTS		MATERIALS RECEIVED TO DATE	MATERIALS USED LAST 24 HOURS	MATERIALS USED TO DATE	MATERIAL REMAINING ON LOCATION	DAILY COST	CUMULATIVE COST
CAUSTIC	10	180		91	89		\$5,278.00
X-CIDE 207	10	96			96		
NAT BENTONITE 103		2320		1931	389		\$30,722.21
LIGNITE	1	56		18	38		\$360.00
LIME	1	648			648		
SODA ASH	103	40		4	36		\$144.00
BICARB	10	25		16	9		\$1,264.00
MICA COARSE 1034		207		30	177		\$1,110.00
IDF-FLR	1	7			7		
VISPLEX II	10	770	8	423	347	\$2,936.00	\$155,241.00
ID FREE 208L	10	4			4		
CELLOPHANE	103	300		34	266		\$1,428.00
MICA MEDIUM 1042		110			110		
FLOPLEX	10	100	16	38	64	\$3,072.00	\$6,912.00
P. SEAL "C"	10	260		50	210		\$1,900.00
P. SEAL "M"	104	160		15	145		\$570.00
CALCARB "325"	1045	224		10	214		\$100.00
CALCARB "SC"	1045	336		23	313		\$230.00
CALCAARB "0"	1045	224			224		
DETERGENT	10	52			52		
BARITE	10	4880			4880		
CALC CHLORIDE		340			340		
MAGNA FIBER		32		8	24		\$1,024.00
MICA FINE		239			239		
SAWDUST		1400		525	875		\$3,412.50
CALC CARB "FG"		168			168		
TRUDRILL		160			160		
NATURAL GEL		200			200		
TRUVIS		360			360		
HYMUL		32			32		
XCD		160			160		
INTERDRILL S		600			600		
EMUL		20			20		
INTER FL		20			20		
OW		32			32		
ZINC CARB		80			80		
BARITE	10	720			720		
HSO 600	10	29			29		
PTS 200	10						

TOTALS \$6,008.00 \$209,695.71

DAILY MUD REPORT

WELL NAME		RANGER FORT LIARD		LOCATION P-66 LAT60.40' LONG123.30'		DATE		2-Feb-97		TREATMENT #		2911-0721					
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS # 26E		REPORT No		17									
REPORT FOR Mr.		JOHN FAULKNER		REPORT FOR Mr. TERRY GORGICHUCK		SPUD DATE		12-Jan-97									
ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. g/min									
BIT SIZE (mm)	444.5	LENGTH (m)		SIZE (mm)	LENGTH(m)	TANKS	108	PUMP #1	152X254	OPPOSITE DP	21						
BIT NUMBER				508.0	263	HOLE	153	M3/STK	0.0138	OPPOSITE DC	27						
DRILL PIPE #1(mm)	127.0	437				TOTAL	261	PUMP #2	152X254	CIRC. TIME	76						
DRILLPIPE #2(mm)	127.0	54		LINER	TOP/BOT.	STAND BY		M3/STK	0.0138	BOTTOMS UP	39						
COLLAR #1(mm)	178.0	84						S.P.M.	220	PUMP PRESS.	14700						
COLLAR #2(mm)	228.0	87						M3/MIN	3.0404								
HOLE DATA		DESANDER DESILTER		DRILLING FLUID SPECIFICATIONS													
MUD TYPE - VISPLEX		FLOWLINE WT.		1120		1120 kg/m3		MUD WT.		1060-1200 Kg/m3							
HOLE COND.-TIGHT		UNDERFLOW WT.		1895		1890 kg/m3		VISCOSITY		70 to 90 s/L							
DEVIATION-557 m 2.8deg AZ 129.6		OVERFLOW WT.		1100		1100 kg/m3		FILTRATE		N/C cm3/30 min.							
CURRENT OP.-TRIP, PUMP OUT		UNDERFLOW RT.		10		5 m3/min		pH		11.0 TO 11.5							
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE									
		XX DOUBLE DECK OR HIGH SPEED SHAKER		SCREEN SIZE													
MUD PROPERTIES		INVENTORY															
TIME SAMPLE TAKEN		6:00		MATERIALS		MATERIALS		RECEIVED		MATERIALS		MATERIALS		DAILY		CUMULATIVE	
SAMPLE FROM		FLOWLINE				RECEIVED		LAST		USED LAST		USED TO		REMAINING		COST	
PRESENT DEPTH		662				TO DATE		24 HOURS		24 HOURS		DATE		ON LOCATION			
FLOWLINE TEMPERATURE (C)		62.2		CAUSTIC		180						4		176		\$232.00	
DENSITY		1120		X-CIDE 207		96								96			
FUNNEL VISCOSITY (s/L)		60		NAT BENTON		2320						120		2200		\$1,909.20	
600 READING		76		LIGNITE		56						6		50		\$120.00	
300 READING		48		LIME		648								648			
APPARENT VISCOSITY (mPa.s)		38		SODA ASH		40								40			
PLASTIC VISCOSITY (mPa.s)		28		BICARB		25						12		13		\$948.00	
YIELD POINT (Pa)		10		MICA COARS		207								207			
GELS 0/10 min. (Pa)		1.5/22		IDF-FLR		7								7			
pH		STRIF X		METER		10		VISPLEX II		770		42		728		\$15,414.00	
FILTRATE (cm3)		AP X		HTHP		7		ID FREE 208L		4				4			
FILTER CAKE (mm)		2		CELLOPHANE		300								300			
PF		1.7		MICA MEDIUM		110								110			
MF		3.6		FLOPLEX		100								100			
PM				P. SEAL "C"		260								260			
TOTAL HARDNESS (mg/l)		Ca		P. SEAL "M"		160								160			
CHLORIDES (mg/L)		X NaCl		CALCARB "32		224								224			
SAND CONTENT		% X FR.		CALCARB "30		336								336			
SOLIDS CONTENT		% X FR.		CALCARB "10		224								224			
OIL/WATER CONT		% FR.		DETERGENT		52								52			
MBT (Kg/m3)		X OIL RET		62		PREVIOUS COST		\$209,695.71						600 RPM		76	
ELECTRICAL STABILITY				DAILY COST		\$8,066.00								300 RPM		48	
OIL WATER RATIO				CUM. COST		\$215,761.71				GELS				200 RPM		36	
E.C.D. kg/m^3		1121.93		ENGINEERING CHARGES		\$11,520.00				10 s		3		100 RPM		23	
"n"		0.58		ISCTD COST / CUM TOTAL		\$107,880.86		\$119,400.86		10 m		22		6 RPM		4	
"k"		0.27		TRUCKING						20 m		65 30		3 RPM		3	
COMMENTS														Above inventory is Not Valid, See Attached Material Sheet For Inventory			
1.WEIGHT AS LOW AS POSSIBLE WITH SOLIDS CONTROL AND RUN WATER @ 20 - 25 L/MIN TO MAINTAIN VOLUME																	
2.MAINTAIN VIS @ 90 SL MINIMUM																	
W/ ADDITIONS OF 8 SX OF FLOPLEX AND 4 SX OF VISPLEX																	
3.PH AT 11 TO 11.5 WITH CAUSTIC THRU THE BARREL																	
4.KEEP PREMIX READY TO GO WITH 150 SL VIS OR HIGHER																	
ON TRIPS RIH BREAK CIRCULATION BELOW SHOE AND EVERY 10 - 15 STANDS																	
STOCK POINT		GRANDE PRAIRIE				DOWELL ENGINEER				Dan Majocha				On Location			
PHONE		532 - 5078								Camp				Room # 5			
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.																	

INVENTORY

TREATMENT # 2911-0721

WELL NAME RANGER FORT LIARD

LOCATION P-66 LAT60.40' LONG123.30'

DATE 2-Feb-87

OPERATOR RANGER OIL LTD.

CONTRACTOR

CACTUS # 26E

REPORT No 17

REPORT FOR Mr. JOHN FAULIGNER

REPORT FOR Mr. TERRY GORGICHUCK

SPUD DATE 12-Jan-87

PRODUCTS		MATERIALS RECEIVED TO DATE	MATERIALS USED LAST 24 HOURS	MATERIALS USED TO DATE	MATERIAL REMAINING ON LOCATION	DAILY COST	CUMULATIVE COST
CAUSTIC	10	180	1	92	88	\$58.00	\$5,336.00
X-CIDE 207	10	96			96		
NAT BENTONITE 103		2320		1931	389		\$30,722.21
LIGNITE	1	56		18	38		\$360.00
LIME		648			648		
SODA ASH	10	40		4	36		\$144.00
BICARB	10	25		16	9		\$1,264.00
MICA COARSE 1034		207		30	177		\$1,110.00
IDF-FLR	1	7			7		
VISPLEX II	10	770	8	431	339	\$2,936.00	\$158,177.00
ID FREE 208L	10	4			4		
CELLOPHANE 103		300		34	266		\$1,428.00
MICA MEDIUM 1042		110			110		
FLOPLEX	10	100	16	52	48	\$3,072.00	\$9,984.00
P. SEAL "C"	104	260		50	210		\$1,900.00
P. SEAL "M"	104	160		15	145		\$570.00
CALCARB "325"	1045	224		10	214		\$100.00
CALCARB "SC" 1045		336		23	313		\$230.00
CALCAARB "0" 1045		224			224		
DETERGENT	104	52			52		
BARITE	10	4880			4880		
CALC CHLORIDE		340			340		
MAGNA FIBER		32		8	24		\$1,024.00
MICA FINE		239			239		
SAWDUST		1400		525	875		\$3,412.50
CALC CARB "FG"		168			168		
TRUDRILL		160			160		
NATURAL GEL		200			200		
TRUVIS		360			360		
HYMUL		32			32		
XCD		160			160		
INTERDRILL S		600			600		
EMUL		20			20		
INTER FL		20			20		
OW		32			32		
ZINC CARB		80			80		
BARITE	10	720			720		
HSO 600	10	29			29		
PTS 200	10	8			8		
FIBER FLUID "F"							
FIBER FLUID "C"							

TOTALS

\$6,066.00

\$215,761.71

DAILY MUD REPORT

540 1557

WELL NAME		RANGER FORT LIARD		LOCATION P-68 LAT60.40' LONG123.30'		DATE		3-Feb-97		TREATMENT #		2911-0721			
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS # 26E		REPORT No		18							
REPORT FOR Mr.		JOHN FAULKNER		REPORT FOR Mr.		TERRY GORGICHUCK		SPUD DATE		12-Jan-97					
ASSEMBLY				CASING		MUD VOL. (MG)		PUMP OUTPUT		ANNULAR VEL. m/min					
BIT SIZE (mm)		444.5		LENGTH (m)		SIZE (mm)		LENGTH (m)		TANKS		100			
BIT NUMBER		28 RR				508.0		263		HOLE		160			
DRILL PIPE #1 (mm)		127.0		472						TOTAL		260			
DRILLPIPE #2 (mm)		127.0		54		LINER		TOP/BOT.		STAND BY		M3/STK			
COLLAR #1 (mm)		178.0		84						S.P.M.		220			
COLLAR #2 (mm)		228.0		87						M3/MIN		3.0404			
HOLE DATA				DESANDER DESILTER				DRILLING FLUID SPECIFICATIONS							
MUD TYPE - VISPLEX				FLOWLINE WT.				1150				1150 kg/m3			
HOLE COND. - GOOD				UNDERFLOW WT.				1895				1890 kg/m3			
DEVIATION-683 m 2.5 AZ 124.3				OVERFLOW WT.				1100				1100 kg/m3			
CURRENT OP. - DRILLING				UNDERFLOW RT.				10				5 m3/min			
EQUIPMENT:				XX DEGASSER				DESILTER				DESANDER			
				XX DOUBLE DECK OR HIGH SPEED SHAKER				SCREEN SIZE				XXX CENTRIFUGE			
MUD PROPERTIES				INVENTORY											
TIME SAMPLE TAKEN				6:00				MATERIALS				MATERIALS			
SAMPLE FROM				FLOWLINE				RECEIVED				RECEIVED			
PRESENT DEPTH				697				TO DATE				24 HOURS			
FLOWLINE TEMPERATURE (C)				62.2				CAUSTIC				180			
DENSITY				1150				X-CIDE 207				96			
FUNNEL VISCOSITY (s/L)				95				NAT BENTON				2320			
600 READING				85				LIGNITE				56			
300 READING				57				LIME				648			
APPARENT VISCOSITY (mPa.s)				42.5				SODA ASH				40			
PLASTIC VISCOSITY (mPa.s)				28				BICARB				25			
YIELD POINT (Pa)				14.5				MICA COARS				207			
GELS 0/10 min. (Pa)				4.5/29				IDF-FLR				7			
pH				STRIP X				METER				10			
FILTRATE (cm3)				AP X				HTHP				6			
FILTER CAKE (mm)												2			
PF												1.8			
MF												3.7			
PM												P. SEAL "C"			
TOTAL HARDNESS (mg/l)												P. SEAL "M"			
CHLORIDES (mg/L)				X				NaCl				1400			
SAND CONTENT				% X				FR.				0.3			
SOLIDS CONTENT				% X				FR.				9.1			
OIL/WATER CONT				% X				FR.				0.78			
MBT (Kg/m3)				X				OIL RET				64			
ELECTRICAL STABILITY												PREVIOUS COST			
												\$215,761.71			
												DAILY COST			
												\$1,884.00			
												CUM. COST			
												\$217,645.71			
												GELS			
												10 s			
												7			
												100 RPM			
												30			
												10 m			
												29			
												6 RPM			
												10			
												20 m			
												32.5			
												3 RPM			
												9			
COMMENTS												Above Inventory is Not Valid, See Attached Material Sheet For Inventory			
1. WEIGHT AS LOW AS POSSIBLE WITH SOLIDS CONTROL AND RUN WATER @ 20 - 25 L/MIN TO MAINTAIN VOLUME															
2. MAINTAIN VIS @ 90 SL MINIMUM															
USE CAUSTIC TO CONTROL VISCOSITY TO A MAXIMUM pH OF 11.5															
W/ ADDITIONS OF 8 SX OF FLOPLEX AND 4 SX OF VISPLEX SEE MUD MAN BEFORE MIXING															
IF VISCOSITY CLIMBS ABOVE 170 SL RUN HEAVY STREAM OF WATER FOR 1 CIRCULATION															
3. PH AT 11 TO 11.5 WITH CAUSTIC THRU THE BARREL															
4. KEEP PREMIX READY TO GO WITH 150 SL VIS OR HIGHER															
ON TRIPS RIH BREAK CIRCULATION BELOW SHOE AND EVERY 10 - 15 STANDS															
STOCK POINT		GRANDE PRAIRIE		DOWELL ENGINEER		Dan Majocha		On Location							
PHONE		532 - 5078				Camp		Room # 5							
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.															

INVENTORY

TREATMENT # 2911-0721

WELL NAME RANGER FORT LIARD

LOCATION P-66 LAT60.40' LONG123.30'

DATE 3-Feb-87

OPERATOR RANGER OIL LTD.

CONTRACTOR

CACTUS # 26E

REPORT No 18

REPORT FOR Mr. JOHN FAULIGNER

REPORT FOR Mr. TERRY GORGICHUCK

SPUD DATE 12-Jan-87

PRODUCTS		MATERIALS RECEIVED TO DATE	MATERIALS USED LAST 24 HOURS	MATERIALS USED TO DATE	MATERIAL REMAINING ON LOCATION	DAILY COST	CUMULATIVE COST
CAUSTIC	10	180	6	98	82	\$348.00	\$5,684.00
X-CIDE 207	10	98			98		
NAT BENTONITE	103	2320		1931	389		\$30,722.21
LIGNITE	1	56		18	38		\$360.00
LIME		648			648		
SODA ASH	103	40		4	36		\$144.00
BICARB	10	25		16	9		\$1,264.00
MICA COARSE	1034	207		30	177		\$1,110.00
IDF-FLR	1	7			7		
VISPLEX II	10	770		431	339		\$158,177.00
ID FREE 208L	10	4			4		
CELLOPHANE	103	300		34	266		\$1,428.00
MICA MEDIUM	1042	110			110		
FLOPLEX	10	100	8	60	40	\$1,536.00	\$11,520.00
P. SEAL "C"	10	260		50	210		\$1,900.00
P. SEAL "M"	104	160		15	145		\$570.00
CALCARB "325"	1045	224		10	214		\$100.00
CALCARB "SC"	1045	336		23	313		\$230.00
CALCAARB "0"	1045	224			224		
DETERGENT	10	52			52		
BARITE	10	4880			4880		
CALC CHLORIDE		340			340		
MAGNA FIBER		32		8	24		\$1,024.00
MICA FINE		239			239		
SAWDUST		1400		525	875		\$3,412.50
CALC CARB "FG"		168			168		
TRUDRILL		160			160		
NATURAL GEL		200			200		
TRUVIS		360			360		
HYMUL		32			32		
XCD		160			160		
INTERDRILL S		600			600		
EMUL		20			20		
INTER FL		20			20		
OW		32			32		
ZINC CARB		80			80		
BARITE	10	720			720		
HSO 600	10	29			29		
PTS 200	10	8			8		
FIBER FLUID "F"							
FIBER FLUID "C"							

TOTALS

\$1,884.00 \$217,645.71

DAILY MUD REPORT

WELL NAME		RANGER FORT LIARD		LOCATION P-68 LAT 60.40' LONG 123.30'		DATE		4-Feb-97		TREATMENT #		2911-0721					
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS # 26E		REPORT No		19									
REPORT FOR Mr.		JOHN FAULKNER		REPORT FOR Mr.		TERRY GORGICHUCK		SPUD DATE		12-Jan-97							
ASSEMBLY				CASING		MUD VOL. (m3)		PUMP OUTPUT		ANNULAR VEL. m/min							
BIT SIZE (mm)	444.5	LENGTH (m)		SIZE (mm)	508.0	LENGTH (m)	263	TANKS	125	PUMP #1	152X254	OPPOSITE DP	21				
BIT NUMBER	2B RR							HOLE	174	M3/STK	0.0138	OPPOSITE DC	27				
DRILL PIPE #1 (mm)	127.0	532						TOTAL	299	PUMP #2	152X254	CIRC. TIME	98				
DRILLPIPE #2 (mm)	127.0	54		LINER	TOP/BOT.	STAND BY				M3/STK	0.0138	BOTTOMS UP	45				
COLLAR #1 (mm)	178.0	84								S.P.M.	220	PUMP PRESS.	15920				
COLLAR #2 (mm)	228.0	87								M3/MIN	3.0404						
HOLE DATA				DESANDER DESILTER				DRILLING FLUID SPECIFICATIONS									
MUD TYPE - VISPLEX		FLOWLINE WT.		1140		1140 kg/m3		MUD WT.		1060-1200 Kg/m3							
HOLE COND. - GOOD		UNDERFLOW WT.		1910		1895 kg/m3		VISCOSITY		70 to 90 s/L							
DEVIATION - 750 m 1.6 AZ 151.3 75.0°		OVERFLOW WT.		1135		1135 kg/m3		FILTRATE		N/C cm3/30 min.							
CURRENT OP. - DRILLING		UNDERFLOW RT.		4		4 m3/min		pH		11.0 TO 11.5							
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE									
		XX DOUBLE DECK OR HIGH SPEED SHAKER		SCREEN SIZE													
MUD PROPERTIES				INVENTORY													
TIME SAMPLE TAKEN		5:00		MATERIALS		MATERIALS		RECEIVED		MATERIALS		MATERIALS		DAILY		CUMULATIVE	
SAMPLE FROM		FLOWLINE		RECEIVED		TO DATE		LAST		USED LAST		USED TO		REMAINING		COST	
PRESENT DEPTH		757						24 HOURS		24 HOURS		DATE		ON LOCATION			
FLOWLINE TEMPERATURE (C)		62.8		CAUSTIC		180						4		176		\$232.00	
DENSITY		1140		X-CIDE 207		96								96			
FUNNEL VISCOSITY (s/L)		125		NAT BENTON		2320						120		2200		\$1,909.20	
600 READING		77		LIGNITE		56						6		50		\$120.00	
300 READING		55		LIME		648								648			
APPARENT VISCOSITY (mPa.s)		38.5		SODA ASH		40								40			
PLASTIC VISCOSITY (mPa.s)		22		BICARB		25						12		13		\$948.00	
YIELD POINT (Pa)		16.5		MICA COARS		207								207			
GELS 0/10 min. (Pa)		10/41		IDF-FLR		7								7			
pH		STRIP X METER		10		VISPLEX II		770				42		728		\$15,414.00	
FILTRATE (cm3)		AP X HTHP		6		ID FREE 208L		4						4			
FILTER CAKE (mm)				2		CELLOPHANE		300						300			
PF				2		MICA MEDIUM		110						110			
MF				4		FLOPLEX		100						100			
PM						P. SEAL "C"		260						260			
TOTAL HARDNESS (mg/l)		Ca				P. SEAL "M"		160						160			
CHLORIDES (mg/L)		X NaCl		1400		CALCARB "32"		224						224			
SAND CONTENT %		X FR.		0.3		CALCARB "50"		336						336			
SOLIDS CONTENT %		X FR.		8.5		CALCARB "C"		224						224			
OIL/WATER CONT %		X FR.				DETERGENT		52						52			
MBT (Kg/m3)		X OIL RET		62		PREVIOUS COST		\$217,645.71						600 RPM		77	
ELECTRICAL STABILITY						DAILY COST		\$3,970.00						300 RPM		55	
OIL WATER RATIO						CUM. COST		\$221,615.71				GELS		200 RPM		45	
E.C.D. kg/m3		1143.81		ENGINEERING CHARGES		\$12,480.00		10 s		16		100 RPM		35			
"n"		0.14		ISCTD COST / CUM TOTAL		\$110,807.86		\$123,287.86		10 m		41		6 RPM		20	
"k"		1.71		TRUCKING						20 m		45		3 RPM		20	
COMMENTS														Above Inventory Is Not Valid, See Attached Material Sheet For Inventory			
1. WEIGHT AS LOW AS POSSIBLE WITH SOLIDS CONTROL AND RUN WATER @ 20 - 25 L/MIN TO MAINTAIN VOLUME																	
2. MAINTAIN VIS @ 90 s/L MINIMUM																	
USE CAUSTIC TO CONTROL VISCOSITY TO A MAXIMUM pH OF 11.5																	
W/ ADDITIONS OF 8 SX OF FLOPLEX AND 4 SX OF VISPLEX SEE MUD MAN BEFORE MIXING																	
3. PH AT 11 TO 11.5 WITH CAUSTIC THRU THE BARREL																	
4. PREMIX GEL @ 30 KG / M3																	
ON TRIPS RIH BREAK CIRCULATION BELOW SHOE AND EVERY 10 - 15 STANDS																	
STOCK POINT		GRANDE PRAIRIE				DOWELL ENGINEER		Dan Majocha		On Location							
PHONE		532 - 5078						Camp		Room # 5							
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.																	

Schlumberger

Dowell

INVENTORY

TREATMENT # 2911-0721

WELL NAME RANGER FORT LIARD

LOCATION P-66 LAT60.40' LONG123.30'

DATE 4-Feb-87

OPERATOR RANGER OIL LTD.

CONTRACTOR

CACTUS # 26E

REPORT No 19

REPORT FOR Mr. JOHN FAULKNER

REPORT FOR Mr. TERRY GORGICHUCK

SPUD DATE 12-Jan-87

PRODUCTS		MATERIALS RECEIVED TO DATE	MATERIALS USED LAST 24 HOURS	MATERIALS USED TO DATE	MATERIAL REMAINING ON LOCATION	DAILY COST	CUMULATIVE COST
CAUSTIC	10	180	4	102	78	\$232.00	\$5,916.00
X-CIDE 207	10	96			96		
NAT BENTONITE	103	2320		1931	389		\$30,722.21
LIGNITE	1	56		18	38		\$360.00
LIME	1	648			648		
SODA ASH	103	40		4	36		\$144.00
BICARB	10	25		16	9		\$1,264.00
MICA COARSE	1034	207		30	177		\$1,110.00
IDF-FLR	1	7			7		
VISPLEX II	14	770	6	437	333	\$2,202.00	\$160,379.00
ID FREE 208L	10	4			4		
CELLOPHANE	103	300		34	266		\$1,428.00
MICA MEDIUM	1042	110			110		
FLOPLEX	10	100	8	68	32	\$1,536.00	\$13,056.00
P. SEAL "C"	104	260		50	210		\$1,900.00
P. SEAL "M"	104	160		15	145		\$570.00
CALCARB "325"	1045	224		10	214		\$100.00
CALCARB "SC"	1045	336		23	313		\$230.00
CALCAARB "O"	1045	224			224		
DETERGENT	104	52			52		
BARITE	10	4880			4880		
CALC CHLORIDE		340			340		
MAGNA FIBER		32		8	24		\$1,024.00
MICA FINE		239			239		
SAWDUST		1400		525	875		\$3,412.50
CALC CARB "FG"		168			168		
TRUDRILL		160			160		
NATURAL GEL		200			200		
TRUVIS		360			360		
HYMUL		32			32		
XCD		160			160		
INTERDRILL S		600			600		
EMUL		20			20		
INTER FL		20			20		
OW		32			32		
ZINC CARB		80			80		
BARITE	10	720			720		
HSO 600	10	29			29		
PTS 200	10	8			8		
FIBER FLUID "F"							
FIBER FLUID "C"							

TOTALS

\$3,970.00

\$221,615.71

DAILY MUD REPORT

WELL NAME		RANGER FORT LIARD		LOCATION P-66 LAT 60.40' LONG 123. 30'		DATE		5-Feb-97		TREATMENT #		2911-0721	
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS # 26E		REPORT No		20					
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr. DENNIS BROWN		SPUD DATE		12-Jan-97					
ASSEMBLY		CASING		MUD VOL (M3)		PUMP OUTPUT		ANNULAR VEL. m/min					
BIT SIZE (mm)	444.5	LENGTH (m)		SIZE (mm)	508.0	LENGTH (m)	263	TANKS	128	PUMP #1	152X254	OPPOSITE DP	21
BIT NUMBER	2B RR							HOLE	189	M3/STK	0.0138	OPPOSITE DC	27
DRILL PIPE #1 (mm)	127.0	602						TOTAL	317	PUMP #2	152X254	CIRC. TIME	104
DRILL PIPE #2 (mm)	127.0	54	LINER	TOP/BOT.	STAND BY					M3/STK	0.0138	BOTTOMS UP	50
COLLAR #1 (mm)	178.0	84								S.P.M.	220	PUMP PRESS.	15920
COLLAR #2 (mm)	228.0	87								M3/MIN	3.0404		
HOLE DATA		DESANDER DESILTER		DRILLING FLUID SPECIFICATIONS									
MUD TYPE - VISPLEX		FLOWLINE WT.		1145		1145 kg/m3		MUD WT.		1060-1200 Kg/m3			
HOLE COND. - GOOD		UNDERFLOW WT.		1930		1930 kg/m3		VISCOSITY		70 to 90 s/L			
DEVIATION - 808 m 1.3 az 135.4		OVERFLOW WT.		1140		1140 kg/m3		FILTRATE		N/C cm3/30 min.			
CURRENT OP. - TRIPPING		UNDERFLOW RT.		4		4 m3/min		pH		11.0 TO 11.5			
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE					
		XX DOUBLE DECK OR HIGH SPEED SHAKER		SCREEN SIZE		175 x 3 #1, 110 x 3 #2							
MUD PROPERTIES		INVENTORY											
TIME SAMPLE TAKEN	6:00	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE				
SAMPLE FROM	OVER FLOW		RECEIVED	LAST	USED LAST	USED TO	REMAINING	COST	COST				
PRESENT DEPTH	827		TO DATE	24 HOURS	24 HOURS	DATE	ON LOCATION						
FLOWLINE TEMPERATURE (C)	62.8	CAUSTIC	180			4	176		\$232.00				
DENSITY	1145	X-CIDE 207	96				96						
FUNNEL VISCOSITY (s/L)	125	NAT BENTON	2320			120	2200		\$1,909.20				
600 READING	54	LIGNITE	56			6	50		\$120.00				
300 READING	39	LIME	648				648						
APPARENT VISCOSITY (mPa.s)	27	SODA ASH	40				40						
PLASTIC VISCOSITY (mPa.s)	15	BICARB	25			12	13		\$948.00				
YIELD POINT (Pa)	12	MICA COARS	207				207						
GELS 0/10 min. (Pa)	7.5/35	IDF-FLR	7				7						
pH	STRIP X METER	10	VISPLEX II	770		42	728		\$15,414.00				
FILTRATE (cm3)	AP X HTHP	6	ID FREE 208L	4			4						
FILTER CAKE (mm)		2	CELLOPHANE	300			300						
PF		1.9	MICA MEDIUM	110			110						
MF		3.8	FLOPLEX	100			100						
PM			P. SEAL "C"	260			260						
TOTAL HARDNESS (mg/l)	Ca		P. SEAL "M"	160			160						
CHLORIDES (mg/L)	X NaCl	1500	CALCARB "32"	224			224						
SAND CONTENT	% X FR.	0.3	CALCARB "SC"	336			336						
SOLIDS CONTENT	% X FR.	8.8	CALCAARB "C"	224			224						
OIL/WATER CONT	% FR.		DETERGENT	52			52						
MBT (Kg/m3)	X OIL RET	62	PREVIOUS COST	\$221,615.71				600 RPM	54				
ELECTRICAL STABILITY			DAILY COST	\$7,958.00				300 RPM	39				
OIL WATER RATIO			CUM. COST	\$229,573.71		GELS		200 RPM	34				
E.C.D. kg/m ³	1148.16	ENGINEERING CHARGES	\$12,960.00		10 s	10		100 RPM	25				
"n"	0.13	ISCTD COST / CUM TOTAL	\$114,786.86	\$127,746.86	10 m	35		6 RPM	15				
"k"	1.47	TRUCKING			20 m	40		3 RPM	15				
COMMENTS													
Above Inventory Is Not Valid, See Attached Material Sheet For Inventory													
1. WEIGHT AS LOW AS POSSIBLE WITH SOLIDS CONTROL AND RUN WATER @ 20 - 25 L/MIN TO MAINTAIN VOLUME													
2. MAINTAIN VIS @ 90 SL MINIMUM													
USE CAUSTIC TO CONTROL VISCOSITY TO A MAXIMUM pH OF 11.5													
W/ ADDITIONS OF 8 SX OF FLOPLEX AND 4 SX OF VISPLEX SEE MUD MAN BEFORE MIXING													
3. PH AT 11 TO 11.5 WITH CAUSTIC THRU THE BARREL													
4. PREMIX GEL @ 30 KG /M ³													
ON TRIPS RIH BREAK CIRCULATION BELOW SHOE AND EVERY 10 - 15 STANDS													
STOCK POINT		GRANDE PRAIRIE		DOWELL ENGINEER		Dan Majocha		On Location					
PHONE		532 - 5078				Camp		Room # 5					
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.													

INVENTORY

TREATMENT # 2911-0721

WELL NAME RANGER FORT LIARD

LOCATION P-66 LAT 60.40' LONG 123.30'

DATE 6-Feb-97

OPERATOR RANGER OIL LTD.

CONTRACTOR

CACTUS # 28E

REPORT No 20

REPORT FOR Mr. ART SCHRITT

REPORT FOR Mr.

DENNIS BROWN

SPUD DATE 12-Jan-97

PRODUCTS	MATERIALS RECEIVED TO DATE	MATERIALS USED LAST 24 HOURS	MATERIALS USED TO DATE	MATERIAL REMAINING ON LOCATION	DAILY COST	CUMULATIVE COST
CAUSTIC 10	180	5	107	73	\$290.00	\$6,206.00
X-CIDE 207 10	96			96		
NAT BENTONITE 103	2320		1831	389		\$30,722.21
LIGNITE 1	56		18	38		\$360.00
LIME 1	648			648		
SODA ASH 103	40		4	36		\$144.00
BICARB 10	25		16	9		\$1,264.00
MICA COARSE 1034	207		30	177		\$1,110.00
IDF-FLR 1	7			7		
VISPLEX II 10	770	12	449	321	\$4,404.00	\$164,783.00
ID FREE 208L 10	4			4		
CELLOPHANE 103	300		34	266		\$1,428.00
MICA MEDIUM 1042	110			110		
FLOPLEX 10	100	17	85	15	\$3,264.00	\$16,320.00
P. SEAL "C" 104	260		50	210		\$1,900.00
P. SEAL "M" 104	160		15	145		\$570.00
CALCARB "325" 1045	224		10	214		\$100.00
CALCARB "SC" 1045	336		23	313		\$230.00
CALCAARB "O" 1045	224			224		
DETERGENT 104	52			52		
BARITE 10	4880			4880		
CALC CHLORIDE	340			340		
MAGNA FIBER	32		8	24		\$1,024.00
MICA FINE	239			239		
SAWDUST	1400		525	875		\$3,412.50
CALC CARB "FG"	168			168		
TRUDRILL	160			160		
NATURAL GEL	200			200		
TRUVIS	360			360		
HYMUL	32			32		
XCD	160			160		
INTERDRILL S	600			600		
EMUL	20			20		
INTER FL	20			20		
OW	32			32		
ZINC CARB	80			80		
BARITE 10	720			720		
HSO 600 10	29			29		
PTS 200 10	8			8		
FIBER FLUID "F"						
FIBER FLUID "C"						

TOTALS

\$7,958.00 \$229,573.71

DAILY MUD REPORT

WELL NAME		RANGER FORT LIARD		LOCATION P-66 LAT60.40' LONG123.1		DATE		06-Feb-97		TREATMENT #		2911-0721	
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS # 26E		REPORT No		21					
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr. DENNIS BROWN		SPUD DATE		12-Jan-97					
ASSEMBLY			CASING			MUD VOL. (M3)			PUMP OUTPUT			ANNULAR VEL. m/min	
BIT SIZE (mm)	444.5	LENGTH (m)	SIZE (mm)	LENGTH(m)	TANKS	119	PUMP #1	152X254	OPPOSITE DP	23			
BIT NUMBER	3		508.0	263	HOLE	189	M3/STK	0.0138	OPPOSITE DC	28			
DRILL PIPE #1(mm)	127.0	602			TOTAL	308	PUMP #2	152X254	CIRC. TIME	95			
DRILLPIPE #2(mm)	127.0	54	LINER	TOP/BOT.	STAND BY		M3/STK	0.0138	BOTTOMS UP	47			
COLLAR #1(mm)	178.0	84					S.P.M.	235	PUMP PRESS.	15500			
COLLAR #2(mm)	228.0	87					M3/MIN	3.2477					
HOLE DATA			DESANDER DESILTER			DRILLING FLUID SPECIFICATIONS							
MUD TYPE - VISPLEX		FLOWLINE WT.		1160		1160 kg/m3		MUD WT.		1060-1200 Kg/m3			
HOLE COND.-GOOD		UNDERFLOW WT.		1930		1930 kg/m3		VISCOSITY		70 to 90 s/L			
DEVIATION-808 m 1.3 az 135.4		OVERFLOW WT.		1140		1140 kg/m3		FILTRATE		N/C cm3/30 min.			
CURRENT OP.-TRIPPING		UNDERFLOW RT.		4		4 m3/min		pH		11.0 TO 11.5			
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE					
		XX DOUBLE DECK OR HIGH SPEED SHAKER		SCREEN SIZ 175 x 3 # 1, 110 x 3 # 2									
MUD PROPERTIES				INVENTORY									
TIME SAMPLE TAKEN		6:00		MATERIALS		RECEIVED		MATERIALS		MATERIALS		DAILY	
SAMPLE FROM		FLOWLINE		RECEIVED		LAST		USED LAST		USED TO		CUMULATIVE	
PRESENT DEPTH		856		TO DATE		24 HOURS		24 HOURS		DATE		COST	
FLOWLINE TEMPERATURE (C)		65.55555556		CAUSTIC		240				4		\$232.00	
DENSITY		1160		X-CIDE 207		96						96	
FUNNEL VISCOSITY (s/L)		130		NAT BENTON		2320				120		2200	
600 READING		72		LIGNITE		56				6		50	
300 READING		50		LIME		648						648	
APPARENT VISCOSITY (mPa.s)		36		SODA ASH		40						40	
PLASTIC VISCOSITY (mPa.s)		22		BICARB		25				12		13	
YIELD POINT (Pa)		14		MICA COARSE		207						207	
GELS 0/10 min. (Pa)		9.5/44		IDF-FLR		7						7	
pH		STRIP	X	METER	10	VISPLEX II	770			42		728	
FILTRATE (cm3)		API	X	HTHP	6	ID FREE 208L	4					4	
FILTER CAKE (mm)		1.5		CELLOPHANE		300						300	
PF		2		MICA MEDIUM		110						110	
MF		3.9		FLOPLEX		150						150	
PM				P. SEAL "C"		260						260	
TOTAL HARDNESS (mg/l)				Ca		P. SEAL "M"	160					160	
CHLORIDES (mg/L)		X		NaCl	1500	CALCARB *32	224					224	
SAND CONTENT		%	X	FR.	0.3	CALCARB *SC	336					336	
SOLIDS CONTENT		%	X	FR.	9.756097561	CALCAARB *0	224					224	
OIL/WATER CONT		%		FR.		DETERGENT	52					52	
MBT (Kg/m3)		X		OIL RET	62	PREVIOUS COST		#####		600 RPM		72	
ELECTRICAL STABILITY				DAILY COST		\$174.00				300 RPM		50	
OIL WATER RATIO				CUM. COST		#####		GELS		200 RPM		42	
E.C.D. kg/m^3		1164.31		ENGINEERING CHARGES		13440		10 s		15		100 RPM	
"n"		0.11		DISCT'D COST / CUM TOTAL		114873.855 128313.855		10 m		44		6 RPM	
"k"		2.09		TRUCKING				20 m		40		3 RPM	
COMMENTS													
Above Inventory Is Not Valid, See Attached Material Sheet For Inventory													
1.WEIGHT AS LOW AS POSSIBLE WITH SOLIDS CONTROL AND RUN WATER @ 20 - 25 L/MIN TO MAINTAIN VOLUME													
2.MAINTAIN VIS @ 90 SL MINIMUM													
USE CAUSTIC TO CONTROL VISCOSITY TO A MAXIMUM pH OF 11.5													
W/ ADDITIONS OF 8 SX OF FLOPLEX AND 4 SX OF VISPLEX SEE MUD MAN BEFORE MIXING													
3.PH AT 11 TO 11.5 WITH CAUSTIC THRU THE BARREL													
4. PREMIX GEL @ 30 KG /M^3													
ON TRIPS RIH BREAK CIRCULATION BELOW SHOE AND EVERY 10 - 15 STANDS													
STOCK POINT		GRANDE PRAIRIE				DOWELL ENGINEER		Dan Majocha		On Location			
PHONE		532 - 5078						Camp		Room # 5			
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.													

DAILY MUD REPORT

WELL NAME		RANGER FORT LIARD		LOCATION P-66 LAT 60.40' LONG 123.30'		DATE		11-Feb-97		TREATMENT #		2911-0721			
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS # 26E		REPORT No		27							
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr.		DENNIS BROWN		SPUD DATE		12-Jan-97					
ASSEMBLY		CASINO		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min.							
BIT SIZE (mm)	444.5	LENGTH (m)		SIZE (mm)	508.0	LENGTH (m)	263	TANKS	100	PUMP #1	165X254	OPPOSITE DP	27		
BIT NUMBER	3							HOLE	229	M3/STK	0.0163	OPPOSITE DC	34		
DRILL PIPE #1 (mm)	127.0	783						TOTAL	329	PUMP #2	165X254	CIRC. TIME	84		
DRILL PIPE #2 (mm)	127.0	54		LINER	TOP/BOT.	STAND BY				M3/STK	0.0163	BOTTOMS UP	49		
COLLAR #1 (mm)	178.0	84								S.P.M.	240	PUMP PRESS	13500		
COLLAR #2 (mm)	228.0	87								M3/MIN	3.9084				
HOLE DATA		DESANDER DESILTER		DRILLING FLUID SPECIFICATIONS											
MUD TYPE - VISPLEX		FLOWLINE WT.		1160		1160 kg/m3		MUD WT.		1060-1200 Kg/m3					
HOLE COND - GOOD		UNDERFLOW WT		1795		1795 kg/m3		VISCOSITY		70 to 90 s/L					
DEVIATION-973 5.3 AZ 170.5		OVERFLOW WT.		1150		1150 kg/m3		FILTRATE		N/C cm3/30 min.					
CURRENT OP - POH to LOG		UNDERFLOW RT.		4		4 m3/min		pH		11.0 TO 11.5					
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE							
		XX DOUBLE DECK OR HIGH SPEED SHAKER		SCREEN SIZE		175 x 3 # 1, 110 x 3 # 2									
MUD PROPERTIES		INVENTORY													
TIME SAMPLE TAKEN	23:30	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE						
SAMPLE FROM	FLOWLINE	RECEIVED	LAST	USED LAST	USED TO	REMAINING	COST	COST							
PRESENT DEPTH	1008	TO DATE	24 HOURS	24 HOURS	DATE	ON LOCATION									
FLOWLINE TEMPERATURE (C)	56.7	CAUSTIC	240		4	236		\$232.00							
DENSITY	1160	X-CIDE 207	96			86									
FUNNEL VISCOSITY (s/L)	95	NAT BENTON	2320		120	2200		\$1,929.20							
600 READING	62	LIGNITE	56		6	50		\$120.00							
300 READING	47	LIME	648			648									
APPARENT VISCOSITY (mPa.s)	31	SODA ASH	40			40									
PLASTIC VISCOSITY (mPa.s)	15	BICARB	25		12	13		\$945.00							
YIELD POINT (Pa)	16	MICA COARS	207			207									
GELS 0/10 min (Pa)	8/50	IDF-FLR	7			7									
pH	11.5	STRIP X	METER	11.5	VISPLEX II	770	42	728	\$15,414.00						
FILTRATE (cm3)	8	AP X	HTHP	8	ID FREE 208L	4		4							
FILTER CAKE (mm)	1.5			1.5	CELLOPHANE	300		300							
PF	3.8			3.8	MICA MEDIUM	110		110							
MF	7.9			7.9	FLOPLEX	150		150							
PM					P. SEAL "C"	260		260							
TOTAL HARDNESS (mg/l)					P. SEAL "M"	160		160							
CHLORIDES (mg/L)	X	Ca	1400		CALCARB "32"	224		224							
SAND CONTENT	% X	FR.	0.3		CALCARB "50"	336		336							
SOLIDS CONTENT	% X	FR.	9.8		CALCAARB "C"	224		224							
OIL/WATER CONT	%	FR.			DETERGENT	52		52							
MBT	(Kg/m3) X	OIL RET	64		PREVIOUS COST	\$246,597.41		600 RPM	62						
ELECTRICAL STABILITY					DAILY COST			300 RPM	47						
OIL WATER RATIO					CUM. COST	\$246,597.41		GELS	200 RPM	40					
E.C.D. kg/m3	1162.81				ENGINEERING CHARGES	\$15,840.00		10 s.	22	100 RPM	30				
"N"	0.15				ISCTD COST / CUM TOTAL	\$123,298.71	\$139,138.71	10 m	50	6 RPM	18				
"K"	1.18				TRUCKING			20 m	60	3 RPM	18				
COMMENTS															
1. WEIGHT AS LOW AS POSSIBLE WITH SOLIDS CONTROL AND RUN WATER @ 30 - 35 L/MIN TO MAINTAIN VOLUME															
2. MAINTAIN VIS @ 90 S/L MINIMUM USE CAUSTIC TO CONTROL VISCOSITY TO A MAXIMUM pH OF 11.5															
3. PH AT 11 TO 11.5 WITH CAUSTIC THRU THE BARREL RAISE pH TO 11.5 PRIOR TO T.D															
STOCK POINT	GRANDE PRAIRIE			DOWELL ENGINEER		Dan Majoche		On Location							
PHONE	532 - 5078					Camp		Room # 5							
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.															

Schlumberger Dowell

INVENTORY

TREATMENT # 2911-0721

WELL NAME RANGER FORT LIARD

LOCATION P-68 LAT 60.40' LONG 123.30'

DATE 12-Feb-97

OPERATOR RANGER OIL LTD.

CONTRACTOR

CACTUS # 26E

REPORT No 27

REPORT FOR Mr. ART SCHRITT

REPORT FOR Mr.

DENNIS BROWN

SPUD DATE 12-Jan-97

PRODUCTS		MATERIALS RECEIVED TO DATE	MATERIALS USED LAST 24 HOURS	MATERIALS USED TO DATE	MATERIAL REMAINING ON LOCATION	DAILY COST	CUMULATIVE COST
CAUSTIC	10	240	17	163	77	\$986.00	\$9,454.00
X-CIDE 207	10	96			96		
NAT BENTONITE	103	2320	50	2001	319	\$795.50	\$31,835.91
LIGNITE	1	56		18	38		\$350.00
LIME		648			648		
SODA ASH	10	40		4	36		\$144.00
BICARB	10	25		16	9		\$1,264.00
MICA COARSE	1034	207		30	177		\$1,110.00
IDF-FLR	1	7			7		
VISPLEX II	10	770	26	502	268	\$9,542.00	\$184,234.00
ID FREE 208L	10	4			4		
CELLOPHANE	103	300		34	266		\$1,428.00
MICA MEDIUM	1042	110			110		
FLOPLEX	10	150	11	112	38	\$2,112.00	\$21,504.00
P. SEAL "C"	10	260		50	210		\$1,800.00
P. SEAL "M"	104	160		15	145		\$570.00
CALCARB "325"	1045	224		10	214		\$100.00
CALCARB "SC"	1045	338		23	313		\$230.00
CALCAARB "U"	1045	224			224		
DETERGENT	10	52			52		
BARITE	10	5920	40	115	5805	\$780.00	\$2,242.50
CALC CHLORIDE		340			340		
MAGNA FIBER		32		8	24		\$1,024.00
MICA FINE		239			239		
SAWDUST		1400		525	875		\$3,412.50
CALC CARB "FG"		168			168		
TRUDRILL		160			160		
NATURAL GEL		520			520		
TRUVIS		360			360		
HYMUL		32			32		
XCD		160			160		
INTERDRILL S		600			600		
EMUL		20			20		
INTER FL		20			20		
OW		32			32		
ZINC CARB		80			80		
BARITE	10	720			720		
HSO 600	10	29			29		
PTS 200	10	8			8		
FIBER FLUID "F"		400			400		
FIBER FLUID "C"		200			200		

TOTALS \$14,215.50 \$260,812.91

Schlumberger-Dowell

DAILY MUD REPORT

WELL NAME RANGER FORT LIARD				LOCATION P-66 LAT60.40' LONG123.30'				DATE 13-Feb-97		TREATMENT # 2911-0721			
OPERATOR RANGER OIL LTD.				CONTRACTOR CACTUS # 26E				REPORT No 28					
REPORT FOR Mr. ART SCHRITT				REPORT FOR Mr. DENNIS BROWN				SPUD DATE 12-Jan-97					
ASSEMBLY		CASINO		MUD VOL. (B3)		PUMP OUTPUT		ANNULAR VEL. m/min					
BIT SIZE (mm)	444.5	LENGTH (m)	783	SIZE (mm)	508.0	LENGTH(m)	263	TANKS	85	PUMP #1	165X254		
BIT NUMBER	3							HOLE	229	M3/STK	0.0163		
DRILL PIPE #1(mm)	127.0							TOTAL	314	PUMP #2	165X254		
DRILLPIPE #2(mm)	127.0			LINER	TOP/BOT.	STAND BY				M3/STK	0.0163		
COLLAR #1(mm)	178.0									S.P.M	230		
COLLAR #2(mm)	228.0									M3/MIN	3.7456		
HOLE DATA				DESANDER DESILTER				DRILLING FLUID SPECIFICATIONS					
MUD TYPE - VISPLEX				FLOWLINE WT. 1150				MUD WT. 1050-1200 Kg/m3					
HOLE COND.				UNDERFLOW WT. 1795				VISCOSITY 70 to 90 s/L					
DEVIATION-973 5.3 AZ 170.5				OVERFLOW WT. 1140				FILTRATE N/C cm3/30 min.					
CURRENT OP-REAM TO RUN CSG				UNDERFLOW RT. 4				pH 11.0 TO 11.5					
EQUIPMENT.				XX DFGASSER				DESILTER					
				XX DOUBLE DECK OR HIGH SPEED SHAKER				SCREEN SIZE 175 x 3 # 1, 110 x 3 # 2					
MUD PROPERTIES				INVENTORY									
TIME SAMPLE TAKEN 5:00				MATERIALS		RECEIVED		MATERIALS		MATERIAL		DAILY	
SAMPLE FROM FLOWLINE				RECEIVED		LAST		USED LAST		USED TO		CUMULATIVE	
PRESENT DEPTH 1008				TO DATE		24 HOURS		24 HOURS		DATE		COST	
FLOWLINE TEMPERATURE (C) 53.3				CAUSTIC		240				4		236	
DENSITY 1150				X-CIDE 207		96						96	
FUNNEL VISCOSITY (cL) 230				NAT BENTON		2320				120		2200	
600 READING 65				LIGNITE		56				6		50	
300 READING				LIME		648						648	
APPARENT VISCOSITY				SODA ASH		40						40	
PLASTIC VISCOSITY				BICARB		25				12		13	
YIELD POINT (Pa) 20.5				MICA COARS		207						207	
GELS (10 min) (Pa) 19.5/70				IDF-FLR		7						7	
pH STRIP X METER 11.7				VISPLEX II		770				42		728	
FILTRATE (cm3) API X HTHP 6.5				ID FREE 208L		4						4	
FILTER CAKE (mm) 1.5				CELLOPHANE		300						300	
PF 4.4				MICA MEDIUM		110						110	
MF 8.2				FLOPLEX		150						150	
PM				P. SEAL "C"		260						260	
TOTAL HARDNESS (mg/l) Ca				P. SEAL "M"		160						160	
CHLORIDES (mg/L) X NaCl 1500				CALCARB "32"		224						224	
SAND CONTENT %X FR. 0.3				CALCARB "80"		336						336	
SOLIDS CONTENT %X FR. 9.1				CALCAARB "0"		224						224	
OIL/WATER CONT % FR.				DETERGENT		52						52	
MBT (Kg/m3) X OIL RET 66				PREVIOUS COST \$20,812.91				600 RPM 85					
ELECTRICAL STABILITY				DAILY COST				300 RPM 63					
OIL WATER RATIO				CUM. COST \$212.91				200 RPM 58					
E.C.D. (kg/cm2) 1154.15				ENGINEERING CHART \$16,809.00				100 RPM 52					
"n" 0.00				ISCT'D COST / CUM. \$130,426.37 \$147,206.48				6 RPM 39					
"k" 3.12				TRAILING				20 in 80 3 RPM 39					

COMMENTS

MUD CHECK ON CLEAN OUT TRIP PRIOR TO RUNNING CASINO
 1. WEIGHT AS LOW AS POSSIBLE WITH SOLIDS CONTENT TO RUN WATER @ 30 - 35 L/MIN TO MAINTAIN VOLUME
 2. MAINTAIN VIS @ 130 SUL MINIMUM
 USE CAUSTIC TO CONTROL VISCOSITY TO A MINIMUM pH OF 11.5

STOCK POINT GRANDE PRAIRIE DOWELL ENGINEER Dan Majoche On Location
 PHONE 532 - 5078 Camp Room # 5

THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGMENT OF THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD P-66		LOCATION		P-66 LAT 80 40' LONG 123 30'		DATE		19-Feb-97	
OPERATOR		RANGER OIL LTD.		CONTRACTOR		CACTUS # 28 E		REPORT No		32	
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr.		TERRY GORGICHUCK		SPUD DATE		12-Jan-97	
ASSEMBLY		CASINO		MUD VOL. (MG)		PUMP OUTPUT		ANNULAR VEL. m/min			
BIT SIZE (mm)	311.0	LENGTH (m)		SIZE (mm)	LENGTH(m)	TANKS	160	PUMP #1	165X254	OPPOSITE DP	49
BIT NUMBER	3C					HOLE	73	M3/STK	0.0163	OPPOSITE DC	93
DRILL PIPE #1(mm)	127.0	815		339.7	1007	TOTAL	233	PUMP #2	165X254	CIRC. TIME	72
DRILLPIPE #2(mm)	127.0	54		LINER	TOP/BOT.	STAND BY	120	M3/STK	0.0163	BOTTOMS UP	20
COLLAR #1(mm)	177.8	84						S.P.M.	200		
COLLAR #2(mm)	228.0	58						M3/MIN	3.2570		
HOLE DATA		DESANDER		DESILTER		DRILLING FLUID SPECIFICATIONS					
MUD TYPE - TRUDRILL		FLOWLINE WT.		kg/m3		MUD WT.		1000 - 1600 Kg/m3			
HOLE COND.-		UNDERFLOW WT.		kg/m3		VISCOSITY		35 - 40 s/L			
DEVIATION-		OVERFLOW WT.		kg/m3		FILTRATE		<20 cm3/30 min.			
CURRENT OP.-DRILL OUT CEMENT		UNDERFLOW RT.		m3/min		pH					
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE			
		XX DOUBLE DECK OR HIGH SPEED SHAKER		84 - 38							
MUD PROPERTIES		INVENTORY									
TIME SAMPLE TAKEN		16:30		MATERIALS		RECEIVED		MATERIALS		MATERIALS	
SAMPLE FROM		FLOWLINE		RECEIVED		LAST		USED LAST		DAILY	
PRESENT DEPTH		1012		TO DATE		24 HOURS		24 HOURS		COST	
FLOWLINE TEMPERATURE (C)		23.3		CAUSTIC		240				CUMULATIVE	
DENSITY		1000		X-CIDE 207		86				COST	
FUNNEL VISCOSITY (s/L)		39		NAT BENTON		1960					
600 READING @ 60 C		12		LIGNITE		56					
300 READING		7		LIME		648					
APPARENT VISCOSITY (mPa.s)		6		SODA ASH		40					
PLASTIC VISCOSITY (mPa.s)		5		BICARB		25					
YIELD POINT (Pa)		1		MICA COARSE		207					
GELS 0/10 min. (Pa)		5/1		IDF-FLR		7					
pH		STRIP		METER		VISPLEX II				541	
FILTRATE (cm3) @ 120 C		HTHP		X		ID FREE 208L				4	
FILTER CAKE (mm)		1.5		CELLOPHANE		300				300	
				MICA MEDIUM		110				110	
Pom		1.4		FLOPLEX		250				250	
EXCESS LIME KG/M3		5.18		P. SEAL "C"		260				260	
TOTAL HARDNESS (mg/l)		Ca		P. SEAL "M"		160				160	
CHLORIDES (mg/L)		NaCl		CALCARB "32"		224				224	
SAND CONTENT %		FR.		CALCARB "SC"		336				336	
SOLIDS CONTENT %		X FR.		CALCAARB "O"		448				448	
OIL CONTENT %		90		DETERGENT		52				52	
WATER CONTENT %		X 4		PREVIOUS COST		\$283,304.30				STARTING VOLUME	
ELECTRICAL STABILITY		1300		DAILY COST						VOL. BUILT	
OIL WATER RATIO:		96/14		CUM. COST		\$283,304.30				VOL. LOST ON SURFACE	
CaCl2 w/w%				CUM. ENG. COST		\$20,160.00				VOL. LOST ON SUB SURFACE	
"n"		0.31		Discounted/ Total		\$141,652.15 \$161,812.15				END VOLUME	
"k"		0.60		TRUCKING						CUM. VOL BUILT.	
COMMENTS											
ONCE ON BOTTOM DRILLING AHEAD START CIRCULATION OF 1 BBL OF INTERDRILL "OW" OVER 2-3 CIRC'S AND 20 SX OF LIME OVER ONE CIRCULATION											
MAINTAIN :											
VISCOSITY @ 38 - 42 S/L WITH TRUVIS											
START ADDITIONS OF LIME @ 10 SX PER TOUR UNTIL FURTHER NOTICE											
DENSITY AS LOW AS CONDITIONS ALLOW RUN CENTRIFUGES, TRANSFER TRUDRILL AS REQUIRED TO MAINTAIN VOLUME											
RECORD TRANSFERS FROM THE 400 BBL TANK											
RECOVER TRUDRILL FROM SUMP AFTER IT HAS SEPARATED											
ANY TIGHT HOLE INCREASE PUMP RATE IF POSSIBLE OTHERWISE RAISE VISCOSITY TO 45 S/L W/ TRUVIS											
SEEPAGE LOSSES ADD 5 SX OF INTERDRILL "S" AND 5 SX OF FIBER FLUID PER DAY CONSULT WITH ENGINEER AND MUD MAN BEFORE ADDING											
KEEP ALL SOURCES OF WATER AWAY FROM THE MUD TANKS											
STOCK POINT		GRANDE PRAIRIE (FORMULA)		DOWELL ENGINEER		DAN MAJOCHA		ON LOCATION			
PHONE		532-5078		PHONE NUMBER		CAMP RM. # 5					
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.											

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD P-66		LOCATION P-66 LAT 60 40' LONG 123		DATE		21-Feb-97	
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS # 28 E		REPORT No		33	
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr.		TERRY GORGICHUCK		SPUD DATE	
								12-Jan-97	
ASSEMBLY		CASING		MUD VOL. (m3)		PUMP OUTPUT		ANNULAR VEL. m/min	
BIT SIZE (mm)	311.0	LENGTH (m)	SIZE (mm)	LENGTH (m)	TANKS	78	PUMP #1	152X254	OPPOSITE DP
BIT NUMBER	3C		508.0	283	HOLE	84	M3/STK	0.0138	OPPOSITE DC
DRILL PIPE #1 (mm)	127.0	843	339.7	1007	TOTAL	170	PUMP #2	152X254	CIRC. TIME
DRILL PIPE #2 (mm)	127.0	54	LINER	TOP/BOT.	STAND BY	152	M3/STK	0.0138	BOTTOMS UP
COLLAR #1 (mm)	177.8	84					S.P.M.	240	
COLLAR #2 (mm)	228.0	58					M3/MIN	3.3168	
HOLE DATA		DESANDER DESILTER		DRILLING FLUID SPECIFICATIONS					
MUD TYPE - TRUDRILL		FLOWLINE WT.		kg/m3		MUD WT.		1000 - 1600 Kg/m3	
HOLE COND.		UNDERFLOW WT.		kg/m3		VISCOSITY		35 - 40 s/L	
DEVIATION		OVERFLOW WT.		kg/m3		FILTRATE		<20 cm3/30 min.	
CURRENT OP. - TRIP FOR BHA		UNDERFLOW RT.		m3/min		pH			
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE	
		XX DOUBLE DECK OR HIGH SPEED SHAKER		84 - 38					
MUD PROPERTIES		INVENTORY							
TIME SAMPLE TAKEN	2:00		MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY
SAMPLE FROM	FLOWLINE			RECEIVED	LAST	USED LAST	USED TO	REMAINING	COST
PRESENT DEPTH	1040			TO DATE	24 HOURS	24 HOURS	DATE	ON LOCATION	CUMULATIVE
FLOWLINE TEMPERATURE (C)	37.7777778		CAUSTIC	240				240	
DENSITY	1055		X-CIDE 207	96				96	
FUNNEL VISCOSITY (s/L)	39		NAT BENTON	1960				1960	
600 READING @ 60 C	24		LIGNITE	56				56	
300 READING	15		LIME	648				648	
APPARENT VISCOSITY (mPa.s)	12		SODA ASH	40				40	
PLASTIC VISCOSITY (mPa.s)	9		BICARB	25				25	
YIELD POINT (Pa)	3		MICA COARS	207				207	
GELS @ 10 min. (Pa)	1.5/3		IDF-FLR	7				7	
pH	STRIP	METER	VISPLEX II	541				541	
FILTRATE (cm3) @ 120 C	HTHP	X	ID FREE 208L	4				4	
FILTER CAKE (mm)	1.5		CELLOPHANE	300				300	
			MICA MEDIUM	110				110	
Pom	1.3		FLOPLEX	250				250	
EXCESS LIME KG/M3	4.81		P. SEAL "C"	260				260	
TOTAL HARDNESS (mg/l)		Ca	P. SEAL "M"	160				160	
CHLORIDES (mg/L)		NaCl	CALCARB "32"	224				224	
SAND CONTENT %		FR.	CALCARB "80"	336				336	
SOLIDS CONTENT %	X	FR.	CALCARB "10"	448				448	
OIL CONTENT %			DETERGENT	52				52	
WATER CONTENT %		X	4	PREVIOUS COST	#####			STARTING VOLUME	353
ELECTRICAL STABILITY	1700.00		DAILY COST	\$42,961.20			VOL. BUILT		
OIL WATER RATIO	98/4		CUM. COST	#####			VOL. LOST ON SURFACE		15
CaCl2 w/w%			CUM. ENG. COST	21120			VOL. LOST ON SUB SURFACE		
"n"	0.25		Discounted/ Total	163132.75	184252.75			END VOLUME	338
"k"	2.01		TRUCKING					CUM. VOL BUILT	
COMMENTS									
Above Inventory Is Not Valid, See Attached Material Sheet For Inventory									
ONCE ON BOTTOM DRILLING AHEAD START CIRCULATION 20 SX OF LIME OVER ONE CIRCULATION									
MAINTAIN: VISCOSITY @ 38 - 42 S/L WITH TRUVIS START ADDITIONS OF LIME @ 10 SX PER TOUR UNTIL FURTHER NOTICE DENSITY @ 1050 kg/m³ WITH BARITE (45 SX WILL RAISE CURRENT VOLUME 10 POINTS) TRANSFER TRUDRILL AS REQUIRED TO MAINTAIN VOLUME RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK RECOVER TRUDRILL FROM SUMP AFTER IT HAS SEPARATED ANY TIGHT HOLE INCREASE PUMP RATE IF POSSIBLE OTHERWISE RAISE VISCOSITY TO 45 S/L W/ TRUVIS SEEPAGE LOSSES ADD 5 SX OF INTERDRILL "S" AND 5 SX OF FIBER FLUID PER DAY CONSULT WITH ENGINEER AND MUD MAN BEFORE ADDING KEEP ALL SOURCES OF WATER AWAY FROM THE MUD TANKS									
STOCK POINT		GRANDE PRAIRIE (FORMULA)		DOWELL ENGINEER		DAN MAJOCHA		ON LOCATION	
PHONE		532-5078		PHONE NUMBER		CAMP RM. #			
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.									

DAILY MUD REPORT

WELL NAME		RANGER FT. UARD P-66		LOCATION P-66 LAT 60 40' LONG 123 30'		DATE		22-Feb-97	
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS # 28 E		REPORT No		34	
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr. TERRY GORGICHUCK		SPUD DATE		12-Jan-97	
ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min	
BIT SIZE (mm)	311.0	LENGTH (m)		SIZE (mm)	283	TANKS	78	PUMP #1	152X254
BIT NUMBER	2C			LENGTH (m)	1007	HOLE	82	M3/STK	0.0138
DRILL PIPE #1 (mm)	127.0	845		339.7		TOTAL	170	PUMP #2	152X254
DRILL PIPE #2 (mm)	127.0	54		LINEER	TOP/BOT.	STAND BY	152	M3/STK	0.0138
COLLAR #1 (mm)	171.0	45						S.P.M.	230
COLLAR #2 (mm)	228.0	96						M3/MIN	3.1766
HOLE DATA		DESANDER/DESILTER		DRILLING FLUID SPECIFICATIONS					
MUD TYPE - TRUDRILL		FLOWLINE WT.	OFF	OFF	kg/m3	MUD WT.	1000 - 1600 Kg/m3		
HOLE COND. - GOOD		UNDERFLOW WT.			kg/m3	VISCOSITY	40-44 cP		
DEVIATION - 6.7		OVERFLOW WT.			kg/m3	FILTRATE	<20 cm3/30 min.		
CURRENT OP. - DRLG w MWD		UNDERFLOW RT.			m3/min	pH	N/A		
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE	
		XX DOUBLE DECK OR HIGH SPEED SHAKER		84 - 38					
MUD PROPERTIES		INVENTORY							
TIME SAMPLE TAKEN	05:35	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE
SAMPLE FROM	FLOWLINE		RECEIVED	LAST	USED LAST	USED TO	REMAINING	COST	COST
PRESENT DEPTH	1076		TO DATE	24 HOURS	24 HOURS	DATE	ON LOCATION		
FLOWLINE TEMPERATURE (C)	57.8	CAUSTIC	240				240		
DENSITY	1085	X-CIDE 207	96				96		
FUNNEL VISCOSITY (s/L)	41	NAT BENTON	1960				1960		
600 READING @ 80 C	28	LIGNITE	56				56		
300 READING	19	LIME	648				648		
APPARENT VISCOSITY (mPa.s)	14	SODA ASH	40				40		
PLASTIC VISCOSITY (mPa.s)	9	BICARB	25				25		
YIELD POINT (Pa)	5	MICA COARSE	207				207		
GELS @ 10 min. (Pa)	1.5/3.5	IDF-FLR	7				7		
pH	STRIP	METER	N/A	VISPLEX II	541		541		
FILTRATE (cm3) @ 120 C	HTHP	X	10	ID FREE 208L	4		4		
FILTER CAKE (mm)			1.5	CELLOPHANE	300		300		
				MICA MEDIUM	110		110		
Pom			1.5	FLOPLEX	250		250		
EXCESS LIME KG/M3			5.55	P. SEAL "C"	260		260		
TOTAL HARDNESS (mg/l)		Ca		P. SEAL "M"	160		160		
CHLORIDES (mg/L)		NaCl		CALCARB "32"	224		224		
SAND CONTENT %	X	FR.	0.35	CALCARB "SC"	336		336		
SOLIDS CONTENT %	X	FR.	13	CALCARB "T"	448		448		
OIL CONTENT %			83	DETERGENT	52		52		
WATER CONTENT %	X		4	PREVIOUS COST	\$326,265.50		STARTING VOLUME	338	
ELECTRICAL STABILITY			1440	DAILY COST	\$22,112.80		VOL BUILT		
OIL WATER RATIO			95/5	CUM. COST	\$348,378.30		VOL. LOST ON SURFACE	6	
CaCl2 wt/w%				CUM. ENG. COST	\$21,120.00		VOL. LOST ON SUB SURFACE	8	
"n"			0.35	Discounted/ Total	\$174,189.15	\$185,309.15	END VOLUME	324	
"k"			1.69	TRUCKING			CUM. VOL BUILT		
COMMENTS									
Above Inventory is Not Valid, See Attached Material Sheet For Inventory									
ADD 30SX OF LIME OVER TWO CIRCULATIONS MAINTAIN: VISCOSITY @ 38 - 42 S/L WITH TRUVIS START ADDITIONS OF LIME @ 10 SX PER TOUR UNTIL FURTHER NOTICE DENSITY @ 1050 kg/m³ WITH BARITE (45 SX WILL RAISE CURRENT VOLUME 10 POINTS) TRANSFER TRUDRILL AS REC OF 30 M³ AND MAY BE RECOVERABLE RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK RECOVER TRUDRILL FROM SUMP AFTER IT HAS SEPARATED ANY TIGHT HOLE INCREASE PUMP RATE IF POSSIBLE OTHERWISE RAISE VISCOSITY TO 45 S/L W/ TRUVIS SEEPAGE LOSSES ADD 5 SX OF INTERDRILL "S" AND 5 SX OF FIBER FLUID PER DAY CONSULT WITH ENGINEER AND MUD MAN BEFORE ADDING KEEP ALL SOURCES OF WATER AWAY FROM THE MUD TANKS									
STOCK POINT	GRANDE PRAIRIE (FORMULA)			DOWELL ENGINEER	JOE SMITH		ON LOCATION		
PHONE	532-5078			PHONE NUMBER	CAMP RM. # 5				
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.									

INVENTORY

WELL NAME RANGER FT. LIARD P-66

LOCATION LAT 60 40' LONG 123 30'

DATE 22-Feb-97

OPERATOR RANGER OIL LTD.

CONTRACTOR CACTUS #26 E

REPORT No 34

REPORT FOR Mr. ART SCHRITT

REPORT FOR Mr. TERRY GORGICHUCK

SPUD DATE 12-Jan-97

PRODUCTS	MATERIALS RECEIVED TO DATE	MATERIALS USED LAST 24 HOURS	MATERIALS USED TO DATE	MATERIAL REMAINING ON LOCATION	DAILY COST	CUMULATIVE COST
CAUSTIC 10	240		170	70	\$0.00	\$9,860.00
X-CIDE 207 10	96		0	96	\$0.00	\$0.00
NAT BENTONITE 10	1860		1790	170	\$0.00	\$28,478.90
LIGNITE 1	56		18	38	\$0.00	\$360.00
LIME 1	648	30	30	618	\$465.00	\$465.00
SODA ASH 10	40		4	36	\$0.00	\$144.00
BICARB 10	25		16	9	\$0.00	\$1,264.00
MICA COARSE 103	207		30	177	\$0.00	\$1,110.00
IDF-FLR 1	7		0	7	\$0.00	\$0.00
VISPLEX II 10	541		541	0	\$0.00	\$198,547.00
ID FREE 208L 10	4		0	4	\$0.00	\$0.00
CELLOPHANE 103	300		34	266	\$0.00	\$1,428.00
MICA MEDIUM 104	110		0	110	\$0.00	\$0.00
FLOPLEX 10	250		136	115	\$0.00	\$25,920.00
P. SEAL "C" 10	260		50	210	\$0.00	\$1,900.00
P. SEAL "M" 10	160		15	145	\$0.00	\$570.00
CALCARB "325" 104	224		10	214	\$0.00	\$100.00
CALCARB "SC" 1045	336		23	313	\$0.00	\$230.00
CALCAARB "D" 1045	448		0	448	\$0.00	\$0.00
DETERGENT 10	52		0	52	\$0.00	\$0.00
BARITE 10	7520	100	857	6663	\$1,950.00	\$16,711.50
CALC CHLORIDE	393		0	393	\$0.00	\$0.00
MAGNA FIBER	32		8	24	\$0.00	\$1,024.00
MICA FINE	239		0	239	\$0.00	\$0.00
SAWDUST	1400		525	875	\$0.00	\$3,412.50
CALC CARB "FG"	168		0	168	\$0.00	\$0.00
TRUDRILL	353	14	29	324	\$12,600.00	\$26,100.00
NATURAL GEL	240		240	0	\$0.00	\$4,334.40
TRUVIS	360	23	65	295	\$7,097.80	\$20,059.00
HYMUL	32		0	32	\$0.00	\$0.00
XCD	160		0	160	\$0.00	\$0.00
INTERDRILL S	800		0	800	\$0.00	\$0.00
EMUL	32		0	32	\$0.00	\$0.00
INTER FL	32		0	32	\$0.00	\$0.00
OW	40		4	36	\$0.00	\$6,360.00
ZINC CARB	80		0	80	\$0.00	\$0.00
BARITE 10	720		0	720	\$0.00	\$0.00
HSO 600 10	29		0	29	\$0.00	\$0.00
PTS 200 10	8		0	8	\$0.00	\$0.00
FIBER FLUID "F"	400		0	400	\$0.00	\$0.00
FIBER FLUID "C"	200		0	200	\$0.00	\$0.00

TOTALS

\$22,112.80

\$348,378.30

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD P-66		LOCATION P-66 LAT 60 40' LONG 123 30'		DATE		23-Feb-97			
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS #28 E		REPORT No		34A			
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr.		TERRY GORGICHUCK		SPUD DATE 12-Jan-97			
ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min			
BIT SIZE (mm)	311.0	LENGTH (m)	SIZE (mm)	LENGTH (m)	TANKS	88	PUMP #1	152X254	OPPOSITE DP	49	
BIT NUMBER	2C		508.0	263	HOLE	92	M3/STK	0.0138	OPPOSITE DC	91	
DRILL PIPE #1 (mm)	127.0	927	339.7	1007	TOTAL	180	PUMP #2	152X254	CIRC. TIME	56	
DRILL PIPE #2 (mm)	127.0	54	LINER	TOP/BOT.	STAND BY	152	M3/STK	0.0138	BOTTOMS UP	25	
COLLAR #1 (mm)	171.0	45					S.P.M.	230			
COLLAR #2 (mm)	228.0	96					M3/MIN	3.1786			
HOLE DATA		DESANDER DESILTER		DRILLING FLUID SPECIFICATIONS							
MUD TYPE - TRUDRILL		FLOWLINE WT.		RUN 10 Hrs		OFF		kg/m3		MUD WT.	1050 Kg/m3
HOLE COND. - GOOD		UNDERFLOW WT.						kg/m3		VISCOSITY	40-44 s/L
DEVIATION - 9.7		OVERFLOW WT.						kg/m3		FILTRATE	<20 cm3/30 min.
CURRENT OP. - DRLG w MWD		UNDERFLOW RT.						m3/min		pH	N/A
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE			
		XX DOUBLE DECK OR HIGH SPEED SHAKER		38 - 38							
MUD PROPERTIES		INVENTORY									
TIME SAMPLE TAKEN		23:00		MATERIALS		RECEIVED		MATERIALS		MATERIALS	
SAMPLE FROM		FLOWLINE		RECEIVED		LAST		USED LAST		USED TO	
PRESENT DEPTH		1122		TO DATE		24 HOURS		24 HOURS		DATE	
FLOWLINE TEMPERATURE (C)		57.8		CAUSTIC		240				240	
DENSITY		1040		X-CIDE 207		86				86	
FUNNEL VISCOSITY (s/L)		41		NAT BENTON		1960				1960	
600 READING @ 60 C		22		LIGNITE		56				56	
300 READING		15		LIME		648				648	
APPARENT VISCOSITY (mPa.s)		11		SODA ASH		40				40	
PLASTIC VISCOSITY (mPa.s)		7		BICARB		25				25	
YIELD POINT (Pa)		4		MICA COARSE		207				207	
GELS 0/10 min. (Pa)		1.5/3.0		IDF-FLR		7				7	
pH		STRIP		METER		N/A		VISPLEX II		541	
FILTRATE @ 90C (cm3)		HTHP X		10		ID FREE 208L		4		4	
FILTER CAKE (mm)		1.5		CELLOPHANE		300				300	
				MICA MEDIUM		110				110	
Pom		1.2		FLOPLEX		250				250	
EXCESS LIME KG/M3		4.44		P. SEAL "C"		260				260	
TOTAL HARDNESS (mg/l)		Ca		P. SEAL "M"		160				160	
CHLORIDES (mg/L)		NaCl		CALCARB "32"		224				224	
SAND CONTENT %		X FR.		0.75		CALCARB "SC"				336	
SOLIDS CONTENT %		X FR.		10		CALCARB "D"				448	
OIL CONTENT %				86		DETERGENT				52	
WATER CONTENT %		X		4		PREVIOUS COST		\$326,265.50		STARTING VOLUME	
ELECTRICAL STABILITY		1290		DAILY COST		\$3,780.00				VOL. BUILT	
OIL WATER RATIO		96/4		CUM. COST		\$330,045.50				VOL. LOST ON SURFACE	
CaCl2 w/w%				CUM. ENG. COST		\$21,600.00				VOL. LOST ON SUB SURFACE	
"n"		0.29		Discounted/ Total		\$165,022.75		\$186,622.75		END VOLUME	
"k"		1.88		TRUCKING						CUM. VOL BUILT	
COMMENTS											
Above Inventory is Not Valid, See Attached Material Sheet For Inventory											
ADD 50 SACKS OF LIME @ 10 MINUTES PER SACK MAINTAIN: VISCOSITY @ 41-43 s/L WITH TRUVIS START ADDITIONS OF LIME @ 10 SX PER TOUR UNTIL FURTHER NOTICE DENSITY @ 1050 kg/m³ WITH BARITE (45 SX WILL RAISE CURRENT VOLUME 10 POINTS) TRANSFER TRUDRILL AS REC OF 30 M³ AND MAY BE RECOVERABLE RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK ANY TIGHT HOLE INCREASE PUMP RATE IF POSSIBLE OTHERWISE RAISE VISCOSITY TO 45 s/L W/ TRUVIS SEEPAGE LOSSES ADD 5 SX OF INTERDRILL "S" AND 5 SX OF FIBER FLUID PER DAY CONSULT WITH ENGINEER AND MUD MAN BEFORE ADDING KEEP ALL SOURCES OF WATER AWAY FROM THE MUD TANKS											
STOCK POINT		GRANDE PRAIRIE (FORMULA)		DOWELL ENGINEER		JOE SMITH		ON LOCATION			
PHONE		532-5078		PHONE NUMBER		CAMP RM. # 5					
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.											

INVENTORY

WELL NAME RANGER FT. LIARD P-66

LOCATION LAT 60 40' LONG 123 30'

DATE 23-Feb-97

OPERATOR RANGER OIL LTD.

CONTRACTOR

CACTUS # 28 E

REPORT No 34A

REPORT FOR Mr. ART SCHRITT

REPORT FOR Mr. TERRY GORGICHUCK

SPUD DATE 12-Jan-97

PRODUCTS	MATERIALS RECEIVED TO DATE	MATERIALS USED LAST 24 HOURS	MATERIALS USED TO DATE	MATERIAL REMAINING ON LOCATION	DAILY COST	CUMULATIVE COST
CAUSTIC 10	240		170	70	\$0.00	\$9,860.00
X-CIDE 207 10	96		0	96	\$0.00	\$0.00
NAT BENTONITE 103	1960		1790	170	\$0.00	\$28,478.90
LIGNITE 1	56		18	38	\$0.00	\$360.00
LIME 1	648	30	30	618	\$465.00	\$465.00
SODA ASH 103	40		4	36	\$0.00	\$144.00
BICARB 10	25		16	9	\$0.00	\$1,264.00
MICA COARSE 1034	207		30	177	\$0.00	\$1,110.00
IDF-FLR 1	7		0	7	\$0.00	\$0.00
VISPLEX II 1	541		541	0	\$0.00	\$198,547.00
ID FREE 208L 10	4		0	4	\$0.00	\$0.00
CELLOPHANE 103	300		34	266	\$0.00	\$1,428.00
MICA MEDIUM 1042	110		0	110	\$0.00	\$0.00
FLOPLEX 10	250		135	115	\$0.00	\$25,920.00
P. SEAL "C" 104	260		50	210	\$0.00	\$1,900.00
P. SEAL "M" 104	160		15	145	\$0.00	\$570.00
CALCARB "325" 1045	224		10	214	\$0.00	\$100.00
CALCARB "SC" 1045	338		23	313	\$0.00	\$230.00
CALCAARB "D" 1045	448		0	448	\$0.00	\$0.00
DETERGENT 10	52		0	52	\$0.00	\$0.00
BARITE 10	7520	30	787	6733	\$585.00	\$15,346.50
CALC CHLORIDE	383		0	383	\$0.00	\$0.00
MAGNA FIBER	32		8	24	\$0.00	\$1,024.00
MICA FINE	239		0	239	\$0.00	\$0.00
SAWDUST	1400		525	875	\$0.00	\$3,412.50
CALC CARB "FG"	168		0	168	\$0.00	\$0.00
TRUDRILL	353	0	15	338	\$0.00	\$13,500.00
NATURAL GEL	240		240	0	\$0.00	\$4,334.40
TRUVIS	360	0	42	318	\$0.00	\$12,961.20
HYMUL	32		0	32	\$0.00	\$0.00
XCD	160		0	160	\$0.00	\$0.00
INTERDRILL S	800		0	800	\$0.00	\$0.00
EMUL	32	1	1	31	\$1,140.00	\$1,140.00
INTER FL	32		0	32	\$0.00	\$0.00
OW	40	1	5	35	\$1,590.00	\$7,950.00
ZINC CARB	80		0	80	\$0.00	\$0.00
BARITE 10	720		0	720	\$0.00	\$0.00
HSO 600 10	29		0	29	\$0.00	\$0.00
PTS 200 10	8		0	8	\$0.00	\$0.00
FIBER FLUID "F"	400		0	400	\$0.00	\$0.00
FIBER FLUID "C"	200		0	200	\$0.00	\$0.00

TOTALS

\$3,780.00

\$330,045.50

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD P-66		LOCATION P-66 LAT 60 40' LONG 123 30'		DATE		23-Feb-97	
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS # 28 E		REPORT No		35	
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr. TERRY GORGICHUCK		SPUD DATE		12-Jan-97	
ASSEMBLY		CASING		MUD VOL. (bbl)		PUMP OUTPUT		ANNULAR VEL. m/min	
BIT SIZE (mm)	311.0	LENGTH (m)		SIZE (mm)		TANKS	88	PUMP #1	1520254
BIT NUMBER	2CRR			LENGTH (m)	263	HOLE	108	M3/STK	0.0138
DRILL PIPE #1 (mm)	127.0	927		SIZE (mm)	339.7	TOTAL	196	PUMP #2	1520254
DRILL PIPE #2 (mm)	127.0	54		LINEER	TOP/BOT.	STAND BY	142	M3/STK	0.0138
COLLAR #1 (mm)	171.0	45						S.P.M.	230
COLLAR #2 (mm)	228.0	96						M3/MIN	3.1786
HOLE DATA		DESANDER DESILTER		DRILLING FLUID SPECIFICATIONS					
MUD TYPE - TRUDRILL		FLOWLINE WT. OFF		OFF		kg/m3		MUD WT. 1050 Kg/m3	
HOLE COND. - GOOD		UNDERFLOW WT.				kg/m3		VISCOSITY 38-42 s/L	
DEVIATION - 19 201 DEGREES		OVERFLOW WT.				kg/m3		FILTRATE <20 cm3/30 min.	
CURRENT OP. - DRILG w MWD		UNDERFLOW RT.				m3/min		pH N/A	
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE	
38-38 84-84 XX DOUBLE DECK OR HIGH SPEED SHAKER		38 - 38							
MUD PROPERTIES		INVENTORY							
TIME SAMPLE TAKEN		20:25		MATERIALS		RECEIVED		MATERIALS	
SAMPLE FROM		FLOWLINE		RECEIVED		LAST		USED LAST	
PRESENT DEPTH		1218		TO DATE		24 HOURS		USED TO	
FLOWLINE TEMPERATURE (C)		65.6		CAUSTIC		240		REMAINING	
DENSITY		1085		X-CIDE 207		96		ON LOCATION	
FUNNEL VISCOSITY (s/L)		38		NAT BENTON		1990		240	
600 READING @ 60 C		28		LIGNITE		56		96	
300 READING		20		LIME		648		1990	
APPARENT VISCOSITY (mPa.s)		14		SODA ASH		40		56	
PLASTIC VISCOSITY (mPa.s)		8		BICARB		25		648	
YIELD POINT (Pa)		6		MICA COARSE		207		40	
GELS 0/10 min. (Pa)		2.5/3.5		IDF-FLR		7		25	
pH		STRIP		METER		N/A		VISPLEX II	
FILTRATE @ 90C (cm3)		HTHP		X		10		ID FREE 208L	
FILTER CAKE (mm)		1.5		CELLOPHANE		300		4	
				MICA MEDIUM		110		300	
Pom		3.2		FLOPLEX		250		110	
EXCESS LIME KG/M3		11.84		P. SEAL "C"		260		250	
TOTAL HARDNESS (mg/l)		Ca		P. SEAL "M"		160		260	
CHLORIDES (mg/L)		NaCl		CALCARB "32"		224		160	
SAND CONTENT %		X		FR. X		1.2		CALCARB "SC"	
SOLIDS CONTENT %		X		FR.		12		CALCAARB "U"	
OIL CONTENT %		84		DETERGENT		52		448	
WATER CONTENT %		X		4		PREVIOUS COST		\$326,265.50	
ELECTRICAL STABILITY		1085		DAILY COST				STARTING VOLUME	
OIL WATER RATIO		95/5		CUM. COST		\$335,910.50		VOL. BUILT	
CaCl2 w/w%				CUM. ENG. COST		\$21,600.00		VOL. LOST ON SURFACE	
"n"		0.24		Discounted/ Total		\$167,955.25		\$189,555.25	
"k"		3.36		TRUCKING				END VOLUME	
								CUM. VOL BUILT	
COMMENTS									
ADD 1 DRUM OF EMUL AND 1 DRUM OF INTERDRILL OW EVERY 12 HOURS									
MAINTAIN:									
VISCOSITY @ 38-42 s/L WITH TRUVIS 10 SACKS AT 12 MINUTES PER SACK AS REQ'D									
ADDITIONS OF LIME @ 5SX PER TOUR UNTIL FURTHER NOTICE									
DENSITY @ 1050 kg/m3 BY RUNNING CENTRIFUGE FOR 1 HOUR AT A TIME									
DENSITY @ 1050 kg/m3 WITH BARITE (45 SX WILL RAISE CURRENT VOLUME 10 POINTS) TRANSFER TRUDRILL AS REC OF 30 M3 AND MAY BE RECOVERABLE									
RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK									
ANY TIGHT HOLE INCREASE PUMP RATE IF POSSIBLE OTHERWISE RAISE VISCOSITY TO 45 s/L W/ TRUVIS									
SEEPAGE LOSSES ADD 10 SX OF INTERDRILL 'S' AND 10 SACKS OF FIBER FLUID PER DAY CONSULT WITH ENGINEER AND MUD MAN BEFORE ADDING									
MONITOR SURFACE VOLUMES FOR ANY CHANGES THAT MAY INDUCATE DOWN HOLE LOSSES									
KEEP ALL SOURCES OF WATER AWAY FROM THE MUD TANKS									
STOCK POINT		GRANDE PRAIRIE (FORMULA)		DOWELL ENGINEER		JOE SMITH		ON LOCATION	
PHONE		532-5078		PHONE NUMBER		CAMP RM. # 5			
S									
BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.									

INVENTORY

WELL NAME RANGER FT. LIARD P-66

LOCATION LAT 60 40' LONG 123 30'

DATE 23-Feb-97

OPERATOR RANGER OIL LTD.

CONTRACTOR

CACTUS # 28 E

REPORT No 35

REPORT FOR Mr. ART SCHRITT

REPORT FOR Mr. TERRY GORGICHUCK

SPUD DATE 12-Jan-97

PRODUCTS		MATERIALS RECEIVED TO DATE	MATERIALS USED LAST 24 HOURS	MATERIALS USED TO DATE	MATERIAL REMAINING ON LOCATION	DAILY COST	CUMULATIVE COST
CAUSTIC	10	240		170	70	\$0.00	\$9,860.00
X-CIDE 207	10	96		0	96	\$0.00	\$0.00
NAT BENTONITE	103	1960		1790	170	\$0.00	\$28,478.90
LIGNITE	1	56		18	38	\$0.00	\$360.00
LIME	1	648	60	60	588	\$930.00	\$930.00
SODA ASH	103	40		4	36	\$0.00	\$144.00
BICARB	10	25		16	9	\$0.00	\$1,264.00
MICA COARSE	1034	207		30	177	\$0.00	\$1,110.00
IDF-FLR	1	7		0	7	\$0.00	\$0.00
VISPLEX II	16	541		541	0	\$0.00	\$198,547.00
ID FREE 208L	10	4		0	4	\$0.00	\$0.00
CELLOPHANE	103	300		34	266	\$0.00	\$1,428.00
MICA MEDIUM	1042	110		0	110	\$0.00	\$0.00
FLOPLEX	16	250		135	115	\$0.00	\$25,920.00
P. SEAL "C"	104	260		50	210	\$0.00	\$1,800.00
P. SEAL "M"	104	160		15	145	\$0.00	\$570.00
CALCARB "325"	1045	224		10	214	\$0.00	\$100.00
CALCARB "SC"	1045	336		23	313	\$0.00	\$230.00
CALCAARB "T"	1045	448		0	448	\$0.00	\$0.00
DETERGENT	10	62		0	62	\$0.00	\$0.00
BARITE	10	7520		787	6733	\$0.00	\$15,348.50
CALC CHLORIDE		393		0	393	\$0.00	\$0.00
MAGNA FIBER		32		8	24	\$0.00	\$1,024.00
MICA FINE		239		0	239	\$0.00	\$0.00
SAWDUST		1400		525	875	\$0.00	\$3,412.50
CALC CARB "FG"		168		0	168	\$0.00	\$0.00
TRUDRILL		353	10	21	332	\$9,000.00	\$18,900.00
NATURAL GEL		240		240	0	\$0.00	\$4,334.40
TRUVIS		360	10	62	308	\$3,086.00	\$16,047.20
HYMUL		32		0	32	\$0.00	\$0.00
XCD		160		0	160	\$0.00	\$0.00
INTERDRILL S		800		0	800	\$0.00	\$0.00
EMUL		32	3	1	31	\$3,420.00	\$1,140.00
INTER FL		32	1	1	31	\$1,530.00	\$1,530.00
OW		40	3	5	35	\$4,770.00	\$7,950.00
ZINC CARB		80		0	80	\$0.00	\$0.00
BARITE	10	720		0	720	\$0.00	\$0.00
HSO 600	10	29		0	29	\$0.00	\$0.00
PTS 200	10	8		0	8	\$0.00	\$0.00
FIBER FLUID "F"		400		0	400	\$0.00	\$0.00
FIBER FLUID "C"		200		0	200	\$0.00	\$0.00

TOTALS \$22,736.00 \$340,526.50

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD P-66		LOCATION P-66 LAT 60 40' LONG 123 30'		DATE		24-Feb-97	
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS #28 E		REPORT No		38	
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr.		TERRY GORGICHUCK		SPUD DATE 12-Jan-97	
ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min	
BIT SIZE (mm)	311.0	LENGTH (m)		SIZE (mm)	LENGTH(m)	TANKS	73	PUMP #1	152X254
BIT NUMBER	2CRR			608.0	263	HOLE	109	M3/STK	0.0138
DRILL PIPE #1(mm)	127.0	1162		339.7	1007	TOTAL	182	PUMP #2	152X254
DRILLPIPE #2(mm)	127.0	54		LINER	TOPBOT.	STAND BY	142	M3/STK	0.0138
COLLAR #1(mm)	171.0	45						S.P.M.	230
COLLAR #2(mm)	228.0	96						M3/MIN	3.1786
HOLE DATA		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS					
MUD TYPE - TRUDRILL		FLOWLINE WT. OFF		OFF		kg/m3		MUD WT. 1020 Kg/m3	
HOLE COND.-GOOD		UNDERFLOW WT. 2000				kg/m3		VISCOSITY 37-39 s/L	
DEVIATION-24.8		OVERFLOW WT. 985				kg/m3		FILTRATE <20 cm3/30 min.	
CURRENT OP.-DRLG w MWD		UNDERFLOW RT.				m3/min		pH N/A	
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE	
38-38 84-84		XX DOUBLE DECK OR HIGH SPEED SHAKER		38 - 38					
MUD PROPERTIES		INVENTORY							
TIME SAMPLE TAKEN		20:00		MATERIALS		RECEIVED		MATERIALS	
SAMPLE FROM		FLOWLINE		RECEIVED		LAST		USED LAST	
PRESENT DEPTH		1303		TO DATE		24 HOURS		USED TO	
FLOWLINE TEMPERATURE (C)		71.7		CAUSTIC		240		DATE	
DENSITY		1075		X-CIDE 207		86		MATERIAL REMAINING	
FUNNEL VISCOSITY (s/L)		39		NAT BENTON		1960		ON LOCATION	
600 READING @ 60 C		30		LIGNITE		56			
300 READING		21		LIME		648			
APPARENT VISCOSITY (mPa.s)		15		SODA ASH		40			
PLASTIC VISCOSITY (mPa.s)		9		BICARB		25			
YIELD POINT (Pa)		6		MICA COARSE		207			
GELS 0/10 min. (Pa)		3.0/4.5		IDF-FLR		7			
pH STRIP		METER		N/A		VISPLEX II		541	
FILTRATE @ 90C (cm3)		HTHP X		10		ID FREE 208L		4	
FILTER CAKE (mm)		1.5		CELLOPHANE		300		300	
				MICA MEDIUM		110		110	
Pom		4		FLOPLEX		250		250	
EXCESS LIME KG/M3		14.8		P. SEAL "C"		260		260	
TOTAL HARDNESS (mg/l)		Ca		P. SEAL "M"		160		160	
CHLORIDES (mg/L)		NaCl		CALCARB "32"		224		224	
SAND CONTENT % X		FR. X		0.75		CALCARB "SC"		336	
SOLIDS CONTENT % X		FR.		14		CALCARB "D"		448	
OIL CONTENT %		85		DETERGENT		52		52	
WATER CONTENT % X		1		PREVIOUS COST		\$355,727.50		STARTING VOLUME 353	
ELECTRICAL STABILITY		1210		DAILY COST		\$15,488.50		VOL. BUILT	
OIL WATER RATIO		99/1		CUM. COST		\$358,813.50		VOL. LOST ON SURFACE 8	
CaCl2 w/w%				CUM. ENG. COST		\$22,080.00		VOL. LOST ON SUB SURFACE 21	
"n"		0.20		Discounted/ Total		\$179,406.75 \$201,486.75		END VOLUME 324	
"k"		4.36		TRUCKING				CUM. VOL BUILT	
COMMENTS									
Above Inventory is Not Valid, See Attached Material Sheet For Inventory									
ADD 1 DRUM OF EMUL AND 1 DRUM OF INTERDRILL ILL OW AND 1 DRUM OF INTERDRILL FL EVERY 12 HOURS									
MAINTAIN:									
VISCOSITY @ 38-42 s/L WITH TRUVIS 10 SACKS AT 12 MINUTES PER SACK AS REQ'D									
NO LIME ADDITIONS UNTIL FURTHER NOTICE									
DENSITY @ 1020kg/m3 by RUNNING CENTRIFUGE AS REQUIRED									
DENSITY @ 1050 kg/m3 WITH BARITE (45 SX WILL RAISE CURRENT VOLUME 10 POINTS) TRANSFER TRUDRILL AS REC OF 30 M3 AND MAY BE RECOVERABLE									
RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK									
TRANSFER TRUDRILL AS REQUIRED TO MAINTAIN VOLUME									
ANY TIGHT HOLE INCREASE PUMP RATE IF POSSIBLE OTHERWISE RAISE VISCOSITY TO 45 s/L W/ TRUVIS									
SEEPAGE LOSSES ADD 10 SX OF INTERDRILL 'S' AND 10 SACKS OF FIBER FLUID PER DAY CONSULT WITH ENGINEER AND MUD MAN BEFORE ADDING									
MONITOR SURFACE VOLUMES FOR ANY CHANGES THAT MAY INDUCATE DOWN HOLE LOSSES									
KEEP ALL SOURCES OF WATER AWAY FROM THE MUD TANKS									
RETORT OF DRYER CUTTINGS 60% SOLIDS 34% OIL 6% WATER									
STOCK POINT		GRANDE PRAIRIE (FORMULA)		DOWELL ENGINEER		JOE SMITH		ON LOCATION	
PHONE		532-5078		PHONE NUMBER		CAMP RM. # 5			
S									
BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.									

Schlumberger

Dowell

INVENTORY

WELL NAME RANGER FT. LIARD P-66

LOCATION LAT 60 40' LONG 123 30'

DATE 24-Feb-87

OPERATOR RANGER OIL LTD.

CONTRACTOR

CACTUS # 26 E

REPORT No 36

REPORT FOR Mr. ART SCHRITT

REPORT FOR Mr. TERRY GORGICHUCK

SPUD DATE 12-Jan-87

PRODUCTS		MATERIALS RECEIVED TO DATE	MATERIALS USED LAST 24 HOURS	MATERIALS USED TO DATE	MATERIAL REMAINING ON LOCATION	DAILY COST	CUMULATIVE COST
CAUSTIC	10	240		187	53	\$0.00	\$10,846.00
X-CIDE 207	10	96		0	96	\$0.00	\$0.00
NAT BENTONITE 103		1960		1790	170	\$0.00	\$28,478.90
LIGNITE	1	56		18	38	\$0.00	\$360.00
LIME	1	648	10	120	528	\$155.00	\$1,860.00
SODA ASH	103	40		4	36	\$0.00	\$144.00
BICARB	10	25		16	9	\$0.00	\$1,264.00
MICA COARSE 1034		48		30	18	\$0.00	\$1,110.00
IDF-FLR	1	7		0	7	\$0.00	\$0.00
VISPLEX II	10	541		541	0	\$0.00	\$196,547.00
ID FREE 208L	10	4		0	4	\$0.00	\$0.00
CELLOPHANE	103	100		34	66	\$0.00	\$1,428.00
MICA MEDIUM 1042		97		0	97	\$0.00	\$0.00
FLOPLEX	10	250		135	115	\$0.00	\$26,920.00
P. SEAL "C"	10	50		50	0	\$0.00	\$1,900.00
P. SEAL "M"	104	16		16	0	\$0.00	\$608.00
CALCARB "325" 1044		224		14	210	\$0.00	\$140.00
CALCARB "SC" 1045		336		33	303	\$0.00	\$330.00
CALCAARB "D" 1045		448		0	448	\$0.00	\$0.00
DETERGENT	10	62		0	62	\$0.00	\$0.00
BARITE	10	7520	85	67	7453	\$1,657.50	\$1,306.50
CALC CHLORIDE		393		0	393	\$0.00	\$0.00
MAGNA FIBER		32		8	24	\$0.00	\$1,024.00
MICA FINE		239		39	200	\$0.00	\$1,443.00
SAWDUST		1400		525	875	\$0.00	\$3,412.50
CALC CARB "FG"		0		0	0	\$0.00	\$0.00
TRUDRILL		353	4	25	328	\$3,600.00	\$22,500.00
NATURAL GEL		240		240	0	\$0.00	\$4,334.40
TRUVIS		360	10	62	298	\$3,086.00	\$19,133.20
HYMUL		32		0	32	\$0.00	\$0.00
XCD		160		0	160	\$0.00	\$0.00
INTERDRILL S		800		0	800	\$0.00	\$0.00
EMUL		32	2	4	28	\$2,280.00	\$4,560.00
INTER FL		32	1	2	30	\$1,530.00	\$3,060.00
OW		40	2	8	32	\$3,180.00	\$12,720.00
ZINC CARB		80		0	80	\$0.00	\$0.00
BARITE	10	720		720	0	\$0.00	\$12,384.00
HSO 600	10	29		0	29	\$0.00	\$0.00
PTS 200	10	8		0	8	\$0.00	\$0.00
FIBER FLUID "F"		400		0	400	\$0.00	\$0.00
FIBER FLUID "C"		200		0	200	\$0.00	\$0.00

TOTALS

\$15,488.50

\$358,813.50

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD P-66		LOCATION P-66 LAT 60 40' LONG 123 30'		DATE		25-Feb-97	
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS #28 E		REPORT No		37	
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr.		TERRY GORGICHUCK		SPUD DATE	
		12-Jan-97							
ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min	
BIT SIZE (mm)	311.0	LENGTH (m)		SIZE (mm)	LENGTH(m)	TANKS	76	PUMP #1	152X254
BIT NUMBER	2CRR			508.0	263	HOLE	113	M3/STK	0.0138
DRILL PIPE #1(mm)	127.0	1203	339.7	1007	TOTAL	189	PUMP #2	152X254	OPPOSITE DP
DRILLPIPE #2(mm)	127.0	54	LINER	TOP/BOT.	STAND BY	127	M3/STK	0.0138	OPPOSITE DC
COLLAR #1(mm)	171.0	45					S.P.M.	230	CIRC. TIME
COLLAR #2(mm)	228.0	96					M3/MIN	3.1786	BOTTOMS UP
HOLE DATA		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS					
MUD TYPE - TRUDRILL		FLOWLINE WT.		1080	OFF	kg/m3	MUD WT.	1020 Kg/m3	
HOLE COND.-GOOD		UNDERFLOW WT.		2085		kg/m3	VISCOSITY	37-39 s/L	
DEVIATION-28.2		OVERFLOW WT.		1000		kg/m3	FILTRATE	<20 cm3/30 min.	
CURRENT OP.-DRLG w MWD		UNDERFLOW RT.		0.003		m3/min	pH	N/A	
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE	
38-38		84-84		XX DOUBLE DECK OR HIGH SPEED SHAKER		38 - 38			
MUD PROPERTIES		INVENTORY							
TIME SAMPLE TAKEN	7:05	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE
SAMPLE FROM	FLOWLINE	RECEIVED	TO DATE	LAST	USED LAST	USED TO	REMAINING	COST	COST
PRESENT DEPTH	1344			24 HOURS	24 HOURS	DATE	ON LOCATION		
FLOWLINE TEMPERATURE (C)	71.7	CAUSTIC	240				240		
DENSITY	1055	X-CIDE 207	96				96		
FUNNEL VISCOSITY (s/L)	37	NAT BENTON	1960				1960		
600 READING @ 60 C	28	LIGNITE	56				56		
300 READING	19	LIME	648				648		
APPARENT VISCOSITY (mPa.s)	14	SODA ASH	40				40		
PLASTIC VISCOSITY (mPa.s)	9	BICARB	25				25		
YIELD POINT (Pa)	5	MICA COARSE	207				207		
GELS @10 min. (Pa)	2.5/1.0	IDF-FLR	7				7		
pH	STRIP	METER	N/A	VISPLEX II	541		541		
FILTRATE @ 90C (cm3)	HTHP	X	10	ID FREE 208L	4		4		
FILTER CAKE (mm)	1.5	CELLOPHANE	300				300		
		MICA MEDIUM	110				110		
Pom	4	FLOPLEX	250				250		
EXCESS LIME KG/M3	14.8	P. SEAL "C"	260				260		
TOTAL HARDNESS (mg/l)		P. SEAL "M"	160				160		
CHLORIDES (mg/L)		CALCARB "32"	224				224		
SAND CONTENT %	X	FR.	X	0.75	CALCARB "SC"	336	336		
SOLIDS CONTENT %	X	FR.	X	12.5	CALCAARB "V"	448	448		
OIL CONTENT %		87	DETERGENT	52			52		
WATER CONTENT %	X	1	PREVIOUS COST	\$355,727.50			STARTING VOLUME	353	
ELECTRICAL STABILITY	1930		DAILY COST	\$15,488.50			VOL BUILT		
OIL WATER RATIO	99.5/1.5		CUM. COST	\$358,813.50			VOL LOST ON SURFACE	8	
CaCl2 w/w%			CUM. ENG. COST	\$22,560.00			VOL LOST ON SUB SURFACE	21	
"n"	0.21		Discounted/ Total	\$179,406.75	\$201,966.75		END VOLUME	324	
"k"	3.58		TRUCKING				CUM. VOL BUILT.		
COMMENTS									
Above Inventory is Not Valid, See Attached Material Sheet For Inventory									
ADD 1 DRUM OF EMUL AND 1 DRUM OF INTERDRILL ILL OW AND 1 DRUM OF INTERDRILL FL EVERY 12 HOURS									
MAINTAIN:									
VISCOSITY @ 38-42 s/L WITH TRUVIS 10 SACKS AT 12 MINUTES PER SACK AS REQ'D									
NO LIME ADDITIONS UNTIL FURTHER NOTICE									
DENSITY @ 1020kg/m3 by RUNNING CENTRIFUGE AS REQUIRED									
DENSITY @ 1050 kg/m3 WITH BARITE (45 SX WILL RAISE CURRENT VOLUME 10 POINTS) TRANSFER TRUDRILL AS REC OF 30 M3 AND MAY BE RECOVERABLE									
RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK									
TRANSFER TRUDRILL AS REQUIRED TO MAINTAIN VOLUME									
ANY TIGHT HOLE INCREASE PUMP RATE IF POSSIBLE OTHERWISE RAISE VISCOSITY TO 45 s/L W/ TRUVIS									
SEEPAGE LOSSES ADD 10 SX OF INTERDRILL 'S' AND 10 SACKS OF FIBER FLUID PER DAY CONSULT WITH ENGINEER AND MUD MAN BEFORE ADDING									
MONITOR SURFACE VOLUMES FOR ANY CHANGES THAT MAY INDICATE DOWN HOLE LOSSES									
KEEP ALL SOURCES OF WATER AWAY FROM THE MUD TANKS									
RETORT OF DRYER CUTTINGS 60% SOLIDS 34% OIL 6% WATER									
STOCK POINT	GRANDE PRAIRIE (FORMULA)			DOWELL ENGINEER		JOE SMITH		ON LOCATION	
PHONE	532-5078			PHONE NUMBER		CAMP RM. # 5			
S									
BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE									

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD P-66		LOCATION P-66 LAT 60 40' LONG 123 30'		DATE		25-Feb-97	
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS # 29 E		REPORT No		37A	
REPORT FOR Mr.		JOHN FAULKNER		REPORT FOR Mr. TERRY GORGICHUCK		SPUD DATE		12-Jan-97	
ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. (m/min)	
BIT SIZE (mm)	311.0	LENGTH (m)		SIZE (mm)		TANKS	76	PUMP #1	152X254
BIT NUMBER	2CRR			263		HOLE	113	M3/STK	0.0138
DRILL PIPE #1 (mm)	127.0	1203		339.7	1007	TOTAL	189	PUMP #2	152X254
DRILL PIPE #2 (mm)	127.0	54		LINER	TOP/BOT.	STAND BY	97	M3/STK	0.0138
COLLAR #1 (mm)	171.0	45						S.P.M.	230
COLLAR #2 (mm)	228.0	96						M3/MIN	3.1786
HOLE DATA		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS					
MUD TYPE - TRUDRILL		FLOWLINE WT.		1060	OFF	OFF	kg/m3	MUD WT.	
HOLE COND. -STUCK PIPE 1335M		UNDERFLOW WT.		2085			kg/m3	VISCOSITY	
DEVIATION-28.2		OVERFLOW WT.		1000			kg/m3	FILTRATE	
CURRENT OP.-WORK PIPE no circ		UNDERFLOW RT.		0.003			m3/min	pH	
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE	
		XX 38-38 +84-84 DOUBLE DECK OR HIGH SPEED SHAKER		38 - 38					
MUD PROPERTIES		INVENTORY							
TIME SAMPLE TAKEN	7:05	MATERIALS		MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY
SAMPLE FROM	FLOWLINE			RECEIVED	LAST	USED LAST	USED TO	REMAINING	COST
PRESENT DEPTH	1349			TO DATE	24 HOURS	24 HOURS	DATE	ON LOCATION	CUMULATIVE
FLOWLINE TEMPERATURE (C)	71.7	CAUSTIC		240				240	
DENSITY	1055	X-CIDE 207		96				96	
FUNNEL VISCOSITY (s/L)	37	NAT BENTON		1960				1960	
600 READING @ 60 C	28	LIGNITE		56				56	
300 READING	19	LIME		648				648	
APPARENT VISCOSITY (mPa.s)	14	SODA ASH		40				40	
PLASTIC VISCOSITY (mPa.s)	9	BICARB		25				25	
YIELD POINT (Pa)	5	MICA COARSE		207				207	
GEL 3.0/10 min. (Pa)	2.5/4.0	IDF-FLR		7				7	
pH	STRIP	METER	N/A	VISPLEX II	541			541	
FILTRATE @ 90C (cm3)	HTHP	X	11.8	ID FREE 208L	4			4	
FILTER CAKE (mm)			1.5	CELLOPHANE	300			300	
				MICA MEDIUM	110			110	
Pom			4.1	FLOPLEX	250			250	
EXCESS LIME KG/M3			15.17	P. SEAL "C"	260			260	
TOTAL HARDNESS (mg/l)		Ca		P. SEAL "M"	160			160	
CHLORIDES (mg/L)		NaCl		CALCARB "32"	224			224	
SAND CONTENT %	X	FR.	X	0.75	CALCARB "SC"	336		336	
SOLIDS CONTENT %	X	FR.	X	12.5	CALCARB "D"	448		448	
OIL CONTENT %			87	DETERGENT	52			52	
WATER CONTENT %	X		1	PREVIOUS COST	\$355,727.50			STARTING VOLUME	353
ELECTRICAL STABILITY			1930	DAILY COST	\$37,277.80			VOL. BUILT	
OIL WATER RATIO			99.5/1.5	CUM. COST	\$407,730.80			VOL. LOST ON SURFACE	10
CaCl2 w/w%				CUM. ENG. COST	\$22,580.00			VOL. LOST ON SUB SURFACE	49
"n"			0.21	Discounted/ Total	\$203,865.40	\$226,425.40		END VOLUME	294
"k"			3.58	TRUCKING				CUM. VOL BUILT.	
COMMENTS									
STUCK while making a connection									
Above Inventory is Not Valid, See Attached Material Sheet For Inventory									
RETORT of CENTRIFUGE SLUDGE from UFLOW 58% SOLIDS 36% OIL 6% WATER									
MAINTAIN									
VISCOSITY @ 38-42 s/L WITH TRUVIS 10 SACKS AT 12 MINUTES PER SACK AS REQ'D									
NO LIME ADDITIONS UNTIL FURTHER NOTICE									
DO NOT RUN CENTRIFUGES UNTIL FURTHER NOTICE									
DENSITY @ 1050 kg/m ³ WITH BARITE (45 SX WILL RAISE CURRENT VOLUME 10 POINTS) TRANSFER TRUDRILL AS REQ REQUIRED TO MAINTAIN VOLUME									
RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK									
TRANSFER TRUDRILL AS REQUIRED TO MAINTAIN VOLUME									
ANY TIGHT HOLE INCREASE PUMP RATE IF POSSIBLE OTHERWISE RAISE VISCOSITY TO 45 s/L W/ TRUVIS									
SEEPAGE LOSSES ADD 10 SX OF INTERDRILL 'S' AND 10 SACKS OF FIBER FLUID PER DAY CONSULT WITH ENGINEER AND MUD MAN BEFORE ADDING									
MONITOR SURFACE VOLUMES FOR ANY CHANGES THAT MAY INDICATE DOWN HOLE LOSSES									
KEEP ALL SOURCES OF WATER AWAY FROM THE MUD TANKS									
RETORT of CENTRIFUGE UFLOW 5 58% SOLIDS 36% OIL 6% WATER									
STOCK POINT	GRANDE PRAIRIE (FORMULA)			DOWELL ENGINEER		JOE SMITH		ON LOCATION	
PHONE	532-5078			PHONE NUMBER		CAMP RM. # 5			
S									
BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.									

Schlumberger

Dowell

INVENTORY

WELL NAME RANGER FT. LIARD P-66

LOCATION LAT 60 40' LONG 123 30'

DATE 25-Feb-97

OPERATOR RANGER OIL LTD.

CONTRACTOR CACTUS # 26 E

REPORT No 37

REPORT FOR Mr. JOHN FAULKNER

REPORT FOR Mr. TERRY GORGICHUCK

SPUD DATE 12-Jan-97

PRODUCTS	MATERIALS RECEIVED TO DATE	MATERIALS USED LAST 24 HOURS	MATERIALS USED TO DATE	MATERIAL REMAINING ON LOCATION	DAILY COST	CUMULATIVE COST
CAUSTIC 10	240		187	53	\$0.00	\$10,846.00
X-CIDE 207 10	96		0	96	\$0.00	\$0.00
NAT BENTONITE 103	1960		1790	170	\$0.00	\$28,478.90
LIGNITE 1	56		18	38	\$0.00	\$360.00
LIME 1	648		130	518	\$0.00	\$2,015.00
SODA ASH 103	40		4	36	\$0.00	\$144.00
BICARB 10	25		16	9	\$0.00	\$1,264.00
MICA COARSE 103	48		30	18	\$0.00	\$1,110.00
IDF-FLR 1	7		0	7	\$0.00	\$0.00
VISPLEX II 10	541		541	0	\$0.00	\$198,547.00
ID FREE 208L 10	4		0	4	\$0.00	\$0.00
CELLOPHANE 103	100		34	66	\$0.00	\$1,428.00
MICA MEDIUM 1042	97		0	97	\$0.00	\$0.00
FLOPLEX 10	250		135	115	\$0.00	\$25,920.00
P. SEAL "C" 10	50		50	0	\$0.00	\$1,900.00
P. SEAL "M" 104	16		16	0	\$0.00	\$608.00
CALCARB "325" 1045	224		14	210	\$0.00	\$140.00
CALCARB "SC" 1045	336		33	303	\$0.00	\$330.00
CALCAARB "O" 1045	448		0	448	\$0.00	\$0.00
DETERGENT 10	62		0	62	\$0.00	\$0.00
BARITE 10	7520		130	7390	\$0.00	\$2,535.00
CALC CHLORIDE	393		0	393	\$0.00	\$0.00
MAGNA FIBER	32		8	24	\$0.00	\$1,024.00
MICA FINE	239		39	200	\$0.00	\$1,443.00
SAWDUST	1400		525	875	\$0.00	\$3,412.50
CALC CARB "FG"	0		0	0	\$0.00	\$0.00
TRUDRILL	353	30	59	294	\$27,000.00	\$53,100.00
NATURAL GEL	240		240	0	\$0.00	\$4,334.40
TRUVIS	360	23	95	265	\$7,097.80	\$29,317.00
HYMUL	32		0	32	\$0.00	\$0.00
XCD	160		0	160	\$0.00	\$0.00
INTERDRILL S	600		0	600	\$0.00	\$0.00
EMUL	32		3	29	\$0.00	\$3,420.00
INTER FL	32		3	29	\$0.00	\$4,590.00
OW	40	2	12	28	\$3,180.00	\$19,080.00
ZINC CARB	80		0	80	\$0.00	\$0.00
BARITE 10	720		720	0	\$0.00	\$12,384.00
HSO 600 10	29		0	29	\$0.00	\$0.00
PTS 200 10	8		0	8	\$0.00	\$0.00
FIBER FLUID "F"	400		0	400	\$0.00	\$0.00
FIBER FLUID "C"	200		0	200	\$0.00	\$0.00

ADJUSTMENTS MADE AS PER PHYSICAL COUNT OF STOCKS ON LOC.

TOTALS \$37,277.80 \$407,730.80

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD P-66		LOCATION P-66 LAT 60 40' LONG 123 30'		DATE		26-Feb-97																																																																																																																																																																																																																																																																																																													
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS #28 E		REPORT No		38																																																																																																																																																																																																																																																																																																													
REPORT FOR Mr.		JOHN FAULKNER		REPORT FOR Mr. TERRY GORGICHUK		SPUD DATE		12-Jan-97																																																																																																																																																																																																																																																																																																													
<table border="1"> <tr> <th colspan="2">ASSEMBLY</th> <th colspan="2">CASING</th> <th colspan="2">MUD VOL. (M3)</th> <th colspan="2">PUMP OUTPUT</th> <th colspan="2">ANNULAR VEL. m/min</th> </tr> <tr> <td>BIT SIZE (mm)</td> <td>311.0</td> <td>LENGTH (m)</td> <td>SIZE (mm)</td> <td>LENGTH (m)</td> <td>TANKS</td> <td>76</td> <td>PUMP #1</td> <td>152X254</td> <td>OPPOSITE DP</td> <td>50</td> </tr> <tr> <td>BIT NUMBER</td> <td>2CRR</td> <td></td> <td>508.0</td> <td>263</td> <td>HOLE</td> <td>113</td> <td>M3/STK</td> <td>0.0138</td> <td>OPPOSITE DC</td> <td>91</td> </tr> <tr> <td>DRILL PIPE #1 (mm)</td> <td>127.0</td> <td>1203</td> <td>339.7</td> <td>1007</td> <td>TOTAL</td> <td>189</td> <td>PUMP #2</td> <td>152X254</td> <td>CIRC. TIME</td> <td>59</td> </tr> <tr> <td>DRILL PIPE #2 (mm)</td> <td>127.0</td> <td>54</td> <td>LINER</td> <td>TOP/BOT.</td> <td>STAND BY</td> <td>87</td> <td>M3/STK</td> <td>0.0138</td> <td>BOTTOMS UP</td> <td>28</td> </tr> <tr> <td>COLLAR #1 (mm)</td> <td>171.0</td> <td>45</td> <td></td> <td></td> <td></td> <td></td> <td>S.P.M.</td> <td>230</td> <td></td> <td></td> </tr> <tr> <td>COLLAR #2 (mm)</td> <td>228.0</td> <td>96</td> <td></td> <td></td> <td></td> <td></td> <td>M3/MIN</td> <td>3.1786</td> <td></td> <td></td> </tr> </table>										ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min		BIT SIZE (mm)	311.0	LENGTH (m)	SIZE (mm)	LENGTH (m)	TANKS	76	PUMP #1	152X254	OPPOSITE DP	50	BIT NUMBER	2CRR		508.0	263	HOLE	113	M3/STK	0.0138	OPPOSITE DC	91	DRILL PIPE #1 (mm)	127.0	1203	339.7	1007	TOTAL	189	PUMP #2	152X254	CIRC. TIME	59	DRILL PIPE #2 (mm)	127.0	54	LINER	TOP/BOT.	STAND BY	87	M3/STK	0.0138	BOTTOMS UP	28	COLLAR #1 (mm)	171.0	45					S.P.M.	230			COLLAR #2 (mm)	228.0	96					M3/MIN	3.1786																																																																																																																																																																																																																																		
ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min																																																																																																																																																																																																																																																																																																													
BIT SIZE (mm)	311.0	LENGTH (m)	SIZE (mm)	LENGTH (m)	TANKS	76	PUMP #1	152X254	OPPOSITE DP	50																																																																																																																																																																																																																																																																																																											
BIT NUMBER	2CRR		508.0	263	HOLE	113	M3/STK	0.0138	OPPOSITE DC	91																																																																																																																																																																																																																																																																																																											
DRILL PIPE #1 (mm)	127.0	1203	339.7	1007	TOTAL	189	PUMP #2	152X254	CIRC. TIME	59																																																																																																																																																																																																																																																																																																											
DRILL PIPE #2 (mm)	127.0	54	LINER	TOP/BOT.	STAND BY	87	M3/STK	0.0138	BOTTOMS UP	28																																																																																																																																																																																																																																																																																																											
COLLAR #1 (mm)	171.0	45					S.P.M.	230																																																																																																																																																																																																																																																																																																													
COLLAR #2 (mm)	228.0	96					M3/MIN	3.1786																																																																																																																																																																																																																																																																																																													
<table border="1"> <tr> <th colspan="2">HOLE DATA</th> <th colspan="2">CENTRIFUGE</th> <th colspan="2">DRILLING FLUID SPECIFICATIONS</th> </tr> <tr> <td>MUD TYPE - TRUDRILL</td> <td>FLOWLINE WT.</td> <td>1060 OFF</td> <td>OFF</td> <td>kg/m3</td> <td>MUD WT.</td> <td>1050-1100 Kg/m3</td> </tr> <tr> <td>HOLE COND. - STUCK PIPE 1335M</td> <td>UNDERFLOW WT.</td> <td>2085</td> <td></td> <td>kg/m3</td> <td>VISCOSITY</td> <td>38-42 S/L s/L</td> </tr> <tr> <td>DEVIATION - 28.2</td> <td>OVERFLOW WT.</td> <td>1000</td> <td></td> <td>kg/m3</td> <td>FILTRATE</td> <td><20 cm3/30 min.</td> </tr> <tr> <td>CURRENT OP. - JAR ON STRING</td> <td>UNDERFLOW RT.</td> <td>0.003</td> <td></td> <td>m3/min</td> <td>pH</td> <td>N/A</td> </tr> </table>										HOLE DATA		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS		MUD TYPE - TRUDRILL	FLOWLINE WT.	1060 OFF	OFF	kg/m3	MUD WT.	1050-1100 Kg/m3	HOLE COND. - STUCK PIPE 1335M	UNDERFLOW WT.	2085		kg/m3	VISCOSITY	38-42 S/L s/L	DEVIATION - 28.2	OVERFLOW WT.	1000		kg/m3	FILTRATE	<20 cm3/30 min.	CURRENT OP. - JAR ON STRING	UNDERFLOW RT.	0.003		m3/min	pH	N/A																																																																																																																																																																																																																																																																										
HOLE DATA		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS																																																																																																																																																																																																																																																																																																																	
MUD TYPE - TRUDRILL	FLOWLINE WT.	1060 OFF	OFF	kg/m3	MUD WT.	1050-1100 Kg/m3																																																																																																																																																																																																																																																																																																															
HOLE COND. - STUCK PIPE 1335M	UNDERFLOW WT.	2085		kg/m3	VISCOSITY	38-42 S/L s/L																																																																																																																																																																																																																																																																																																															
DEVIATION - 28.2	OVERFLOW WT.	1000		kg/m3	FILTRATE	<20 cm3/30 min.																																																																																																																																																																																																																																																																																																															
CURRENT OP. - JAR ON STRING	UNDERFLOW RT.	0.003		m3/min	pH	N/A																																																																																																																																																																																																																																																																																																															
<table border="1"> <tr> <td>EQUIPMENT:</td> <td>XX DEGASSER</td> <td>DESILTER</td> <td>DESANDER</td> <td>XXX CENTRIFUGE</td> </tr> <tr> <td>38-38</td> <td>84-84</td> <td>XX DOUBLE DECK OR HIGH SPEED SHAKER</td> <td>38 - 38</td> <td></td> </tr> </table>										EQUIPMENT:	XX DEGASSER	DESILTER	DESANDER	XXX CENTRIFUGE	38-38	84-84	XX DOUBLE DECK OR HIGH SPEED SHAKER	38 - 38																																																																																																																																																																																																																																																																																																			
EQUIPMENT:	XX DEGASSER	DESILTER	DESANDER	XXX CENTRIFUGE																																																																																																																																																																																																																																																																																																																	
38-38	84-84	XX DOUBLE DECK OR HIGH SPEED SHAKER	38 - 38																																																																																																																																																																																																																																																																																																																		
<table border="1"> <tr> <th colspan="4">MUD PROPERTIES</th> <th colspan="6">INVENTORY</th> </tr> <tr> <td>TIME SAMPLE TAKEN</td> <td>7:05</td> <td>MATERIALS</td> <td>MATERIALS</td> <td>RECEIVED</td> <td>MATERIALS</td> <td>MATERIALS</td> <td>MATERIAL</td> <td>DAILY</td> <td>CUMULATIVE</td> </tr> <tr> <td>SAMPLE FROM</td> <td>FLOWLINE</td> <td></td> <td>RECEIVED</td> <td>LAST</td> <td>USED LAST</td> <td>USED TO</td> <td>REMAINING</td> <td>COST</td> <td>COST</td> </tr> <tr> <td>PRESENT DEPTH</td> <td>1349</td> <td></td> <td>TO DATE</td> <td>24 HOURS</td> <td>24 HOURS</td> <td>DATE</td> <td>ON LOCATION</td> <td></td> <td></td> </tr> <tr> <td>FLOWLINE TEMPERATURE (C)</td> <td>71.7</td> <td>LIME</td> <td>648</td> <td></td> <td></td> <td>130</td> <td>518</td> <td></td> <td>\$155.00</td> </tr> <tr> <td>DENSITY</td> <td>1055</td> <td>MICA COARSE</td> <td>48</td> <td></td> <td></td> <td>30</td> <td>18</td> <td></td> <td>\$1,110.00</td> </tr> <tr> <td>FUNNEL VISCOSITY (s/L)</td> <td>37</td> <td>CELLOPHANE</td> <td>100</td> <td></td> <td></td> <td>34</td> <td>66</td> <td></td> <td>\$1,428.00</td> </tr> <tr> <td>600 READING @ 60 C</td> <td>28</td> <td>MICA MED</td> <td>97</td> <td></td> <td></td> <td></td> <td>97</td> <td></td> <td></td> </tr> <tr> <td>300 READING</td> <td>19</td> <td>CALCARB 325</td> <td>224</td> <td></td> <td></td> <td>14</td> <td>210</td> <td></td> <td>\$140.00</td> </tr> <tr> <td>APPARENT VISCOSITY (mPa.s)</td> <td>14</td> <td>CALCARBSC</td> <td>336</td> <td></td> <td></td> <td>33</td> <td>303</td> <td></td> <td>\$330.00</td> </tr> <tr> <td>PLASTIC VISCOSITY (mPa.s)</td> <td>9</td> <td>CALCARB O</td> <td>448</td> <td></td> <td></td> <td></td> <td>448</td> <td></td> <td></td> </tr> <tr> <td>YIELD POINT (Pa)</td> <td>5</td> <td>BARITE</td> <td>7520</td> <td></td> <td></td> <td>130</td> <td>7390</td> <td></td> <td>\$2,535.00</td> </tr> <tr> <td>GELS 0/10 min. (Pa)</td> <td>2.5/4.0</td> <td>CACL2</td> <td>393</td> <td></td> <td></td> <td></td> <td>393</td> <td></td> <td></td> </tr> <tr> <td>pH</td> <td>STRIP</td> <td>METER</td> <td>N/A</td> <td>MICA FINE</td> <td>239</td> <td>39</td> <td>200</td> <td></td> <td>\$1,443.00</td> </tr> <tr> <td>FILTRATE @ 90C (cm3)</td> <td>HTHP</td> <td>X</td> <td>11.8</td> <td>SAWDUST</td> <td>1400</td> <td>525</td> <td>875</td> <td></td> <td>\$3,412.50</td> </tr> <tr> <td>FILTER CAKE (mm)</td> <td></td> <td></td> <td>1.5</td> <td>TRUDRILL</td> <td>353</td> <td>59</td> <td>294</td> <td></td> <td>\$53,100.00</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>TRUVIS</td> <td>360</td> <td>95</td> <td>265</td> <td></td> <td>\$29,307.50</td> </tr> <tr> <td>Pom</td> <td></td> <td></td> <td>4.1</td> <td>INTERDRILL S</td> <td>800</td> <td></td> <td>800</td> <td></td> <td></td> </tr> <tr> <td>EXCESS LIME KG/M3</td> <td></td> <td></td> <td>15.17</td> <td>EMUL</td> <td>32</td> <td>3</td> <td>29</td> <td></td> <td>\$3,420.00</td> </tr> <tr> <td>TOTAL HARDNESS (mg/l)</td> <td></td> <td>Ca</td> <td></td> <td>INTERDRILL FL</td> <td>32</td> <td>3</td> <td>29</td> <td></td> <td>\$4,590.00</td> </tr> <tr> <td>CHLORIDES (mg/L)</td> <td></td> <td>NaCl</td> <td></td> <td>INTERDRILL OV</td> <td>40</td> <td>12</td> <td>28</td> <td></td> <td>\$19,080.00</td> </tr> <tr> <td>SAND CONTENT %</td> <td>X</td> <td>FR.</td> <td>X</td> <td>0.75</td> <td>FIBER FL F</td> <td></td> <td>400</td> <td></td> <td></td> </tr> <tr> <td>SOLIDS CONTENT %</td> <td>X</td> <td>FR.</td> <td>X</td> <td>12.5</td> <td>FIBER FL C</td> <td></td> <td>200</td> <td></td> <td></td> </tr> <tr> <td>OIL CONTENT %</td> <td></td> <td></td> <td>87</td> <td>HYMUL</td> <td>32</td> <td></td> <td>32</td> <td></td> <td></td> </tr> <tr> <td>WATER CONTENT %</td> <td>X</td> <td></td> <td>1</td> <td>PREVIOUS COST</td> <td>\$407,730.80</td> <td></td> <td>STARTING VOLUME</td> <td></td> <td>353</td> </tr> <tr> <td>ELECTRICAL STABILITY</td> <td></td> <td></td> <td>1830</td> <td>DAILY COST</td> <td></td> <td></td> <td>VOL. BUILT</td> <td></td> <td></td> </tr> <tr> <td>OIL WATER RATIO</td> <td></td> <td></td> <td>99.5/1.5</td> <td>CUM. COST</td> <td>\$407,730.80</td> <td></td> <td>VOL. LOST ON SURFACE</td> <td></td> <td>10</td> </tr> <tr> <td>CaCl2 w/w%</td> <td></td> <td></td> <td></td> <td>CUM. ENG. COST</td> <td>\$23,040.00</td> <td></td> <td>VOL. LOST ON SUB SURFACE</td> <td></td> <td>49</td> </tr> <tr> <td>"n"</td> <td></td> <td></td> <td>0.21</td> <td>Discounted/ Total</td> <td>\$203,865.40</td> <td>\$226,805.40</td> <td>END VOLUME</td> <td></td> <td>294</td> </tr> <tr> <td>"k"</td> <td></td> <td></td> <td>3.58</td> <td>TRUCKING</td> <td></td> <td></td> <td>CUM. VOL BUILT</td> <td></td> <td></td> </tr> </table>										MUD PROPERTIES				INVENTORY						TIME SAMPLE TAKEN	7:05	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE	SAMPLE FROM	FLOWLINE		RECEIVED	LAST	USED LAST	USED TO	REMAINING	COST	COST	PRESENT DEPTH	1349		TO DATE	24 HOURS	24 HOURS	DATE	ON LOCATION			FLOWLINE TEMPERATURE (C)	71.7	LIME	648			130	518		\$155.00	DENSITY	1055	MICA COARSE	48			30	18		\$1,110.00	FUNNEL VISCOSITY (s/L)	37	CELLOPHANE	100			34	66		\$1,428.00	600 READING @ 60 C	28	MICA MED	97				97			300 READING	19	CALCARB 325	224			14	210		\$140.00	APPARENT VISCOSITY (mPa.s)	14	CALCARBSC	336			33	303		\$330.00	PLASTIC VISCOSITY (mPa.s)	9	CALCARB O	448				448			YIELD POINT (Pa)	5	BARITE	7520			130	7390		\$2,535.00	GELS 0/10 min. (Pa)	2.5/4.0	CACL2	393				393			pH	STRIP	METER	N/A	MICA FINE	239	39	200		\$1,443.00	FILTRATE @ 90C (cm3)	HTHP	X	11.8	SAWDUST	1400	525	875		\$3,412.50	FILTER CAKE (mm)			1.5	TRUDRILL	353	59	294		\$53,100.00					TRUVIS	360	95	265		\$29,307.50	Pom			4.1	INTERDRILL S	800		800			EXCESS LIME KG/M3			15.17	EMUL	32	3	29		\$3,420.00	TOTAL HARDNESS (mg/l)		Ca		INTERDRILL FL	32	3	29		\$4,590.00	CHLORIDES (mg/L)		NaCl		INTERDRILL OV	40	12	28		\$19,080.00	SAND CONTENT %	X	FR.	X	0.75	FIBER FL F		400			SOLIDS CONTENT %	X	FR.	X	12.5	FIBER FL C		200			OIL CONTENT %			87	HYMUL	32		32			WATER CONTENT %	X		1	PREVIOUS COST	\$407,730.80		STARTING VOLUME		353	ELECTRICAL STABILITY			1830	DAILY COST			VOL. BUILT			OIL WATER RATIO			99.5/1.5	CUM. COST	\$407,730.80		VOL. LOST ON SURFACE		10	CaCl2 w/w%				CUM. ENG. COST	\$23,040.00		VOL. LOST ON SUB SURFACE		49	"n"			0.21	Discounted/ Total	\$203,865.40	\$226,805.40	END VOLUME		294	"k"			3.58	TRUCKING			CUM. VOL BUILT		
MUD PROPERTIES				INVENTORY																																																																																																																																																																																																																																																																																																																	
TIME SAMPLE TAKEN	7:05	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE																																																																																																																																																																																																																																																																																																												
SAMPLE FROM	FLOWLINE		RECEIVED	LAST	USED LAST	USED TO	REMAINING	COST	COST																																																																																																																																																																																																																																																																																																												
PRESENT DEPTH	1349		TO DATE	24 HOURS	24 HOURS	DATE	ON LOCATION																																																																																																																																																																																																																																																																																																														
FLOWLINE TEMPERATURE (C)	71.7	LIME	648			130	518		\$155.00																																																																																																																																																																																																																																																																																																												
DENSITY	1055	MICA COARSE	48			30	18		\$1,110.00																																																																																																																																																																																																																																																																																																												
FUNNEL VISCOSITY (s/L)	37	CELLOPHANE	100			34	66		\$1,428.00																																																																																																																																																																																																																																																																																																												
600 READING @ 60 C	28	MICA MED	97				97																																																																																																																																																																																																																																																																																																														
300 READING	19	CALCARB 325	224			14	210		\$140.00																																																																																																																																																																																																																																																																																																												
APPARENT VISCOSITY (mPa.s)	14	CALCARBSC	336			33	303		\$330.00																																																																																																																																																																																																																																																																																																												
PLASTIC VISCOSITY (mPa.s)	9	CALCARB O	448				448																																																																																																																																																																																																																																																																																																														
YIELD POINT (Pa)	5	BARITE	7520			130	7390		\$2,535.00																																																																																																																																																																																																																																																																																																												
GELS 0/10 min. (Pa)	2.5/4.0	CACL2	393				393																																																																																																																																																																																																																																																																																																														
pH	STRIP	METER	N/A	MICA FINE	239	39	200		\$1,443.00																																																																																																																																																																																																																																																																																																												
FILTRATE @ 90C (cm3)	HTHP	X	11.8	SAWDUST	1400	525	875		\$3,412.50																																																																																																																																																																																																																																																																																																												
FILTER CAKE (mm)			1.5	TRUDRILL	353	59	294		\$53,100.00																																																																																																																																																																																																																																																																																																												
				TRUVIS	360	95	265		\$29,307.50																																																																																																																																																																																																																																																																																																												
Pom			4.1	INTERDRILL S	800		800																																																																																																																																																																																																																																																																																																														
EXCESS LIME KG/M3			15.17	EMUL	32	3	29		\$3,420.00																																																																																																																																																																																																																																																																																																												
TOTAL HARDNESS (mg/l)		Ca		INTERDRILL FL	32	3	29		\$4,590.00																																																																																																																																																																																																																																																																																																												
CHLORIDES (mg/L)		NaCl		INTERDRILL OV	40	12	28		\$19,080.00																																																																																																																																																																																																																																																																																																												
SAND CONTENT %	X	FR.	X	0.75	FIBER FL F		400																																																																																																																																																																																																																																																																																																														
SOLIDS CONTENT %	X	FR.	X	12.5	FIBER FL C		200																																																																																																																																																																																																																																																																																																														
OIL CONTENT %			87	HYMUL	32		32																																																																																																																																																																																																																																																																																																														
WATER CONTENT %	X		1	PREVIOUS COST	\$407,730.80		STARTING VOLUME		353																																																																																																																																																																																																																																																																																																												
ELECTRICAL STABILITY			1830	DAILY COST			VOL. BUILT																																																																																																																																																																																																																																																																																																														
OIL WATER RATIO			99.5/1.5	CUM. COST	\$407,730.80		VOL. LOST ON SURFACE		10																																																																																																																																																																																																																																																																																																												
CaCl2 w/w%				CUM. ENG. COST	\$23,040.00		VOL. LOST ON SUB SURFACE		49																																																																																																																																																																																																																																																																																																												
"n"			0.21	Discounted/ Total	\$203,865.40	\$226,805.40	END VOLUME		294																																																																																																																																																																																																																																																																																																												
"k"			3.58	TRUCKING			CUM. VOL BUILT																																																																																																																																																																																																																																																																																																														
COMMENTS STUCK WHILE MAKING CONNEN MAINTAIN RETORT OF CENTRIFUGE SLUDGE from UFLOW 66% SOLIDS 36% OIL 6% WATER VISCOSITY @ 38-42 S/L WITH TRUVIS 10 SACKS AT 12 MINUTES PER SACK AS REQ'D NO LIME ADDITIONS UNTIL FURTHER NOTICE DENSITY @ 1050-1100kg/m3 ± AS PER ENGINEERS REQUEST DENSITY AS REQUIRED BY ADDING BARITE OR ALLOWING DRILLED SOLIDS TO BUILD. LOWER BY RUNNING CENTRIFUGE AS NECESSARY. DENSITY @ 1050 kg/m3 WITH BARITE (45 SX WILL RAISE CURRENT VOLUME 10 POINTS) TRANSFER TRUDRILL AS REC OF 30 M3 AND MAY BE RECOVERABLE RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK TRANSFER TRUDRILL AS REQUIRED TO MAINTAIN VOLUME ANY TIGHT HOLE INCREASE PUMP RATE IF POSSIBLE OTHERWISE RAISE VISCOSITY TO 45 S/L W/ TRUVIS SEEPAGE LOSSES ADD 10 SX OF INTERDRILL 'S' AND 10 SACKS OF FIBER FLUID PER DAY CONSULT WITH ENGINEER AND MUD MAN BEFORE ADDING MONITOR SURFACE VOLUMES FOR ANY CHANGES THAT MAY INDUCATE DOWN HOLE LOSSES KEEP ALL SOURCES OF WATER AWAY FROM THE MUD TANKS RETORT OF DRYER CUTTINGS 60% SOLIDS 34% OIL 6% WATER <table border="1"> <tr> <td>STOCK POINT</td> <td>GRANDE PRAIRIE (FORMULA)</td> <td>DOWELL ENGINEER</td> <td>JOE SMITH</td> <td>ON LOCATION</td> </tr> <tr> <td>PHONE</td> <td>532-5078</td> <td>PHONE NUMBER</td> <td>CAMP RM. # 5</td> <td></td> </tr> </table> S BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.										STOCK POINT	GRANDE PRAIRIE (FORMULA)	DOWELL ENGINEER	JOE SMITH	ON LOCATION	PHONE	532-5078	PHONE NUMBER	CAMP RM. # 5																																																																																																																																																																																																																																																																																																			
STOCK POINT	GRANDE PRAIRIE (FORMULA)	DOWELL ENGINEER	JOE SMITH	ON LOCATION																																																																																																																																																																																																																																																																																																																	
PHONE	532-5078	PHONE NUMBER	CAMP RM. # 5																																																																																																																																																																																																																																																																																																																		

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD P-66		LOCATION P-66 LAT 60 40' LONG 123 30'		DATE		27-Feb-87			
OPERATOR		RANGER OIL LTD.		CONTRACTOR		CACTUS # 28 E		REPORT No		99	
REPORT FOR Mr.		JOHN FAULKNER		REPORT FOR Mr.		TERRY GORGICHUK		SPUD DATE		12-Jan-87	
ASSEMBLY			CASING			MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min	
BIT SIZE (mm)		311.0		LENGTH (m)		SIZE (mm)		LENGTH (m)		TANKS	
BIT NUMBER		RR1C				508.0		263		HOLE	
DRILL PIPE #1 (mm)		127.0		1117		339.7		1007		TOTAL	
DRILL PIPE #2 (mm)		127.0		54		LINER		TOP/BOT.		STAND BY	
COLLAR #1 (mm)		171.0		45						S.P.M.	
COLLAR #2 (mm)		228.0		64						M3/MIN	
										3.1786	
HOLE DATA			CENTRIFUGE			DRILLING FLUID SPECIFICATIONS					
MUD TYPE - TRUDRILL			FLOWLINE WT. OFF			OFF			kg/m3		
HOLE COND. - STUCK PIPE 1335M			UNDERFLOW WT.			2085			kg/m3		
DEVIATION - 28.2			OVERFLOW WT.			1000			kg/m3		
CURRENT OP. - CIRC AND COND			UNDERFLOW RT.			0.003			m3/min		
									pH		
									N/A		
EQUIPMENT:			XX DEGASSER			DESILTER			DESANDER		
			38-38 84-84 XX DOUBLE DECK OR HIGH SPEED SHAKER			38 - 38			XXX CENTRIFUGE		
MUD PROPERTIES			INVENTORY								
TIME SAMPLE TAKEN			18:10			MATERIALS			RECEIVED		
SAMPLE FROM			FLOWLINE			RECEIVED			LAST		
PRESENT DEPTH			1292			TO DATE			24 HOURS		
FLOWLINE TEMPERATURE (C)			54.4			LIME			648		
DENSITY			1075			MICA COARSE			48		
FUNNEL VISCOSITY (s/L)			48			CELLOPHANE			100		
600 READING @ 60 C			37			MICA MED			97		
300 READING			27			CALCARB 325			224		
APPARENT VISCOSITY (mPa.s)			18.5			CALCARBSC			336		
PLASTIC VISCOSITY (mPa.s)			10			CALCARB O			448		
YIELD POINT (Pa)			8.5			BARITE			7520		
GELS 0/10 min. (P.s)			4.5/6.5			CACL2			393		
pH			STRIP			METER			N/A		
FILTRATE @ 30C (cm3)			HTHP			X			13.2		
FILTER CAKE (mm)						TRUDRILL			353		
						TRUVIS			360		
Pom			4.1			INTERDRILL S			800		
EXCESS LIME KG/M3			15.17			EMUL			32		
TOTAL HARDNESS (mg/l)			Ca			INTERDRILL FL			32		
CHLORIDES (mg/L)			NaCl			INTERDRILL OV			40		
SAND CONTENT %			X			FR			X		
SOLIDS CONTENT %			X			FR			X		
OIL CONTENT %						HYMUL			32		
WATER CONTENT %			X			1			PREVIOUS COST		
									\$407,730.80		
ELECTRICAL STABILITY			2000			DAILY COST			\$16,840.00		
OIL WATER RATIO			99.5/1.5			CUM. COST			\$424,570.80		
CaCl2 w/w%						CUM. ENG. COST			\$23,520.00		
n"			0.17			Discounted/ Total			\$212,285.40		
K'			6.81			TRUCKING			\$235,805.40		
COMMENTS: BACK OFF FISH POOH RIH NEW BHA C & COND									N		
MAINTAIN											
VISCOSITY @ 45-48S/L WITH TRUVIS AT 6 TO 12 MINUTES PER SACK											
NO LIME ADDITIONS UNTIL FURTHER NOTICE											
DENSITY AT 1075-1100kg/m3 AS PER ENGINEERS REQUEST											
DENSITY AS REQUIRED BY ADDING BARITE OR ALLOWING DRILLED SOLIDS TO BUILD. LOWER BY RUNNING CENTRIFUGE AS NECESSARY.											
DENSITY @ 1050 kg/m3 WITH BARITE (45 SX WILL RAISE CURRENT VOLUME 10 POINTS) TRANSFER TRUDRILL AS REC OF 30 M3 AND MAY BE RECOVERABLE											
RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK											
TRANSFER TRUDRILL AS REQUIRED TO MAINTAIN VOLUME											
SEEPAGE LOSSES ADD 10 SX OF INTERDRILL 'S' AND 10 SACKS OF FIBER FLUID PER DAY CONSULT WITH ENGINEER AND MUD MAN BEFORE ADDING											
MONITOR SURFACE VOLUMES FOR ANY CHANGES THAT MAY INDUCATE DOWN HOLE LOSSES											
KEEP ALL SOURCES OF WATER AWAY FROM THE MUD TANKS											
STOCK POINT			GRANDE PRAIRIE (FORMULA)			DOWELL ENGINEER			JOE SMITH		
PHONE			532-5078			PHONE NUMBER			CAMP RM. # 5		
						S					
BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN											
SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.											

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD P-66		LOCATION P-66 LAT 60 40' LONG 123 30'		DATE		28-Feb-97	
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS28E		REPORT No		40	
REPORT FOR Mr.		JOHN FAULKNER		REPORT FOR Mr. TERRY GORGICHUK		SPUD DATE		12-Jan-97	
ASSEMBLY		CASING		MUD VOL. (BBL)		PUMP OUTPUT		ANNULAR VEL. (m/min)	
BIT SIZE (mm)	311.0	LENGTH (m)		SIZE (mm)	508.0	TANKS	70	PUMP #1	152X254
BIT NUMBER	2CRR			LENGTH (m)	263	HOLE	111	M3/STK	0.0138
DRILL PIPE #1 (mm)	127.0	1238		339.7	1007	TOTAL	181	PUMP #2	152X254
DRILL PIPE #2 (mm)	127.0	54		LINER	TOP/BOT.	STAND BY	97	M3/STK	0.0138
COLLAR #1 (mm)								S.P.M.	230
COLLAR #2 (mm)								M3/MIN	3.1786
HOLE DATA		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS					
MUD TYPE - TRUDRILL		FLOWLINE WT. OFF		OFF		kg/m3		MUD WT. 1100 Kg/m3	
HOLE COND. - STUCK PIPE 1335M		UNDERFLOW WT.				kg/m3		VISCOSITY 52-54S/L e/L	
DEVIATION-28.2		OVERFLOW WT.				kg/m3		FILTRATE <20 cm3/30 min.	
CURRENT OP. - JAR ON STRING		UNDERFLOW RT.				m3/min		pH N/A	
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE	
38-38		84-84		XX DOUBLE DECK OR HIGH SPEED SHAKER		38 - 38			
MUD PROPERTIES		INVENTORY							
TIME SAMPLE TAKEN	18:00	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE
SAMPLE FROM	FLOWLINE	RECEIVED	TO DATE	LAST	USED LAST	USED TO	REMAINING	COST	COST
PRESENT DEPTH	1292			24 HOURS	24 HOURS	DATE	ON LOCATION		
FLOWLINE TEMPERATURE (C)	54.4	LIME	648			130	518		\$155.00
DENSITY	1085	MICA COARSE	48			30	18		\$1,110.00
FUNNEL VISCOSITY (s/L)	54	CELLOPHANE	100			34	66		\$1,428.00
800 READING @ 60 C	59	MICA MED	97				97		
300 READING	43	CALCARB 325	224			14	210		\$140.00
APPARENT VISCOSITY (mPa.s)	29.5	CALCARBSC	336			33	303		\$330.00
PLASTIC VISCOSITY (mPa.s)	16	CALCARB O	448				448		
YIELD POINT (Pa)	13.5	BARITE	7520		125	255	7265	\$2,437.50	\$4,972.50
GELS 0/10 min. (Pa)	7.0/9.5	CACL2	393				393		
pH	STRIP	METER	N/A	MICA FINE	239		39	200	\$1,443.00
FILTRATE @ 90C (cm3)		HTHP	13.2	SAWDUST	1400		525	875	\$3,412.50
FILTER CAKE (mm)			2	TRUDRILL	353		64	289	\$53,100.00
				TRUVIS	360		20	155	\$6,170.00
Pom			4.1	INTERDRILL S	800		10	10	\$738.30
EXCESS LIME KG/M3			15.17	EMUL	32		3	29	\$3,420.00
TOTAL HARDNESS (mg/l)		Ca		INTERDRILL FL	32		3	29	\$4,590.00
CHLORIDES (mg/L)		NaCl		INTERDRILL OW	40		12	28	\$19,080.00
SAND CONTENT %	X	FR.	X	0.65	FIBER FL F	400		400	
SOLIDS CONTENT %	X	FR.		13	FIBER FL C	200		200	
OIL CONTENT %			86	HYMUL	32			32	
WATER CONTENT %		X	1	PREVIOUS COST	\$424,570.80			STARTING VOLUME	353
ELECTRICAL STABILITY			2000	DAILY COST	\$9,345.80			VOL. BUILT	
OIL WATER RATIO			99.5/1.5	CUM. COST	\$433,916.60			VOL. LOST ON SURFACE	11
CaCl2 wt/w%				CUM. ENG. COST	\$24,000.00			VOL. LOST ON SUB SURFACE	53
"n"			0.18	Discounted/ Total	\$216,958.30	\$240,958.30		END VOLUME	289
"k"			10.49	TRUCKING				CUM. VOL BUILT	
COMMENTS		JAR ON FISH MUD NOT CIRC		N					
MAINTAIN									
VISCOSITY @ 52-54S/L WITH TRUVIS ADDED AT 10 MIN PER SACK									
RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK									
DENSITY AT 1100KG/M3 AS PER ENGINEERS REQUEST									
DENSITY AS REQUIRED BY ADDING BARITE OR ALLOWING DRILLED SOLIDS TO BUILD. LOWER BY RUNNING CENTRIFUGE AS NECESSARY.									
IF 35M3 OF TRUDRILL IS INTRODUCED INTO THE ACTIVE SYSTEM ADD:240SX OF BARITE,13 SX TRUVIS 3 DRUMS INTERDRILL OW,1 DRUM EMUL,1 DRUM INTERDRILLFL.									
NO LIME ADDITIONS ARE REQUIRED FOR NOW.									
SEEPAGE LOSSES ADD 10 SX OF INTERDRILL 'S' AND 10 SACKS OF FIBER FLUID PER DAY CONSULT WITH ENGINEER AND MUD MAN BEFORE ADDING									
MONITOR SURFACE VOLUMES FOR ANY CHANGES THAT MAY INDICATE DOWN HOLE LOSSES									
KEEP ALL SOURCES OF WATER AWAY FROM THE MUD TANKS									
RETORT of DRYER CUTTINGS 60% SOLIDS 34% OIL 6% WATER									
STOCK POINT	GRANDE PRAIRIE (FORMULA)			DOWELL ENGINEER		JOE SMITH		ON LOCATION	
PHONE	532-5078			PHONE NUMBER		CAMP RM. #5			
S									
BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.									

INVENTORY

WELL NAME RANGER FT. LIARD P-66

LOCATION LAT 60 40' LONG 123 30'

DATE 1-Mar-97

OPERATOR RANGER OIL LTD.

CONTRACTOR

CACTUS #26E

REPORT No 40

REPORT FOR Mr. JOHN FAULKNER

REPORT FOR Mr. TERRY GORGICHUK

SPUD DATE 12-Jan-97

PRODUCTS	MATERIALS RECEIVED TO DATE	MATERIALS USED LAST 24 HOURS	MATERIALS USED TO DATE	MATERIAL REMAINING ON LOCATION	DAILY COST	CUMULATIVE COST
CAUSTIC 10	240		187	53	\$0.00	\$10,846.00
X-CIDE 207 10	96		0	96	\$0.00	\$0.00
NAT BENTONITE 103	1980		1790	170	\$0.00	\$28,478.90
LIGNITE 1	66		18	38	\$0.00	\$360.00
LIME 1	648		130	518	\$0.00	\$2,015.00
SODA ASH 10	40		4	36	\$0.00	\$144.00
BICARB 10	25		16	9	\$0.00	\$1,264.00
MICA COARSE 1034	48		30	18	\$0.00	\$1,110.00
IDF-FLR 1	7		0	7	\$0.00	\$0.00
VISPLEX II 10	541		541	0	\$0.00	\$198,547.00
ID FREE 208L 10	4			4	\$0.00	\$0.00
CELLOPHANE 103	100		34	66	\$0.00	\$1,428.00
MICA MEDIUM 1042	97		0	97	\$0.00	\$0.00
FLOPLEX 10	250		135	115	\$0.00	\$25,920.00
P. SEAL "C" 104	50		50	0	\$0.00	\$1,900.00
P. SEAL "M" 104	16		16	0	\$0.00	\$608.00
CALCARB "325" 1045	224		14	210	\$0.00	\$140.00
CALCARB "SC" 1045	336		33	303	\$0.00	\$330.00
CALCAARB "0" 1045	448		0	448	\$0.00	\$0.00
DETERGENT 104	62		0	62	\$0.00	\$0.00
BARITE 10	7520		255	7265	\$0.00	\$4,972.50
CALC CHLORIDE	393		0	393	\$0.00	\$0.00
MAGNA FIBER	32		8	24	\$0.00	\$1,024.00
MICA FINE	239		39	200	\$0.00	\$1,443.00
SAWDUST	1400		525	875	\$0.00	\$3,412.50
CALC CARB "FG"	0		0	0	\$0.00	\$0.00
TRUDRILL	353		64	289	\$0.00	\$57,600.00
NATURAL GEL	240		240	0	\$0.00	\$4,334.40
TRUVIS	360		155	205	\$0.00	\$47,833.00
HYMUL	32		0	32	\$0.00	\$0.00
XCD	160		0	160	\$0.00	\$0.00
INTERDRILL S	800		10	790	\$0.00	\$738.30
EMUL	32		3	29	\$0.00	\$3,420.00
INTER FL	32		3	29	\$0.00	\$4,590.00
OW	40		12	28	\$0.00	\$19,080.00
ZINC CARB	80		0	80	\$0.00	\$0.00
BARITE 10	720		720	0	\$0.00	\$12,384.00
HSO 600 10	29		0	29	\$0.00	\$0.00
PTS 200 10	8		0	8	\$0.00	\$0.00
FIBER FLUID "F"	400		0	400	\$0.00	\$0.00
FIBER FLUID "C"	200		0	200	\$0.00	\$0.00

TOTALS

\$0.00 \$433,922.60

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD P-66		LOCATION P-66 LAT 60 40' LONG 123 30'		DATE		1-Mar-97	
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS #28E		REPORT No		41	
REPORT FOR Mr.		JOHN FAULNER		REPORT FOR Mr. TERRY GORGICHLUK		SPUD DATE		12-Jan-97	
ASSEMBLY		CASINO		MUD VOL. (BBL)		PUMP OUTPUT		ANNULAR VEL. (m/min)	
BIT SIZE (mm)	311.0	LENGTH (m)	SIZE (mm)	LENGTH (m)	TANKS	65	PUMP #1	152C254	OPPOSITE DP
BIT NUMBER	2CRR		608.0	263	HOLE	111	M3/STK	0.0138	OPPOSITE DC
DRILL PIPE #1 (mm)	127.0	1238	339.7	1007	TOTAL	178	PUMP #2	152C254	CIRC. TIME
DRILL PIPE #2 (mm)	127.0	54	LINER	TOP BOT.	STAND BY	97	M3/STK	0.0138	BOTTOMS UP
COLLAR #1 (mm)							S.P.M.	230	
COLLAR #2 (mm)	171.0	55					M3/MIN	3.1786	
HOLE DATA		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS					
MUD TYPE - TRUDRILL		FLOWLINE WT.		OFF	OFF	kg/m3	MUD WT.		1100 Kp/m3
HOLE COND. - STUCK PIPE 1335M		UNDERFLOW WT.				kg/m3	VISCOSITY		52-54SL 6/L
DEVIATION - 28.2		OVERFLOW WT.				kg/m3	FILTRATE		<20 cm3/30 min.
CURRENT OP. - ATT. BACK OFF		UNDERFLOW RT.				m3/min	pH		N/A
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE	
38-38		84-84		XX DOUBLE DECK OR HIGH SPEED SHAKER		38 - 38			
MUD PROPERTIES					INVENTORY				
TIME SAMPLE TAKEN	18:00		MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY
SAMPLE FROM	FLOWLINE			RECEIVED	LAST	USED LAST	USED TO	REMAINING	COST
PRESENT DEPTH	1292			TO DATE	24 HOURS	24 HOURS	DATE	ON LOCATION	CUMULATIVE
FLOWLINE TEMPERATURE (C)	54.4		LIME	648			130	618	\$155.00
DENSITY	1095		MICA COARSE	48			30	18	\$1,110.00
FUNNEL VISCOSITY (s/L)	54		CELLOPHANE	100			34	66	\$1,428.00
600 READING @ 60 C	59		MICA MED	97				97	
300 READING	43		CALCARB 325	224			14	210	\$140.00
APPARENT VISCOSITY (mPa.s)	29.5		CALCARBSC	336			33	303	\$330.00
PLASTIC VISCOSITY (mPa.s)	16		CALCARB O	448				448	
YIELD POINT (Pa)	13.5		BARITE	7520		58	313	7207	\$1,131.00
GELS 0/10 min. (Pa)	7.0/9.5		CAOL2	393				393	
pH	STRIP	METER	N/A	MICA FINE	239		39	200	\$1,443.00
FILTRATE @ 90C (cm3)		HTHP	13.2	SAWDUST	1400		525	875	\$3,412.50
FILTER CAKE (mm)	2		TRUDRILL	353		5	69	284	\$4,500.00
			TRUVIS	360			155	205	\$47,817.50
Pom	4.1		INTERDRILL S	800			10	790	\$738.30
EXCESS LIME KG/M3	15.17		EMUL	32			3	29	\$3,420.00
TOTAL HARDNESS (mg/l)		Ca	INTERDRILL FL	32			3	29	\$4,590.00
CHLORIDES (mg/L)		NaCl	INTERDRILL OW	40			12	28	\$19,080.00
SAND CONTENT %	X	FR.	X	0.65	FIBER FL F	400		400	
SOLIDS CONTENT %	X	FR.	X	13	FIBER FL C	200		200	
OIL CONTENT %				88	HYMUL	32		32	
WATER CONTENT %	X			1	PREVIOUS COST	\$433,916.60	STARTING VOLUME		353
ELECTRICAL STABILITY	2000			DAILY COST	\$5,631.00	VOL. BUILT			
OIL WATER RATIO	99.5/1.5			CUM. COST	\$439,547.60	VOL. LOST ON SURFACE		12	
CaCl2 w/w%				CUM. ENG. COST	\$24,480.00	VOL. LOST ON SUB SURFACE		57	
"n"	0.18			Discounted/ Total	\$219,773.80	\$244,253.80	END VOLUME		284
"k"	10.49			TRUCKING			CUM. VOL BUILT.		
COMMENTS JAR ON FISH MUD NOT CIRC N									
MAINTAIN									
VISCOSITY @ 52-54SL WITH TRUVIS ADDED AT 10 MIN PER SACK									
RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK									
DENSITY AT 1100KG/M3 AS PER ENGINEERS REQUEST									
DENSITY AS REQUIRED BY ADDING BARITE OR ALLOWING DRILLED SOLIDS TO BUILD. LOWER BY RUNNING CENTRIFUGE AS NECESSARY.									
IF 35M3 OF TRUDRILL IS INTRODUCED INTO THE ACTIVE SYSTEM ADD 240SX OF BARITE, 13 SX TRUVIS 3 DRUMS INTERDRILL OW, 1 DRUM EMUL, 1 DRUM INTERDRILL FL.									
NO LIME ADDITIONS ARE REQUIRED FOR NOW.									
SEEPAGE LOSSES ADD 10 SX OF INTERDRILL 'S' AND 10 SACKS OF FIBER FLUID PER DAY CONSULT WITH ENGINEER AND MUD MAN BEFORE ADDING									
MONITOR SURFACE VOLUMES FOR ANY CHANGES THAT MAY INDUCATE DOWN HOLE LOSSES									
KEEP ALL SOURCES OF WATER AWAY FROM THE MUD TANKS									
STOCK POINT	GRANDE PRAIRIE (FORMULA)			DOWELL ENGINEER		JOE SMITH		ON LOCATION	
PHONE	532-5078			PHONE NUMBER		CAMP RM. # 5			
BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.									

Schlumberger

Dowell

INVENTORY

WELL NAME RANGER FT. LIARD P-66

LOCATION LAT 60 40' LONG 123 30'

DATE 1-Mar-87

OPERATOR RANGER OIL LTD.

CONTRACTOR

CACTUS #26E

REPORT No 41

REPORT FOR Mr. JOHN FAULKNER

REPORT FOR Mr.

TERRY GORGICHUK

SPUD DATE 12-Jan-87

PRODUCTS	MATERIALS RECEIVED TO DATE	MATERIALS USED LAST 24 HOURS	MATERIALS USED TO DATE	MATERIAL REMAINING ON LOCATION	DAILY COST	CUMULATIVE COST
CAUSTIC 10	240		187	53	\$0.00	\$10,846.00
X-CIDE 207 10	96		0	96	\$0.00	\$0.00
NAT BENTONITE 103	1960		1790	170	\$0.00	\$28,478.90
LIGNITE 1	56		18	38	\$0.00	\$360.00
LIME	648		130	518	\$0.00	\$2,015.00
SODA ASH 10	40		4	36	\$0.00	\$144.00
BICARB 10	25		16	9	\$0.00	\$1,264.00
MICA COARSE 1034	48		30	18	\$0.00	\$1,110.00
IDF-FLR 1	7		0	7	\$0.00	\$0.00
VISPLEX II 10	541		541	0	\$0.00	\$198,547.00
ID FREE 208L 10	4			4	\$0.00	\$0.00
CELLOPHANE 103	100		34	66	\$0.00	\$1,428.00
MICA MEDIUM 1042	97		0	97	\$0.00	\$0.00
FLOPLEX 10	250		135	115	\$0.00	\$25,920.00
P. SEAL "C" 104	50		50	0	\$0.00	\$1,900.00
P. SEAL "M" 104	16		16	0	\$0.00	\$608.00
CALCARB "325" 1044	224		14	210	\$0.00	\$140.00
CALCARB "30" 1045	338		33	303	\$0.00	\$330.00
CALCAARB "0" 1045	448		0	448	\$0.00	\$0.00
DETERGENT 104	62		0	62	\$0.00	\$0.00
BARITE 10	7520	58	313	7207	\$1,131.00	\$6,103.50
CALC CHLORIDE	393		0	393	\$0.00	\$0.00
MAGNA FIBER	32		8	24	\$0.00	\$1,024.00
MICA FINE	239		39	200	\$0.00	\$1,443.00
SAWDUST	1400		525	875	\$0.00	\$3,412.50
CALC CARB "FG"	0		0	0	\$0.00	\$0.00
TRUDRILL	353	5	69	284	\$4,500.00	\$62,100.00
NATURAL GEL	240		240	0	\$0.00	\$4,334.40
TRUVIS	360		155	205	\$0.00	\$47,833.00
HYMUL	32		0	32	\$0.00	\$0.00
XCD	160		0	160	\$0.00	\$0.00
INTERDRILL S	800		10	790	\$0.00	\$738.30
EMUL	32		3	29	\$0.00	\$3,420.00
INTER FL	32		3	29	\$0.00	\$4,590.00
OW	40		12	28	\$0.00	\$19,080.00
ZINC CARB	80		0	80	\$0.00	\$0.00
BARITE 10	720		720	0	\$0.00	\$12,384.00
HSO 600 10	29		0	29	\$0.00	\$0.00
PTS 200 10	8		0	8	\$0.00	\$0.00
FIBER FLUID "F"	400		0	400	\$0.00	\$0.00
FIBER FLUID "C"	200		0	200	\$0.00	\$0.00

TOTALS

\$5,631.00

\$439,553.60

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD P-68		LOCATION P-68 LAT 60 40' LONG 123 30'		DATE		2-Mar-97		
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS #28E		REPORT No		42		
REPORT FOR Mr.		JOHN FAULKNER		REPORT FOR Mr. TERRY GORGICHUK		SPUD DATE		12-Jan-97		
ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min		
BIT SIZE (mm)	311.0	LENGTH (m)	SIZE (mm)	LENGTH (m)	TANKS	65	PUMP #1	152Q254	OPPOSITE DP	50
BIT NUMBER	2CRR		508.0	263	HOLE	111	M3/STK	0.0138	OPPOSITE DC	60
DRILL PIPE #1 (mm)	127.0	1238	339.7	1007	TOTAL	176	PUMP #2	152Q254	CIRC. TIME	55
DRILL PIPE #2 (mm)	127.0	54	LINER	TOP/BOT.	STAND BY	97	M3/STK	0.0138	BOTTOMS UP	27
COLLAR #1 (mm)							S.P.M.	230		
COLLAR #2 (mm)	171.0	55					M3/MIN	3.1788		
HOLE DATA		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS						
MUD TYPE - TRUDRILL		FLOWLINE WT.		OFF	OFF	kg/m3	MUD WT.		1100 Kg/m3	
HOLE COND. - STUCK PIPE 1335M		UNDERFLOW WT.				kg/m3	VISCOSITY		52-54SL c/L	
DEVIATION - 28.2		OVERFLOW WT.				kg/m3	FILTRATE		<20 cm3/30 min.	
CURRENT OP. - RIH NEW JARS		UNDERFLOW RT.				m3/min	pH		N/A	
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE		
38-38		84-84		XX DOUBLE DECK OR HIGH SPEED SHAKER		38 - 38				
MUD PROPERTIES		INVENTORY								
TIME SAMPLE TAKEN	20:00 NOT CIRC	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE	
SAMPLE FROM	FLOWLINE		RECEIVED	LAST	USED LAST	USED TO	REMAINING	COST	COST	
PRESENT DEPTH	1292		TO DATE	24 HOURS	24 HOURS	DATE	ON LOCATION			
FLOWLINE TEMPERATURE (C)	54.4	LIME	648			130	518		\$155.00	
DENSITY	1095	MICA COARSE	48			30	18		\$1,110.00	
FUNNEL VISCOSITY (s/L)	54	CELLOPHANE	100			34	66		\$1,428.00	
600 READING @ 60 C	59	MICA MED	97				97			
300 READING	43	CALCARB 325	224			14	210		\$140.00	
APPARENT VISCOSITY (mPa.s)	29.5	CALCARBSC	336			33	303		\$330.00	
PLASTIC VISCOSITY (mPa.s)	16	CALCARB O	448				448			
YIELD POINT (Pa)	13.5	BARITE	7520			313	7207		\$6,103.50	
GELS 0/10 min. (Pa)	7.0/9.5	CACL2	393				393			
pH	STRIP	METER	N/A	MICA FINE	239		39	200	\$1,443.00	
FILTRATE @ 90C (cm3)	HTHP	13.2	SAWDUST	1400		525	875		\$3,412.50	
FILTER CAKE (mm)	2	TRUDRILL	353			69	284		\$62,100.00	
		TRUVIS	360			155	205		\$47,817.50	
Pom	4.1	INTERDRILL S	800			10	790		\$738.30	
EXCESS LIME KG/M3	15.17	EMUL	32			3	29		\$3,420.00	
TOTAL HARDNESS (mg/l)	Ca	INTERDRILL FL	32			3	29		\$4,590.00	
CHLORIDES (mg/L)	NaCl	INTERDRILL OW	40			12	28		\$19,080.00	
SAND CONTENT %	X	FR.	0.65	FIBER FL F	400		400			
SOLIDS CONTENT %	X	FR.	13	FIBER FL C	200		200			
OIL CONTENT %		HYMUL	32				32			
WATER CONTENT %	X	1	PREVIOUS COST	\$439,547.60		STARTING VOLUME		353		
ELECTRICAL STABILITY	2000	DAILY COST				VOL BUILT				
OIL WATER RATIO	89.5#/5	CUM. COST	\$439,547.60			VOL LOST ON SURFACE		12		
CaCl2 w/w%		CUM. ENG. COST	\$24,960.00			VOL LOST ON SUB SURFACE		57		
"n"	0.18	Discounted/ Total	\$219,773.80	\$244,733.80		END VOLUME		284		
"k"	10.49	TRUCKING				CUM. VOL BUILT.				
COMMENTS		JAR ON FISH MUD NOT CIRC								
MAINTAIN										
VISCOSITY @ 52-54SL WITH TRUVIS ADDED AT 10 MIN PER SACK RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK DENSITY AT 1100KG/M3 AS PER ENGINEERS REQUEST DENSITY AS REQUIRED BY ADDING BARITE OR ALLOWING DRILLED SOLIDS TO BUILD. LOWER BY RUNNING CENTRIFUGE AS NECESSARY. IF 35M3 OF TRUDRILL IS INTRODUCED INTO THE ACTIVE SYSTEM ADD 240SX OF BARITE, 13 SX TRUVIS 3 DRUMS INTERDRILL OW, 1 DRUM EMUL, 1 DRUM INTERDRILLFL.										
NO LIME ADDITIONS ARE REQUIRED FOR NOW. SEEPAGE LOSSES ADD 10 SX OF INTERDRILL 'S' AND 10 SACKS OF FIBER FLUID PER DAY CONSULT WITH ENGINEER AND MUD MAN BEFORE ADDING MONITOR SURFACE VOLUMES FOR ANY CHANGES THAT MAY INDUCATE DOWN HOLE LOSSES KEEP ALL SOURCES OF WATER AWAY FROM THE MUD TANKS										
STOCK POINT	GRANDE PRAIRIE (FORMULA)		DOWELL ENGINEER		JOE SMITH		ON LOCATION			
PHONE	532-5078		PHONE NUMBER		CAMP RM. #5					
BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.										

Schlumberger

Dowell

INVENTORY

WELL NAME RANGER FT. LIARD P-66

LOCATION LAT 60 40' LONG 123 30'

DATE 2-Mar-87

OPERATOR RANGER OIL LTD.

CONTRACTOR CACTUS #25E

REPORT No 42

REPORT FOR Mr. JOHN FAULKNER

REPORT FOR Mr. TERRY GORGICHUK

SPUD DATE 12-Jan-87

PRODUCTS		MATERIALS RECEIVED TO DATE	MATERIALS USED LAST 24 HOURS	MATERIALS USED TO DATE	MATERIAL REMAINING ON LOCATION	DAILY COST	CUMULATIVE COST
CAUSTIC	10	240		187	53	\$0.00	\$10,846.00
X-CIDE 207	10	86		0	86	\$0.00	\$0.00
NAT BENTONITE	103	1960		1790	170	\$0.00	\$28,478.90
LIGNITE	1	56		18	38	\$0.00	\$360.00
LIME	1	648		130	518	\$0.00	\$2,015.00
SODA ASH	103	40		4	36	\$0.00	\$144.00
BICARB	10	25		16	9	\$0.00	\$1,264.00
MICA COARSE	1034	48		30	18	\$0.00	\$1,110.00
IDF-FLR	1	7		0	7	\$0.00	\$0.00
VISPLEX II	10	541		541	0	\$0.00	\$198,547.00
ID FREE 208L	10	4		0	4	\$0.00	\$0.00
CELOPHANE	103	100		34	66	\$0.00	\$1,428.00
MICA MEDIUM	1042	97		0	97	\$0.00	\$0.00
FLOPLEX	10	250		135	115	\$0.00	\$25,920.00
P. SEAL "C"	10	50		50	0	\$0.00	\$1,900.00
P. SEAL "M"	104	16		16	0	\$0.00	\$608.00
CALCARB "325"	1045	224		14	210	\$0.00	\$140.00
CALCARB "SC"	1045	336		33	303	\$0.00	\$330.00
CALCAARB "D"	1045	448		0	448	\$0.00	\$0.00
DETERGENT	10	62		0	62	\$0.00	\$0.00
BARITE	10	7520		313	7207	\$0.00	\$6,103.50
CALC CHLORIDE		393		0	393	\$0.00	\$0.00
MAGNA FIBER		32		8	24	\$0.00	\$1,024.00
MICA FINE		239		39	200	\$0.00	\$1,443.00
SAWDUST		1400		525	875	\$0.00	\$3,412.50
CALC CARB "FG"		0		0	0	\$0.00	\$0.00
TRUDRILL		353		69	284	\$0.00	\$62,100.00
NATURAL GEL		240		240	0	\$0.00	\$4,334.40
TRUVIS		360		155	205	\$0.00	\$47,833.00
HYMUL		32		0	32	\$0.00	\$0.00
XCD		160		0	160	\$0.00	\$0.00
INTERDRILL S		800		10	790	\$0.00	\$738.30
EMUL		32		3	29	\$0.00	\$3,420.00
INTER FL		32		3	29	\$0.00	\$4,590.00
OW		40		12	28	\$0.00	\$19,080.00
ZINC CARB		80		0	80	\$0.00	\$0.00
BARITE	10	720		720	0	\$0.00	\$12,384.00
HSO 600	10	29		0	29	\$0.00	\$0.00
PTS 200	10	8		0	8	\$0.00	\$0.00
FIBER FLUID "F"		400		0	400	\$0.00	\$0.00
FIBER FLUID "C"		200		0	200	\$0.00	\$0.00

TOTALS

\$0.00 \$439,553.60

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD P-66		LOCATION P-66 LAT 60 40' LONG 123 30'		DATE		4-Mar-97		
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS #28E		REPORT No		43		
REPORT FOR Mr.		JOHN FAULKNER		REPORT FOR Mr. TERRY GORGICHUK		SPUD DATE		12-Jan-97		
ASSEMBLY		CASING		MUD VOL. (m3)		PUMP OUTPUT		ANNULAR VEL. m/min		
BIT SIZE (mm)	311.0	LENGTH (m)	SIZE (mm)	LENGTH (m)	TANKS	65	PUMP #1	152X254	OPPOSITE DP	60
BIT NUMBER	2CRR		508.0	283	HOLE	103	M3/STK	0.0138	OPPOSITE DC	60
DRILL PIPE #1 (mm)	127.0	1153	339.7	1007	TOTAL	168	PUMP #2	152X254	CIRC. TIME	63
DRILL PIPE #2 (mm)	127.0	54	LINER	TOP/BOT.	STAND BY	97	M3/STK	0.0138	BOTTOMS UP	29
COLLAR #1 (mm)							S.P.M.	230		
COLLAR #2 (mm)	171.0	55					M3/MIN	3.1786		
HOLE DATA		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS						
MUD TYPE - TRUDRILL		FLOWLINE WT. OFF		OFF		kg/m3		MUD WT.		1100 Kg/m3
HOLE COND.-STUCK PIPE 1335M		UNDERFLOW WT.				kg/m3		VISCOSITY		52-54S/L e/L
DEVIATION-28.2		OVERFLOW WT.				kg/m3		FILTRATE		<20 cm3/30 min.
CURRENT OP.-PLUG BACK		UNDERFLOW RT.				m3/min		pH		
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE		
38-38 84-84 XX DOUBLE DECK OR HIGH SPEED SHAKER										
MUD PROPERTIES		INVENTORY								
TIME SAMPLE TAKEN	8:30	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE	
SAMPLE FROM	FLOWLINE		RECEIVED	LAST	USED LAST	USED TO	REMAINING	COST	COST	
PRESENT DEPTH	1292		TO DATE	24 HOURS	24 HOURS	DATE	ON LOCATION			
FLOWLINE TEMPERATURE (C)	43.3									
DENSITY	1115									
FUNNEL VISCOSITY (s/L)	56									
600 READING @ 60 C	47									
300 READING	34									
APPARENT VISCOSITY (mPa.s)	23.5									
PLASTIC VISCOSITY (mPa.s)	13									
YIELD POINT (Pa)	10.5									
GELS 0/10 min. (Pa)	7.0/9.5									
pH	STRIP	METER								
FILTRATE @ 80C (cm3)	HTHP	X	12.5							
FILTER CAKE (mm)	2									
Pom	4									
EXCESS LIME KG/M3	14.8									
TOTAL HARDNESS (mg/l)	Ca									
CHLORIDES (mg/L)	NaCl									
SAND CONTENT %	X	FR.	0.65							
SOLIDS CONTENT %	X	FR.	13.5							
OIL CONTENT %			86.0							
WATER CONTENT %	X		0.5	PREVIOUS COST	\$456,639.10		STARTING VOLUME	284		
ELECTRICAL STABILITY	2000			DAILY COST	\$17,665.50		VOL. BUILT			
OIL WATER RATIO	99.5/0.5			CUM. COST	\$474,304.60		VOL. LOST ON SURFACE			
CaCl2 w/w%				CUM. ENG. COST	\$25,820.00		VOL. LOST ON SUB SURFACE	19		
"tr"	0.11			Discounted/ Total	\$237,152.30	\$263,072.30	END VOLUME	265		
"K"	11.77						CUM. VOL BUILT			
COMMENTS										
MAINTAIN										
WHILE KICKING OFF PLUG ADD 2 BBLs OF INTERDRILL "OW"										
TRANSFER TRUDILL AS REQ'D TO BUILD/MAINTAIN VOLUME										
VISCOSITY @ 52-54S/L WITH TRUVIS ADDED AT 10 MIN PER SACK AS PER ENGINEERS REQUEST										
RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK										
DENSITY AT 1100KG/M3										
DENSITY AS REQUIRED BY ADDING BARITE OR ALLOWING DRILLED SOLIDS TO BUILD. LOWER BY RUNNING CENTRIFUGE AS NECESSARY.										
IF 35M3 OF TRUDRILL IS INTRODUCED INTO THE ACTIVE SYSTEM ADD 240SX OF BARITE, 13 SX TRUVIS 1 DRUMS INTERDRILL OW, 1 DRUM EMUL, 1 DRUM INTERDRILL FL.										
NO LIME ADDITIONS ARE REQUIRED FOR NOW.										
SEEPAGE LOSSES ADD 10 SX OF INTERDRILL 'S' AND 10 SACKS OF FIBER FLUID PER DAY CONSULT WITH ENGINEER AND MUD MAN BEFORE ADDING										
MONITOR SURFACE VOLUMES FOR ANY CHANGES THAT MAY INDICATE DOWN HOLE LOSSES										
KEEP ALL SOURCES OF WATER AWAY FROM THE MUD TANKS										
STOCK POINT	GRANDE PRAIRIE (FORMULA)				DOWELL ENGINEER		DAN MAJOCHA		ON LOCATION	
PHONE	532-5078				PHONE NUMBER		CAMP RM. # 5			
BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.										

INVENTORY

WELL NAME RANGER FT. LIARD P-66

LOCATION LAT 60 40' LONG 123 30'

DATE 4-Mar-87

OPERATOR RANGER OIL LTD.

CONTRACTOR

CACTUS #28E

REPORT No 43

REPORT FOR Mr. JOHN FAULKNER

REPORT FOR Mr. TERRY GORGICHUK

SPUD DATE 12-Jan-87

PRODUCTS	MATERIALS RECEIVED TO DATE	MATERIALS USED LAST 24 HOURS	MATERIALS USED TO DATE	MATERIAL REMAINING ON LOCATION	DAILY COST	CUMULATIVE COST
CAUSTIC 10	240		177	63	\$0.00	\$10,266.00
X-CIDE 207 10	96		0	96	\$0.00	\$0.00
NAT BENTONITE 103	1960		1790	170	\$0.00	\$28,478.90
LIGNITE 1	56		18	38	\$0.00	\$360.00
LIME 1	648		130	518	\$0.00	\$2,015.00
SODA ASH 10	40		4	36	\$0.00	\$144.00
BICARB 10	25		16	9	\$0.00	\$1,264.00
MICA COARSE 1034	48		30	18	\$0.00	\$1,110.00
IDF-FLR 1	7		0	7	\$0.00	\$0.00
VISPLEX II 10	541		541	0	\$0.00	\$198,547.00
ID FREE 208L 10	4		0	4	\$0.00	\$0.00
CELLOPHANE 103	100		34	66	\$0.00	\$1,428.00
MICA MEDIUM 1042	110		0	110	\$0.00	\$0.00
FLOPLEX 10	250		135	115	\$0.00	\$25,920.00
P. SEAL "C" 10	50		50	0	\$0.00	\$1,900.00
P. SEAL "M" 104	16		16	0	\$0.00	\$608.00
CALCARB "325" 1044	224		14	210	\$0.00	\$140.00
CALCARB "SC" 1045	336		33	303	\$0.00	\$330.00
CALCAARB "O" 1045	448		0	448	\$0.00	\$0.00
DETERGENT 10	62		0	62	\$0.00	\$0.00
BARITE 10	7520	29	342	7178	\$565.50	\$6,669.00
CALC CHLORIDE	393		0	393	\$0.00	\$0.00
MAGNA FIBER	32		8	24	\$0.00	\$1,024.00
MICA FINE	239		39	200	\$0.00	\$1,443.00
SAWDUST	1400		525	875	\$0.00	\$3,412.50
CALC CARB "FG"	0		0	0	\$0.00	\$0.00
TRUDRILL	353	19	88	265	\$17,100.00	\$79,200.00
NATURAL GEL	240		240	0	\$0.00	\$4,334.40
TRUVIS	360		155	205	\$0.00	\$47,833.00
HYMUL	32		0	32	\$0.00	\$0.00
XCD	160		0	160	\$0.00	\$0.00
INTERDRILL S	800		10	790	\$0.00	\$738.30
EMUL	32		3	29	\$0.00	\$3,420.00
INTER FL	32		3	29	\$0.00	\$4,590.00
OW	40		12	28	\$0.00	\$19,080.00
ZINC CARB	80		0	80	\$0.00	\$0.00
BARITE 10	720		720	0	\$0.00	\$12,384.00
HSO 600 10	29		0	29	\$0.00	\$0.00
PTS 200 10	8		0	8	\$0.00	\$0.00
FIBER FLUID "F"	400		0	400	\$0.00	\$0.00
FIBER FLUID "C"	200		0	200	\$0.00	\$0.00

TOTALS

\$17,665.50 \$456,639.10

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD P-66		LOCATION P-66 LAT 60 40' LONG 123 30'		DATE		6-Mar-97	
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS #26E		REPORT No		44	
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr. TERRY GORGICHUK		SPUD DATE		12-Jan-97	
ASSEMBLY		CASINO		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min	
BIT SIZE (mm)	311.0	LENGTH (m)		SIZE (mm)	283	TANKS	84	PUMP #1	152X254
BIT NUMBER	3C			508.0	283	HOLE	86	M3/STK	0.0138
DRILL PIPE #1 (mm)	127.0	1005		339.7	1007	TOTAL	170	PUMP #2	152X254
DRILL PIPE #2 (mm)	127.0	54		LINER	TOP/BOT.	STAND BY	97	M3/STK	0.0138
COLLAR #1 (mm)								S.P.M.	230
COLLAR #2 (mm)	171.0	55						M3/MIN	3.1786
HOLE DATA		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS					
MUD TYPE - TRUDRILL		FLOWLINE WT. OFF		OFF		kg/m3		MUD WT.	
HOLE COND.		UNDERFLOW WT.				kg/m3		VISCOSITY	
DEVIATION-28.2		OVERFLOW WT.				kg/m3		FILTRATE	
CURRENT OP.-POLISH PLUG		UNDERFLOW RT.				m3/min		pH	
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE	
38-38		84-84		XX DOUBLE DECK OR HIGH SPEED SHAKER					
MUD PROPERTIES		DAILY PRODUCT USAGE							
TIME SAMPLE TAKEN	11:30	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE
SAMPLE FROM	FLOWLINE		RECEIVED	LAST	USED LAST	USED TO	REMAINING	COST	COST
PRESENT DEPTH	1114.5		TO DATE	24 HOURS	24 HOURS	DATE	ON LOCATION		
FLOWLINE TEMPERATURE (C)	43.3	BARITE	7520		16	358	7162	\$312.00	\$6,981.00
DENSITY	1115								
FUNNEL VISCOSITY (s/L)	55								
600 READING @ 60 C	50								
300 READING	37								
APPARENT VISCOSITY (mPa.s)	25								
PLASTIC VISCOSITY (mPa.s)	13								
YIELD POINT (Pa)	12								
GELS 0/10 min. (Pa)	7.4/19.5								
pH	STRIP	METER							
FILTRATE @ 90C (cm3)	HTHP	10							
FILTER CAKE (mm)	2.5								
Pom	3.7								
EXCESS LIME KG/M3	13.69								
TOTAL HARDNESS (mg/l)	Ca								
CHLORIDES (mg/L)	NaCl								
SAND CONTENT %	X FR.	0.65							
SOLIDS CONTENT %	X FR.	14							
OIL CONTENT %	83.0								
WATER CONTENT %	X	3.0	PREVIOUS COST	\$456,639.10			STARTING VOLUME	265	
ELECTRICAL STABILITY	1500		DAILY COST	\$312.00			VOL. BUILT	2	
OIL WATER RATIO	97/3		CUM. COST	\$456,951.10			VOL. LOST ON SURFACE		
CaCl2 wt%			CUM. ENG. COST	\$26,400.00			VOL. LOST ON SUB SURFACE		
"I"	0.44		Discounted/ Total	\$228,475.55	\$254,875.55		END VOLUME	267	
"K"	11.12						CUM. VOL. BUILT.	2	
COMMENTS POH FOR DIRECTIONAL BH-A									
MAINTAIN									
WHILE KICKING OFF PLUG ADD 2 BBLs OF INTERDRILL "OW"									
VISCOSITY @ 54-56 s/L WITH TRUVIS ADDED AT 10 MIN PER SACK AS PER ENGINEERS REQUEST									
DENSITY AT 1100 - 1150 KG/M3 OR AS REQUIRED BY ADDING BARITE OR ALLOWING DRILLED SOLIDS TO BUILD. LOWER BY RUNNING CENTRIFUGE AS NECESSARY.									
TRANSFER TRUDRILL AS REQ'D TO BUILD/MAINTAIN VOLUME RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK									
15 M3 OF TRUDRILL TRANSFERRED FROM 400'S WILL REDUCE DENSITY 10 POINTS 50 SX OF BAR WILL RAISE DENSITY 10 POINTS									
NO LIME ADDITIONS ARE REQUIRED FOR NOW.									
ADD 5 SX OF INTERDRILL 'S' AND 5 SACKS OF FIBER FLUID (FINE) PER TOUR									
MONITOR SURFACE VOLUMES FOR ANY CHANGES THAT MAY INDICATE DOWN HOLE LOSSES OR INFLUX									
KEEP ALL SOURCES OF WATER AWAY FROM THE MUD TANKS									
STOCK POINT	GRANDE PRAIRIE (FORMULA)			DOWELL ENGINEER		DAN MAJOCHA		ON LOCATION	
PHONE	532-5078			PHONE NUMBER		CAMP RM. # 5			
BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.									

INVENTORY

WELL NAME RANGER FT. LIARD P-68

LOCATION LAT 60 40' LONG 123 30'

DATE 5-Mar-97

OPERATOR RANGER OIL LTD.

CONTRACTOR

CACTUS #26E

REPORT No 44

REPORT FOR Mr. ART SCHRITT

REPORT FOR Mr. TERRY GORGICHUK

SPUD DATE 12-Jan-97

PRODUCTS		MATERIALS RECEIVED TO DATE	MATERIALS USED LAST 24 HOURS	MATERIALS USED TO DATE	MATERIAL REMAINING ON LOCATION	DAILY COST D/C	CUMULATIVE COST CUM/C
CAUSTIC	10	240		177	63	\$0.00	\$10,286.00
X-CIDE 207	10	96		0	96	\$0.00	\$0.00
NAT BENTONITE	103	1980		1790	170	\$0.00	\$28,478.90
LIGNITE	1	56		18	38	\$0.00	\$360.00
LIME		648		130	518	\$0.00	\$2,015.00
SODA ASH	10	40		4	36	\$0.00	\$144.00
BICARB	10	25		16	9	\$0.00	\$1,284.00
MICA COARSE	1034	48		30	18	\$0.00	\$1,110.00
IDF-FLR	1	7		0	7	\$0.00	\$0.00
VISPLEX II	10	541		541	0	\$0.00	\$198,547.00
ID FREE 208L	10	4		0	4	\$0.00	\$0.00
CELLOPHANE	103	100		34	66	\$0.00	\$1,428.00
MICA MEDIUM	1042	110		0	110	\$0.00	\$0.00
FLOPLEX	10	260		135	115	\$0.00	\$25,920.00
P. SEAL "C"	104	50		50	0	\$0.00	\$1,900.00
P. SEAL "M"	104	16		16	0	\$0.00	\$608.00
CALCARB "325"	1045	224		14	210	\$0.00	\$140.00
CALCARB "SC"	1045	336		33	303	\$0.00	\$330.00
CALCAARB "D"	1045	448		0	448	\$0.00	\$0.00
DETERGENT	104	62		0	62	\$0.00	\$0.00
BARITE	10	7520	16	358	7162	\$312.00	\$6,981.00
CALC CHLORIDE		393		0	393	\$0.00	\$0.00
MAGNA FIBER		32		8	24	\$0.00	\$1,024.00
MICA FINE		239		39	200	\$0.00	\$1,443.00
SAWDUST		1400		525	875	\$0.00	\$3,412.50
CALC CARB "FG"		0		0	0	\$0.00	\$0.00
TRUDRILL		353		88	265	\$0.00	\$79,200.00
NATURAL GEL		240		240	0	\$0.00	\$4,334.40
TRUVIS		360		155	205	\$0.00	\$47,833.00
HYMUL		32		0	32	\$0.00	\$0.00
XCD		160		0	160	\$0.00	\$0.00
INTERDRILL S		800		10	790	\$0.00	\$738.30
EMUL		32		3	29	\$0.00	\$3,420.00
INTER FL		32		3	29	\$0.00	\$4,590.00
OW		40		12	28	\$0.00	\$19,080.00
ZINC CARB		80		0	80	\$0.00	\$0.00
BARITE	10	720		720	0	\$0.00	\$12,384.00
HSO 600	10	29		0	29	\$0.00	\$0.00
PTS 200	10	8		0	8	\$0.00	\$0.00
FIBER FLUID "F"		400		0	400	\$0.00	\$0.00
FIBER FLUID "C"		200		0	200	\$0.00	\$0.00

TOTALS

\$312.00 \$456,951.10

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD P-66		LOCATION P-66 LAT 60 40' LONG 123 30'		DATE		6-Mar-97		
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS #28E		REPORT No		45		
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr. TERRY GORGICHLUK		SPUD DATE		12-Jan-97		
ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. (m/min)		
BIT SIZE (mm)	311.0	LENGTH (m)	SIZE (mm)	LENGTH (m)	TANKS	82	PUMP #1	152Q254	OPPOSITE DP	60
BIT NUMBER	3C		508.0	283	HOLE	83	M3/STK	0.0138	OPPOSITE DC	81
DRILL PIPE #1 (mm)	127.0	957	339.7	1007	TOTAL	175	PUMP #2	152Q254	CRC. TIME	55
DRILL PIPE #2 (mm)	127.0	82	LINER	TOP/ROT.	STAND BY	97	M3/STK	0.0138	BOTTOMS UP	23
COLLAR #1 (mm)	168.0	27					S.P.M.	230		
COLLAR #2 (mm)	228.0	106					M3/MIN	3.1786		
HOLE DATA		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS						
MUD TYPE - TRUDRILL		FLOWLINE WT. OFF		OFF		kg/m3		MUD WT.		1100-1150 Kg/m3
HOLE COND.-		UNDERFLOW WT.				kg/m3		VISCOSITY		54-56 s/L
DEVIATION-12.9		OVERFLOW WT.				kg/m3		FILTRATE		<20 cm3/30 min.
CURRENT OP.-CONTROL DRILL		UNDERFLOW RT.				m3/min		pH		
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE		
84-84-84 84-84-84		XX DOUBLE DECK OR HIGH SPEED SHAKER								
MUD PROPERTIES										
TIME SAMPLE TAKEN		13:30		MATERIALS		RECEIVED		MATERIALS		
SAMPLE FROM		FLOWLINE		RECEIVED		LAST		USED LAST		
PRESENT DEPTH		1172		TO DATE		24 HOURS		DATE		
FLOWLINE TEMPERATURE (C)		43.3		BARITE		7920		20		378
DENSITY		1115								
FUNNEL VISCOSITY (s/L)		52								
600 READING @ 60 C		43								
300 READING		32								
APPARENT VISCOSITY (mPa.s)		21.5								
PLASTIC VISCOSITY (mPa.s)		11								
YIELD POINT (Pa)		10.5								
GELS 0/10 min. (Pa)		6/7								
pH	STRIP	METER								
FILTRATE @ 80C (cm3)		HTHP X		10						
FILTER CAKE (mm)		2								
Pom		3.6								
EXCESS LIME KG/M3		13.32								
TOTAL HARDNESS (mg/l)		Ca								
CHLORIDES (mg/L)		NaCl								
SAND CONTENT %	X	FR.		0.6						
SOLIDS CONTENT %	X	FR.		14						
OIL CONTENT %		83.6								
WATER CONTENT %	X	3.0		PREVIOUS COST		\$456,951.10		STARTING VOLUME		267
ELECTRICAL STABILITY		1650		DAILY COST		\$390.00		VOL. BUILT		
OIL WATER RATIO		97/3		CUM. COST		\$457,341.10		VOL. LOST ON SURFACE		
CaCl2 w/w%				CUM. ENG. COST		\$26,880.00		VOL. LOST ON SUB SURFACE		
"H"		0.15		Discounted/ Total		\$228,670.55 \$255,550.55		END VOLUME		267
"K"		9.46						CUM. VOL BUILT.		2
COMMENTS		CONTROL DRILL OFF PLUG								
MAINTAIN										
START CIRCULATION OF 10 SX OF TRUVIS OVER 2 CIRCULATIONS										
VISCOSITY @ 54-56 s/L WITH TRUVIS ADDED AT 10 MIN PER SACK AS PER ENGINEERS REQUEST										
DENSITY AT 1100 - 1150 KG/M3 OR AS REQUIRED BY ADDING BARITE OR ALLOWING DRILLED SOLIDS TO BUILD. LOWER BY RUNNING CENTRIFUGE AS NECESSARY.										
TRANSFER TRUDRILL AS REQ'D TO BUILD/MAINTAIN VOLUME RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK										
15 M3 OF TRUDRILL TRANSFERRED FROM 400'S WILL REDUCE DENSITY 10 POINTS 50 SX OF BAR WILL RAISE DENSITY 10 POINTS										
NO LIME ADDITIONS ARE REQUIRED FOR NOW.										
ADD 5 SX OF INTERDRILL "S" AND 5 SACKS OF FIBER FLUID (FINE) PER TOUR										
MONITOR SURFACE VOLUMES FOR ANY CHANGES THAT MAY INDICATE DOWN HOLE LOSSES OR AN INFLUX										
KEEP ALL SOURCES OF WATER AWAY FROM THE MUD TANKS										
STOCK POINT	GRANDE PRAIRIE (FORMULA)		DOWELL ENGINEER		DAN MAJOCHA		ON LOCATION			
PHONE	532-5078		PHONE NUMBER		CAMP RM. # 5					
BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.										

INVENTORY

WELL NAME RANGER FT. LIARD P-66

LOCATION LAT 60 40' LONG 123 30'

DATE 6-Mar-87

OPERATOR RANGER OIL LTD.

CONTRACTOR CACTUS #26E

REPORT No 45

REPORT FOR Mr. ART SCHRITT

REPORT FOR Mr. TERRY GORGICHUK

SPUD DATE 12-Jan-87

PRODUCTS	MATERIALS RECEIVED TO DATE	MATERIALS USED LAST 24 HOURS	MATERIALS USED TO DATE	MATERIAL REMAINING ON LOCATION	DAILY COST D/C	CUMULATIVE COST CUMC
CAUSTIC 10	240		177	63	\$0.00	\$10,266.00
X-CIDE 207 10	86		0	86	\$0.00	\$0.00
NAT BENTONITE 103	1960		1790	170	\$0.00	\$28,476.90
LIGNITE 1	56		16	38	\$0.00	\$360.00
LIME 1	648		130	518	\$0.00	\$2,015.00
SODA ASH 103	40		4	36	\$0.00	\$144.00
BICARB 10	25		16	9	\$0.00	\$1,264.00
MICA COARSE 103	48		30	18	\$0.00	\$1,110.00
IDF-FLR 1	7		0	7	\$0.00	\$0.00
VISPLEX II 1	541		541	0	\$0.00	\$198,547.00
ID FREE 208L 10	4		0	4	\$0.00	\$0.00
CELLOPHANE 103	100		34	66	\$0.00	\$1,428.00
MICA MEDIUM 1042	110		0	110	\$0.00	\$0.00
FLOPLEX 10	250		135	115	\$0.00	\$25,920.00
P. SEAL "C" 10	50		50	0	\$0.00	\$1,900.00
P. SEAL "M" 104	16		16	0	\$0.00	\$608.00
CALCARB "325" 1045	224		14	210	\$0.00	\$140.00
CALCARB "SC" 1045	336		33	303	\$0.00	\$330.00
CALCAARB "D" 1045	448		0	448	\$0.00	\$0.00
DETERGENT 10	52		0	52	\$0.00	\$0.00
BARITE 10	7920	20	378	7542	\$390.00	\$7,371.00
CALC CHLORIDE	393		0	393	\$0.00	\$0.00
MAGNA FIBER	32		8	24	\$0.00	\$1,024.00
MICA FINE	239		39	200	\$0.00	\$1,443.00
SAWDUST	1400		525	875	\$0.00	\$3,412.50
CALC CARB "FG"	0		0	0	\$0.00	\$0.00
TRUDRILL	353		88	265	\$0.00	\$79,200.00
NATURAL GEL	240		240	0	\$0.00	\$4,334.40
TRUVIS	360		155	205	\$0.00	\$47,833.00
HYMUL	32		0	32	\$0.00	\$0.00
XCD	160		0	160	\$0.00	\$0.00
INTERDRILL S	600		10	790	\$0.00	\$738.30
EMUL	32		3	29	\$0.00	\$3,420.00
INTER FL	32		3	29	\$0.00	\$4,590.00
OW	40		12	28	\$0.00	\$19,080.00
ZINC CARB	80		0	80	\$0.00	\$0.00
BARITE 10	720		720	0	\$0.00	\$12,384.00
HSO 600 10	29		0	29	\$0.00	\$0.00
PTS 200 10	8		0	8	\$0.00	\$0.00
FIBER FLUID "F"	400		0	400	\$0.00	\$0.00
FIBER FLUID "C"	200		0	200	\$0.00	\$0.00

TOTALS

\$390.00 \$457,341.10

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD P-66		LOCATION		P-66 LAT 60 47 LONG 123 30		DATE		7-Mar-87	
OPERATOR		RANGER OIL LTD.		CONTRACTOR		CACTUS #26E		REPORT No		48	
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr.		TERRY GORGICHUK		SPUD DATE		12-Jan-87	
ASSEMBLY											
BIT SIZE (mm)		311.0		LENGTH (m)		508.0		TANKS		91	
BIT NUMBER		3CRR		SIZE (mm)		283		PUMP #1		152X254	
DRILL PIPE #1(mm)		127.0		LENGTH(m)		1007		HOLE		87	
DRILL PIPE #2(mm)		127.0		TOTAL		178		PUMP #2		152X254	
COLLAR #1(mm)		168.0		LINER		TOP/BOT.		STAND BY		97	
COLLAR #2(mm)		228.0		MUD VOL (M3)		PUMP OUTPUT		S.P.M.		230	
		106						M3/MIN		3.1786	
HOLE DATA											
MUD TYPE - TRUDRILL		FLOWLINE WT.		OFF		OFF		kg/m3		MUD WT.	
HOLE COND - GOOD		UNDERFLOW WT.						kg/m3		VISCOSITY	
DEVIATION-14.9 @ 1167 AZ 203.7		OVERFLOW WT.						kg/m3		FILTRATE	
CURRENT OP.-SUDING		UNDERFLOW RT.						m3/min		pH	
EQUIPMENT:											
84-84-84		84-84-84		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE	
84-84-84 XX DOUBLE DECK OR HIGH SPEED SHAKER											
MUD PROPERTIES											
TIME SAMPLE TAKEN		23:30		MATERIALS		MATERIALS		RECEIVED		DAILY PRODUCT USAGE	
SAMPLE FROM		FLOWLINE		RECEIVED		TO DATE		LAST 24 HOURS		MATERIALS USED LAST 24 HOURS	
PRESENT DEPTH		1192		BARITE		7920		40		418	
FLOWLINE TEMPERATURE (C)		68.9		TRUVIS		360		10		165	
DENSITY		1140		INTERDRILL		800		5		15	
FUNNEL VISCOSITY (cL)		50		OW		40		2		14	
600 READING @ 60 C		56		FIBER FLUID		400		5		5	
300 READING		41									
APPARENT VISCOSITY (mPa.s)		28									
PLASTIC VISCOSITY (mPa.s)		15									
YIELD POINT (Pa)		13									
GELS 0/10 min. (Pa)		2710									
pH		STRIP		METER							
FILTRATE @ 80C (cm3)		HTHP		X		9					
FILTER CAKE (mm)		2									
Pom		3.6									
EXCESS LIME KG/M3		13.32									
TOTAL HARDNESS (mg/l)		Ca									
CHLORIDES (mg/L)		NaCl									
SAND CONTENT %		X		FR.		0.6					
SOLIDS CONTENT %		X		FR.		15					
OIL CONTENT %		83.0									
WATER CONTENT %		X		2.0		PREVIOUS COST		\$457,341.10		STARTING VOLUME	
ELECTRICAL STABILITY		1650		DAILY COST		\$7,925.15				VOL. BUILT	
OIL WATER RATIO		97.6/72.4		CUM. COST		\$465,266.25				VOL. LOST ON SURFACE	
CaCl2 w/w%				CUM. ENG. COST		\$27,360.00				VOL. LOST ON SUB SURFACE	
"n"		0.13		Discounted/ Total		\$232,633.13		\$259,993.13		END VOLUME	
"k"		13.00								CUM. VOL BUILT.	
COMMENTS											
DRILL AHEAD WEIGHT UP TO 1150 kg/m ³ CENTRIFUGE WAS RUN FOR ONE CIRC PRIOR TO ADDING BAR											
MAINTAIN											
START CIRCULATION OF 10 SX OF TRUVIS OVER 2 CIRCULATIONS											
VISCOSITY @ 54-56 S/L WITH TRUVIS ADDED AT 10 MIN PER SACK AS PER ENGINEERS REQUEST											
DENSITY AT 1150 KG/M3 OR AS REQUIRED BY ADDING BARITE. RUN THE CENTRIFUGE ONCE OR TWICE DAILY OVER FULL CIRCULATIONS.											
TRANSFER TRUDRILL AS REQ'D TO BUILD/MAINTAIN VOLUME RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK											
15 M3 OF TRUDRILL TRANSFERRED FROM 400'S WILL REDUCE DENSITY 10 POINTS 50 SX OF BAR WILL RAISE DENSITY 10 POINTS											
NO LIME ADDITIONS ARE REQUIRED FOR NOW.											
ADD 5 SX OF INTERDRILL 'S' AND 5 SACKS OF FIBER FLUID (FINE) PER TOUR											
MONITOR SURFACE VOLUMES FOR ANY CHANGES THAT MAY INDICATE DOWN HOLE LOSSES OR AN INFLUX											
KEEP ALL SOURCES OF WATER AWAY FROM THE MUD TANKS											
STOCK POINT		GRANDE PRAIRIE (FORMULA)		DOWELL ENGINEER		DAN MAJOCHA		ON LOCATION			
PHONE		532-5078		PHONE NUMBER		CAMP RM. # 5					
BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE											

INVENTORY

WELL NAME RANGER FT. LIARD P-66
 OPERATOR RANGER OIL LTD.
 REPORT FOR Mr. ART SCHRITT

LOCATION LAT 60 40' LONG 123 30'
 CONTRACTOR CACTUS #26E
 REPORT FOR Mr. TERRY GORGICHUK

DATE 7-Mar-97
 REPORT No 46
 SPUD DATE 12-Jan-97

PRODUCTS	MATERIALS RECEIVED TO DATE	MATERIALS USED LAST 24 HOURS	MATERIALS USED TO DATE	MATERIAL REMAINING ON LOCATION	DAILY COST D/C	CUMULATIVE COST CUM/C
CAUSTIC 10	240		177	63	\$0.00	\$10,266.00
X-CIDE 207 10	96		0	96	\$0.00	\$0.00
NAT BENTONITE 103	1960		1790	170	\$0.00	\$28,478.90
LIGNITE 1	56		18	38	\$0.00	\$360.00
LIME 1	648		130	518	\$0.00	\$2,015.00
SODA ASH 103	40		4	36	\$0.00	\$144.00
BICARB 10	25		16	9	\$0.00	\$1,264.00
MICA COARSE 103	48		30	18	\$0.00	\$1,110.00
IDF-FLR 1	7		0	7	\$0.00	\$0.00
VISPLEX II 10	541		541	0	\$0.00	\$198,547.00
ID FREE 208L 10	4		0	4	\$0.00	\$0.00
CELLOPHANE 103	100		34	66	\$0.00	\$1,428.00
MICA MEDIUM 1042	110		0	110	\$0.00	\$0.00
FLOPLEX 10	250		135	115	\$0.00	\$25,920.00
P. SEAL "C" 10	50		50	0	\$0.00	\$1,900.00
P. SEAL "M" 104	16		16	0	\$0.00	\$608.00
CALCARB "325" 1045	224		14	210	\$0.00	\$140.00
CALCARB "SC" 1045	336		33	303	\$0.00	\$330.00
CALCAARB "D" 1045	448		0	448	\$0.00	\$0.00
DETERGENT 10	52		0	52	\$0.00	\$0.00
BARITE 10	7920	40	418	7502	\$780.00	\$8,151.00
CALC CHLORIDE	393		0	393	\$0.00	\$0.00
MAGNA FIBER	32		8	24	\$0.00	\$1,024.00
MICA FINE	239		39	200	\$0.00	\$1,443.00
SAWDUST	1400		525	875	\$0.00	\$3,412.50
CALC CARB "FG"	0		0	0	\$0.00	\$0.00
TRUDRILL	353		88	265	\$0.00	\$79,200.00
NATURAL GEL	240		240	0	\$0.00	\$4,334.40
TRUVIS	360	10	165	195	\$3,086.00	\$50,919.00
HYMUL	32		0	32	\$0.00	\$0.00
XCD	160		0	160	\$0.00	\$0.00
INTERDRILL S	600	5	15	785	\$369.15	\$1,107.45
EMUL	32		3	29	\$0.00	\$3,420.00
INTER FL	32		3	29	\$0.00	\$4,590.00
OW	40	2	14	26	\$3,180.00	\$22,260.00
ZINC CARB	80		0	80	\$0.00	\$0.00
BARITE 10	720		720	0	\$0.00	\$12,384.00
HSO 600 10	29		0	29	\$0.00	\$0.00
PTS 200 10	8		0	8	\$0.00	\$0.00
FIBER FLUID "F"	400	5	5	395	\$510.00	\$510.00
FIBER FLUID "C"	200		0	200	\$0.00	\$0.00

TOTALS \$7,925.15 \$485,266.25

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD P-66		LOCATION P-66 LAT 60 40' LONG 123 30'		DATE		8-Mar-97		
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS #26E		REPORT No		47		
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr. TERRY GORGICHUK		SPUD DATE		12-Jan-97		
ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min		
BIT SIZE (mm)	311.0	LENGTH (m)	SIZE (mm)	LENGTH (m)	TANKS	87	PUMP #1	152C254	OPPOSITE DP	50
BIT NUMBER	3CRR		508.0	283	HOLE	88	M3/STK	0.0138	OPPOSITE DC	91
DRILL PIPE #1 (mm)	127.0	1009	339.7	1007	TOTAL	174	PUMP #2	152C254	CIRC. TIME	55
DRILL PIPE #2 (mm)	127.0	82	LINER	TOP/BOT.	STAND BY	97	M3/STK	0.0138	BOTTOMS UP	24
COLLAR #1 (mm)	168.0	27					S.P.M.	230		
COLLAR #2 (mm)	228.0	106					M3/MIN	3.1786		
HOLE DATA		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS						
MUD TYPE - TRUDRILL		FLOWLINE WT. OFF		OFF		kg/m3		MUD WT.		1100-1150 Kg/m3
HOLE COND. GOOD		UNDERFLOW WT.				kg/m3		VISCOSITY		54-56 s/L
DEVIATION-17.8		OVERFLOW WT.				kg/m3		FILTRATE		<20 cm3/30 min.
CURRENT OP. DRILLING		UNDERFLOW RT.				m3/min		PH		
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE		
84-84-84 84-84-84		XX DOUBLE DECK OR HIGH SPEED SHAKER								
MUD PROPERTIES		DAILY PRODUCT USAGE								
TIME SAMPLE TAKEN	23:30	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE	
SAMPLE FROM	FLOWLINE		RECEIVED	LAST	USED LAST	USED TO	REMAINING	COST	COST	
PRESENT DEPTH	1224		TO DATE	24 HOURS	24 HOURS	DATE	ON LOCATION			
FLOWLINE TEMPERATURE (C)	68.9	BARITE	7926		216	634	7286	4212	\$	12,363.00
DENSITY	1170	TRUVIS	360		19	184	176	5863.4	\$	56,782.40
FUNNEL VISCOSITY (s/L)	64	INTERDRILL	800		10	25	775	738.3	\$	1,845.75
600 READING @ 60 C	63	FIBER FLUID	400		10	15	385	1020	\$	1,530.00
300 READING	47									
APPARENT VISCOSITY (mPa.s)	31.5									
PLASTIC VISCOSITY (mPa.s)	16									
YIELD POINT (Pa)	15.5									
GELS 0/10 min. (Pa)	9/12									
PH	STRIP	METER								
FILTRATE @ 90C (cm3)	HTHP	8.5								
FILTER CAKE (mm)		1.75								
Pom		3.6								
EXCESS LIME KG/M3		13.32								
TOTAL HARDNESS (mg/l)		Ca								
CHLORIDES (mg/L)		NaCl								
SAND CONTENT %	X	FR	0.55							
SOLIDS CONTENT %	X	FR	16							
OIL CONTENT %			83.0							
WATER CONTENT %	X		1.0	PREVIOUS COST	\$465,266.25		STARTING VOLUME		267	
ELECTRICAL STABILITY	2000+			DAILY COST	\$11,833.70		VOL. BUILT			
OIL WATER RATIO	99/1			CUM. COST	\$477,099.95		VOL. LOST ON SURFACE			
CaCl2 w/w%				CUM. ENG. COST	\$27,840.00		VOL. LOST ON SUB SURFACE			
"n"	0.14			Discounted/ Total	\$238,549.98	\$266,389.98	END VOLUME		267	
"k"	14.30						CUM. VOL BUILT.		2	
COMMENTS POH FOR MWD RIH WASH 1141-1195 DRILL AHEAD										
MAINTAIN										
VISCOSITY @ 54-56 s/L WITH TRUVIS ADDED AT 10 MIN PER SACK AS PER ENGINEERS REQUEST										
DENSITY AT 1150 KG/M3 OR AS REQUIRED BY ADDING BARITE. RUN THE CENTRIFUGE ONCE OR TWICE DAILY OVER FULL CIRCULATIONS.										
TRANSFER TRUDRILL AS REQ'D TO BUILD/MAINTAIN VOLUME RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK										
15 M3 OF TRUDRILL TRANSFERRED FROM 400'S WILL REDUCE DENSITY 10 POINTS 50 SX OF BAR WILL RAISE DENSITY 10 POINTS										
NO LIME ADDITIONS ARE REQUIRED FOR NOW.										
ADD 5 SX OF INTERDRILL 'S' AND 5 SACKS OF FIBER FLUID (FINE) PER TOUR										
MONITOR SURFACE VOLUMES FOR ANY CHANGES THAT MAY INDICATE DOWN HOLE LOSSES OR AN INFLUX										
KEEP ALL SOURCES OF WATER AWAY FROM THE MUD TANKS										
STOCK POINT	GRANDE PRAIRIE (FORMULA)				DOWELL ENGINEER	DAN MAJOCHA	ON LOCATION			
PHONE	532-5078				PHONE NUMBER	CAMP RM. # 5				
BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.										

INVENTORY

WELL NAME RANGER FT. LIARD P-66

LOCATION LAT 60 40' LONG 123 30'

DATE 8-Mar-97

OPERATOR RANGER OIL LTD.

CONTRACTOR

CACTUS #26E

REPORT No 47

REPORT FOR Mr. ART SCHRITT

REPORT FOR Mr. TERRY GORGICHUK

SPUD DATE 12-Jan-97

PRODUCTS	MATERIALS RECEIVED TO DATE	MATERIALS USED LAST 24 HOURS	MATERIALS USED TO DATE	MATERIAL REMAINING ON LOCATION	DAILY COST D/C	CUMULATIVE COST CUM/C
CAUSTIC 10	240		177	63	\$0.00	\$10,268.00
X-CIDE 207 10	96		0	96	\$0.00	\$0.00
NAT BENTONITE 103	1960		1790	170	\$0.00	\$28,478.90
LIGNITE 1	56		18	38	\$0.00	\$360.00
LIME 1	648		130	518	\$0.00	\$2,015.00
SODA ASH 10	40		4	36	\$0.00	\$144.00
BICARB 10	25		16	9	\$0.00	\$1,264.00
MICA COARSE 1034	48		30	18	\$0.00	\$1,110.00
IDF-FLR 1	7		0	7	\$0.00	\$0.00
VISPLEX II 16	541		541	0	\$0.00	\$198,547.00
ID FREE 208L 10	4		0	4	\$0.00	\$0.00
CELLOPHANE 103	100		34	66	\$0.00	\$1,428.00
MICA MEDIUM 1042	110		0	110	\$0.00	\$0.00
FLOPLEX 10	250		135	115	\$0.00	\$25,920.00
P. SEAL "C" 10	50		50	0	\$0.00	\$1,900.00
P. SEAL "M" 104	16		16	0	\$0.00	\$608.00
CALCARB "325" 1045	224		14	210	\$0.00	\$140.00
CALCARB "SC" 1045	336		33	303	\$0.00	\$330.00
CALCAARB "D" 1045	448		0	448	\$0.00	\$0.00
DETERGENT 10	52		0	52	\$0.00	\$0.00
BARITE 10	7920	216	634	7286	\$4,212.00	\$12,363.00
CALC CHLORIDE	393		0	393	\$0.00	\$0.00
MAGNA FIBER	32		8	24	\$0.00	\$1,024.00
MICA FINE	238		39	200	\$0.00	\$1,443.00
SAWDUST	1400		525	875	\$0.00	\$3,412.50
CALC CARB "FG"	0		0	0	\$0.00	\$0.00
TRUDRILL	353		88	265	\$0.00	\$79,200.00
NATURAL GEL	240		240	0	\$0.00	\$4,334.40
TRUVIS	360	19	184	176	\$5,863.40	\$56,782.40
HYMUL	32		0	32	\$0.00	\$0.00
XCD	160		0	160	\$0.00	\$0.00
INTERDRILL S	800	10	25	775	\$738.30	\$1,845.75
EMUL	32		3	29	\$0.00	\$3,420.00
INTER FL	32		3	29	\$0.00	\$4,580.00
OW	40		14	26	\$0.00	\$22,260.00
ZINC CARB	80		0	80	\$0.00	\$0.00
BARITE 10	720		720	0	\$0.00	\$12,384.00
HSO 600 10	29		0	29	\$0.00	\$0.00
PTS 200 10	8		0	8	\$0.00	\$0.00
FIBER FLUID "F"	400	10	15	385	\$1,020.00	\$1,530.00
FIBER FLUID "C"	200		0	200	\$0.00	\$0.00

TOTALS

\$11,833.70 \$477,099.95

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARO P-66		LOCATION P-66 LAT 60 40' LONG 123 30'		DATE		8-Mar-97	
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS #26E		REPORT No		48	
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr. TERRY GORGICHUK		SPUD DATE		12-Jan-97	
ASSEMBLY		CASING		MUD VOL. (BBS)		PUMP OUTPUT		ANNULAR VEL. m/min	
BIT SIZE (mm)	311.0	LENGTH (m)		SIZE (mm)	508.0	TANKS	93	PUMP #1	152X254
BIT NUMBER	3CRR			LENGTH(m)	263	HOLE	91	M3/STK	0.0138
DRILL PIPE #1(mm)	127.0	1050		339.7	1007	TOTAL	185	PUMP #2	152X254
DRILL PIPE #2(mm)	127.0	82		LINER	TOP/BOT.	STAND BY	82	M3/STK	0.0138
COLLAR #1(mm)	168.0	27						S.P.M.	216
COLLAR #2(mm)	228.0	106						M3/MIN	2.9851
HOLE DATA		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS					
MUD TYPE - TRUDRILL	FLOWLINE WT.	OFF	OFF	kg/m3	MUD WT.	1100-1150 Kg/m3			
HOLE COND.-GOOD	UNDERFLOW WT.			kg/m3	VISCOSITY	54-56 c/L			
DEVIATION-20.8	OVERFLOW WT.			kg/m3	FILTRATE	<20 cm3/30 min.			
CURRENT OP.-DRILLING	UNDERFLOW RT.			m3/min	pH				
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE	
110x110x110 84-84-84		XX DOUBLE DECK OR HIGH SPEED SHAKER							
MUD PROPERTIES		DAILY PRODUCT USAGE							
TIME SAMPLE TAKEN	22:30	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE
SAMPLE FROM	FLOWLINE	RECEIVED	TO DATE	LAST	USED LAST	USED TO	REMAINING	COST	COST
PRESENT DEPTH	1265			24 HOURS	24 HOURS	DATE	ON LOCATION		
FLOWLINE TEMPERATURE (C)	73.3	BARITE	9080		37	671	8409	\$721.50	\$13,084.50
DENSITY	1155	INTERDRILL	800		10	35	765	\$738.30	\$2,584.05
FUNNEL VISCOSITY (s/L)	47	FIBER FLUID	500		10	25	475	\$1,020.00	\$2,550.00
600 READING @ 60 C	58								
300 READING	42								
APPARENT VISCOSITY (mPa.s)	29								
PLASTIC VISCOSITY (mPa.s)	16								
YIELD POINT (Pa)	13								
GELS 0/10 min. (Pa)	8/11								
pH	STRIP	METER							
FILTRATE @ 80C (cm3)	HTHP	7							
FILTER CAKE (mm)	2								
Pom	3.9								
EXCESS LIME KG/M3	14.43								
TOTAL HARDNESS (mg/l)	Ca								
CHLORIDES (mg/L)	NaCl								
SAND CONTENT %	X FR.	0.55							
SOLIDS CONTENT %	X FR.	15							
OIL CONTENT %		84.0							
WATER CONTENT %	X	1.0	PREVIOUS COST	\$477,099.95	STARTING VOLUME	267			
ELECTRICAL STABILITY	2000+	DAILY COST	\$2,479.80	VOL. BUILT					
OIL WATER RATIO	98/1	CUM. COST	\$479,579.75	VOL. LOST ON SURFACE					
CaCl2 w/w%		CUM. ENG. COST	\$27,840.00	VOL. LOST ON SUB SURFACE					
"n"	0.10	Discounted/ Total	\$239,789.88	\$267,629.88	END VOLUME	267			
"k"	15.40				CUM. VOL BUILT.	2			
COMMENTS RIH DRILL TO 1265 m POH FOR BHA									
MAINTAIN ONCE ON BOTTOM START CIRCULATION OF INTERDRILL "OW" 1 BBL OVER 1-2 CIRCULATIONS VISCOSITY @ 54-56 s/L WITH TRUVIS ADDED AT 10 MIN PER SACK AS PER ENGINEERS REQUEST DENSITY AT 1150 KG/M3 OR AS REQUIRED BY ADDING BARITE. RUN THE CENTRIFUGE ONCE OR TWICE DAILY OVER FULL CIRCULATIONS. TRANSFER TRUDRILL AS REQ'D TO BUILD/MAINTAIN VOLUME RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK 15 M3 OF TRUDRILL TRANSFERRED FROM 400'S WILL REDUCE DENSITY 10 POINTS 50 SX OF BAR WILL RAISE DENSITY 10 POINTS NO LIME ADDITIONS ARE REQUIRED FOR NOW. ADD 5 SX OF INTERDRILL "S" AND 5 SACKS OF FIBER FLUID (FINE) PER TOUR MONITOR SURFACE VOLUMES FOR ANY CHANGES THAT MAY INDICATE DOWN HOLE LOSSES OR AN INFLUX KEEP ALL SOURCES OF WATER AWAY FROM THE MUD TANKS									
STOCK POINT	GRANDE PRAIRIE (FORMULA)			DOWELL ENGINEER	DAN MAJOCHA	ON LOCATION			
PHONE	532-5078			PHONE NUMBER	CAMP RM. # 5				
BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.									

INVENTORY

WELL NAME RANGER FT. LIARD P-66

LOCATION LAT 60 40' LONG 123 30'

DATE 8-Mar-87

OPERATOR RANGER OIL LTD.

CONTRACTOR

CACTUS #26E

REPORT No 48

REPORT FOR Mr. ART SCHRITT

REPORT FOR Mr. TERRY GORGICHUK

SPUD DATE 12-Jan-87

PRODUCTS		MATERIALS RECEIVED TO DATE	MATERIALS USED LAST 24 HOURS	MATERIALS USED TO DATE	MATERIAL REMAINING ON LOCATION	DAILY COST D/C	CUMULATIVE COST CUM/C
CAUSTIC	10	300		177	123	\$0.00	\$10,266.00
X-CIDE 207	10	86		0	86	\$0.00	\$0.00
NAT BENTONITE	103	1960		1790	170	\$0.00	\$28,478.90
LIGNITE	1	56		18	38	\$0.00	\$360.00
LIME	1	864		130	734	\$0.00	\$2,015.00
SODA ASH	10	40		4	36	\$0.00	\$144.00
BICARB	10	50		16	34	\$0.00	\$1,264.00
MICA COARSE	1034	48		30	18	\$0.00	\$1,110.00
IDF-FLR	1	7		0	7	\$0.00	\$0.00
VISPLEX II	10	541		541	0	\$0.00	\$198,547.00
ID FREE 208L	10	4		0	4	\$0.00	\$0.00
CELLOPHANE	103	100		34	66	\$0.00	\$1,428.00
MICA MEDIUM	1042	110		0	110	\$0.00	\$0.00
FLOPLEX	10	350		135	215	\$0.00	\$25,920.00
P. SEAL "C"	104	50		50	0	\$0.00	\$1,900.00
P. SEAL "M"	104	16		16	0	\$0.00	\$608.00
CALCARB "325"	1044	448		14	434	\$0.00	\$140.00
CALCARB "SC"	1045	336		33	303	\$0.00	\$330.00
CALCAARB "0"	1045	448		0	448	\$0.00	\$0.00
DETERGENT	104	52		0	52	\$0.00	\$0.00
BARITE	10	9080	37	671	8409	\$721.50	\$13,084.50
CALC CHLORIDE		393		0	393	\$0.00	\$0.00
MAGNA FIBER		32		8	24	\$0.00	\$1,024.00
MICA FINE		239		39	200	\$0.00	\$1,443.00
SAWDUST		1400		525	875	\$0.00	\$3,412.50
CALC CARB "FG"		0		0	0	\$0.00	\$0.00
TRUDRILL		353		88	265	\$0.00	\$79,200.00
NATURAL GEL		240		240	0	\$0.00	\$4,334.40
TRUVIS		480		184	296	\$0.00	\$56,782.40
HYMUL		32		0	32	\$0.00	\$0.00
XCD		160		0	160	\$0.00	\$0.00
INTERDRILL S		800	10	35	765	\$738.30	\$2,584.05
EMUL		44		3	41	\$0.00	\$3,420.00
INTER FL		44		3	41	\$0.00	\$4,590.00
OW		52		14	38	\$0.00	\$22,260.00
ZINC CARB		80		0	80	\$0.00	\$0.00
BARITE	10	720		720	0	\$0.00	\$12,384.00
HSO 600	10	29		0	29	\$0.00	\$0.00
PTS 200	10	8		0	8	\$0.00	\$0.00
FIBER FLUID "F"		500	10	25	475	\$1,020.00	\$2,550.00
FIBER FLUID "C"		300		0	300	\$0.00	\$0.00

TOTALS

\$2,479.80 \$479,579.75

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD P-66		LOCATION		P-66 LAT 60 40' LONG 123 30'		DATE		9-Mar-97	
OPERATOR		RANGER OIL LTD.		CONTRACTOR		CACTUS #28E		REPORT No		49	
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr.		TERRY GORGICHUK		SPUD DATE		12-Jan-97	
ASSEMBLY			CASING			MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. w/min	
BIT SIZE (mm)	311.0	LENGTH (m)	SIZE (mm)	LENGTH (m)	TANKS	86	PUMP #1	152X254	OPPOSITE DP	47	
BIT NUMBER	3CRR		508.0	263	HOLE	87	M3/STK	0.0138	OPPOSITE DC	85	
DRILL PIPE #1 (mm)	127.0	1089	339.7	1007	TOTAL	183	PUMP #2	152X254	CIRC. TIME	65	
DRILLPIPE #2 (mm)	127.0	82	LINER	TOP/BOT.	STAND BY	67	M3/STK	0.0138	BOTTOMS UP	29	
COLLAR #1 (mm)	168.0	27					S.P.M.	216			
COLLAR #2 (mm)	228.0	106					M3/MIN	2.9851			
HOLE DATA			CENTRIFUGE			DRILLING FLUID SPECIFICATIONS					
MUD TYPE - TRUDRILL			FLOWLINE WT. OFF			kg/m3	MUD WT.			1150 Kg/m3	
HOLE COND. - GOOD			UNDERFLOW WT.			kg/m3	VISCOSITY			48-52 @ 65 + DEG s/L	
DEVIATION - 25 @ 1292			OVERFLOW WT.			kg/m3	FILTRATE			<20 cm3/30 min.	
CURRENT OP. - DRILLING			UNDERFLOW RT.			m3/min	pH				
EQUIPMENT:			XX DEGASSER			DESILTER			DESANDER		
			110x110x110 140-140-140 XX DOUBLE DECK OR HIGH SPEED SHAKER			XXX CENTRIFUGE					
MUD PROPERTIES			DAILY PRODUCT USAGE								
TIME SAMPLE TAKEN	22:30	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE		
SAMPLE FROM	FLOWLINE	RECEIVED	LAST	USED LAST	USED TO	REMAINING	COST	COST			
PRESENT DEPTH	1314	TO DATE	24 HOURS	24 HOURS	DATE	ON LOCATION					
FLOWLINE TEMPERATURE (C)	73.3	BARITE	9080	40	711	8369	\$ 780.00	\$ 13,864.50			
DENSITY	1140	TRUDRILL	353	7	95	258	\$ 6,300.00	\$ 85,500.00			
FUNNEL VISCOSITY (s/L)	51	TRUVIS	480	17	201	279	\$ 5,246.20	\$ 62,028.60			
600 READING @ 60 C	62	INTERDRILL	800	5	40	760	\$ 369.15	\$ 2,953.20			
300 READING	46	OW	52	3	17	35	\$ 4,770.00	\$ 27,030.00			
APPARENT VISCOSITY (mPa.s)	31	FIBER FLUID	500	5	30	470	\$ 510.00	\$ 3,060.00			
PLASTIC VISCOSITY (mPa.s)	16	FIBER FLUID	300	5	5	295	\$ 510.00	\$ 510.00			
YIELD POINT (Pa)	15										
GELS 0/10 min. (Pa)	9/10										
pH	STRIP	METER									
FILTRATE @ 80C (cm3)	HTHP	7									
FILTER CAKE (mm)	1.5										
Pom	4										
EXCESS LIME KG/M3	14.8										
TOTAL HARDNESS (mg/l)	Ca										
CHLORIDES (mg/L)	NaCl										
SAND CONTENT %	FR.	0.5									
SOLIDS CONTENT %	FR.	16									
OIL CONTENT %	84.0										
WATER CONTENT %	0.0	PREVIOUS COST	\$479,579.75	STARTING VOLUME	267						
ELECTRICAL STABILITY	2000+	DAILY COST	\$18,485.35	VOL. BUILT							
OIL WATER RATIO	100/0	CUM. COST	\$498,065.10	VOL. LOST ON SURFACE	2						
CaCl2 w/w%		CUM. ENG. COST	\$28,320.00	VOL. LOST ON SUB SURFACE	5						
"n"	0.13	Discounted/ Total	\$249,032.55	\$277,352.55	END VOLUME	260					
"k"	14.50				CUM. VOL BUILT.	2					
COMMENTS DRILL AHEAD											
MAINTAIN											
VISCOSITY @ 48-52 s/L @ 65+DEG C FLOWLINE TEMP WITH TRUVIS ADDED AT 10 MIN PER SACK AS PER ENGINEERS REQUEST DENSITY AT 1150 KG/M3 OR AS REQUIRED BY ADDING BARITE. RUN THE CENTRIFUGE ONCE OR TWICE DAILY OVER FULL CIRCULATIONS. ADD INTERDRILL "OW" @ 1 BBL OVER 2 CIRCULATIONS IF SHALE DROPS OFF WET OR FLUID IS RUNNING OFF THE SHAKER TRANSFER TRUDRILL AS REQ'D TO BUILD/MAINTAIN VOLUME RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK 15 M3 OF TRUDRILL TRANSFERRED FROM 400'S WILL REDUCE DENSITY 10 POINTS 50 SX OF BAR WILL RAISE DENSITY 10 POINTS NO LIME ADDITIONS ARE REQUIRED FOR NOW. ADD 5 SX OF INTERDRILL "S" AND 5 SACKS OF FIBER FLUID (FINE) PER TOUR ADD COARSE FIBER FLUID IF LOSSES ARE HIGHER THAN NORMAL MONITOR SURFACE VOLUMES FOR ANY CHANGES THAT MAY INDICATE DOWN HOLE LOSSES OR AN INFLUX											
KEEP ALL SOURCES OF WATER AWAY FROM THE MUD TANKS											
STOCK POINT	GRANDE PRAIRIE (FORMULA)			DOWELL ENGINEER	DAN MAJOCHA			ON LOCATION			
PHONE	532-5078			PHONE NUMBER	CAMP RM. # 5						
BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.											

INVENTORY

WELL NAME RANGER FT. LIARD P-68

LOCATION LAT 60 40' LONG 123 30'

DATE 10-Mar-97

OPERATOR RANGER OIL LTD.

CONTRACTOR

CACTUS #26E

REPORT No 49

REPORT FOR Mr. ART SCHRITT

REPORT FOR Mr. TERRY GORGICHUK

SPUD DATE 12-Jan-97

PRODUCTS		MATERIALS RECEIVED TO DATE	MATERIALS USED LAST 24 HOURS	MATERIALS USED TO DATE	MATERIAL REMAINING ON LOCATION	DAILY COST D/C	CUMULATIVE COST CUM/C
CAUSTIC	10	300		177	123	\$0.00	\$10,266.00
X-CIDE 207	10	96		0	96	\$0.00	\$0.00
NAT BENTONITE	103	1960		1790	170	\$0.00	\$28,478.90
LIGNITE	1	56		18	38	\$0.00	\$360.00
LIME		864		130	734	\$0.00	\$2,015.00
SODA ASH	10	40		4	36	\$0.00	\$144.00
BICARB	10	50		16	34	\$0.00	\$1,264.00
MICA COARSE	1034	48		30	18	\$0.00	\$1,110.00
IDF-FLR	1	7		0	7	\$0.00	\$0.00
VISPLEX II	10	541		541	0	\$0.00	\$198,547.00
ID FREE 208L	10	4		0	4	\$0.00	\$0.00
CELLOPHANE	103	100		34	66	\$0.00	\$1,428.00
MICA MEDIUM	1042	110		0	110	\$0.00	\$0.00
FLOPLEX	10	350		135	215	\$0.00	\$25,920.00
P. SEAL "C"	10	50		50	0	\$0.00	\$1,900.00
P. SEAL "M"	104	16		16	0	\$0.00	\$608.00
CALCARB "325"	1045	448		14	434	\$0.00	\$140.00
CALCARB "SC"	1045	336		33	303	\$0.00	\$330.00
CALCAARB "D"	1045	448		0	448	\$0.00	\$0.00
DETERGENT	10	52		0	52	\$0.00	\$0.00
BARITE	10	9080	40	711	8369	\$780.00	\$13,864.50
CALC CHLORIDE		393		0	393	\$0.00	\$0.00
MAGNA FIBER		32		8	24	\$0.00	\$1,024.00
MICA FINE		239		39	200	\$0.00	\$1,443.00
SAWDUST		1400		525	875	\$0.00	\$3,412.50
CALC CARB "FG"		0		0	0	\$0.00	\$0.00
TRUDRILL		353	7	95	258	\$6,300.00	\$85,500.00
NATURAL GEL		240		240	0	\$0.00	\$4,334.40
TRUVIS		480	17	201	279	\$5,246.20	\$62,028.60
HYMUL		32		0	32	\$0.00	\$0.00
XCD		160		0	160	\$0.00	\$0.00
INTERDRILL S		800	5	40	760	\$369.15	\$2,853.20
EMUL		44		3	41	\$0.00	\$3,420.00
INTER FL		44		3	41	\$0.00	\$4,590.00
OW		52	3	17	35	\$4,770.00	\$27,030.00
ZINC CARB		80		0	80	\$0.00	\$0.00
BARITE	10	720		720	0	\$0.00	\$12,384.00
HSO 600	10	29		0	29	\$0.00	\$0.00
PTS 200	10	8		0	8	\$0.00	\$0.00
FIBER FLUID "F"		500	5	30	470	\$510.00	\$3,060.00
FIBER FLUID "C"		300	5	5	295	\$510.00	\$510.00

TOTALS \$18,485.35 \$498,065.10

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD P-66		LOCATION		P-66 LAT 60 40' LONG 123 30'		DATE		11-Mar-97											
OPERATOR		RANGER OIL LTD.		CONTRACTOR		CACTUS #26E		REPORT No		50											
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr.		TERRY GORGICHUK		SPUD DATE		12-Jan-97											
ASSEMBLY			CASING			MUD VOL. (M3)			PUMP OUTPUT			ANNULAR VEL. m/min									
BIT SIZE (mm)		311.0		LENGTH (m)		508.0		TANKS		79		PUMP #1		152X254		OPPOSITE DP		47			
BIT NUMBER		3CRR		LENGTH (m)		283		HOLE		107		PUMP #2		152X254		OPPOSITE DC		85			
DRILL PIPE #1 (mm)		127.0		1154		339.7		1007		TOTAL		187		PUMP #2		152X254		CIRC. TIME		63	
DRILL PIPE #2 (mm)		127.0		82		LINER		TOP/BOT.		STAND BY		67		M3/STK		0.0138		BOTTOMS UP		32	
COLLAR #1 (mm)		168.0		27								S.P.M.		216							
COLLAR #2 (mm)		228.0		106								M3/MIN		2.9851							
HOLE DATA			CENTRIFUGE			DRILLING FLUID SPECIFICATIONS															
MUD TYPE - TRUDRILL			FLOWLINE WT.			OFF			kg/m3			MUD WT.			1150 Kg/m3						
HOLE COND.-TIGHT			UNDERFLOW WT.						kg/m3			VISCOSITY			48-52 @ 65 + DEG e/L						
DEVIATION-29.6 @ 1341 m 207.7 AZ			OVERFLOW WT.						kg/m3			FILTRATE			<20 cm3/30 min.						
CURRENT OP.-REAM & CLEAN			UNDERFLOW RT.						m3/min			pH									
EQUIPMENT:			XX DEGASSER			DESILTER			DESANDER			XXX CENTRIFUGE									
110x110x110 140-140-140 XX DOUBLE DECK OR HIGH SPEED SHAKER																					
MUD PROPERTIES			DAILY PRODUCT USAGE																		
TIME SAMPLE TAKEN		6:30		MATERIALS		MATERIALS		RECEIVED		MATERIALS		MATERIALS		MATERIAL		DAILY		CUMULATIVE			
SAMPLE FROM		FLOWLINE				RECEIVED		LAST		USED LAST		USED TO		REMAINING		COST		COST			
PRESENT DEPTH		1288				TO DATE		24 HOURS		24 HOURS		DATE		ON LOCATION							
FLOWLINE TEMPERATURE (C)		54.4		BARITE		10200				120		831		8369		\$ 2,340.00		\$ 16,204.50			
DENSITY		1210		TRUDRILL		353				6		101		252		\$ 5,400.00		\$ 90,900.00			
FUNNEL VISCOSITY (cL)		70		INTERDRILL		800				5		45		755		\$ 369.15		\$ 3,322.35			
600 READING @ 60 C		68		FIBER FLUID		500				5		35		465		\$ 510.00		\$ 3,570.00			
300 READING		48		FIBER FLUID		300				5		10		290		\$ 610.00		\$ 1,020.00			
APPARENT VISCOSITY (mPa.s)		34																			
PLASTIC VISCOSITY (mPa.s)		20																			
YIELD POINT (Pa)		14																			
GELS 0/10 min. (Pa)		10/12																			
pH		STRIP		METER																	
FILTRATE @ 90C (cm3)		HTHP		X		6.5															
FILTER CAKE (mm)						1.5															
Pom						4															
EXCESS LIME KG/M3						14.8															
TOTAL HARDNESS (mg/l)				Ca																	
CHLORIDES (mg/L)				NaCl																	
SAND CONTENT %		X		FR.		0.5															
SOLIDS CONTENT %		X		FR.		18															
OIL CONTENT %						82.0															
WATER CONTENT %		X				0.0		PREVIOUS COST		\$498,065.10		STARTING VOLUME		260							
ELECTRICAL STABILITY						2000+		DAILY COST		\$9,129.15		VOL. BUILT									
OIL WATER RATIO						100/0		CUM. COST		\$507,194.25		VOL. LOST ON SURFACE		2							
CaCl2 w/w%								CUM. ENG. COST		\$29,280.00		VOL. LOST ON SUB SURFACE		4							
"n"						0.09		Discounted/ Total		\$253,597.13 \$282,877.13		END VOLUME		254							
"k"						17.21						CUM. VOL BUILT.		2							
COMMENTS												DRILL TO 1369 M W/PER TRIP TO CSG HOLE SLOUGHING POH RIH SUCK									
MAINTAIN																					
VISCOSITY @ 50-54 S/L @ 65+DEG C FLOWLINE TEMP WITH TRUVIS ADDED AT 10 MIN PER SACK AS PER ENGINEERS REQUEST DENSITY AT 1170 - 1200 KG/M3 OR AS REQUIRED BY ADDING BARITE. RUN THE CENTRIFUGE ONCE OR TWICE DAILY OVER FULL CIRCULATIONS. ADD INTERDRILL "OW" @ 1 BBL OVER 2 CIRCULATIONS IF SHALE DROPS OFF WET OR FLUID IS RUNNING OFF THE SHAKER TRANSFER TRUDRILL AS REQ'D TO BUILD/MAINTAIN VOLUME RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK 15 M3 OF TRUDRILL TRANSFERRED FROM 400'S WILL REDUCE DENSITY 10 POINTS 50 SX OF BAR WILL RAISE DENSITY 10 POINTS NO LIME ADDITIONS ARE REQUIRED FOR NOW. ADD 5 SX OF INTERDRILL "S" AND 5 SACKS OF FIBER FLUID (FINE) PER TOUR ADD COARSE FIBER FLUID IF LOSSES ARE HIGHER THAN NORMAL MONITOR SURFACE VOLUMES FOR ANY CHANGES THAT MAY INDICATE DOWN HOLE LOSSES OR AN INFLUX																					
KEEP ALL SOURCES OF WATER AWAY FROM THE MUD TANKS																					
STOCK POINT				GRANDE PRAIRIE (FORMULA)				DOWELL ENGINEER				DAN MAJOCHA				ON LOCATION					
PHONE				532-5078				PHONE NUMBER				CAMP RM. # 5									
BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.																					

INVENTORY

WELL NAME RANGER FT. LIARD P-66

LOCATION LAT 60 40' LONG 123 30'

DATE 11-Mar-97

OPERATOR RANGER OIL LTD.

CONTRACTOR

CACTUS #26E

REPORT No 50

REPORT FOR Mr. ART SCHRITT

REPORT FOR Mr. TERRY GORGICHUK

SPUD DATE 12-Jan-97

PRODUCTS		MATERIALS RECEIVED TO DATE	MATERIALS USED LAST 24 HOURS	MATERIALS USED TO DATE	MATERIAL REMAINING ON LOCATION	DAILY COST D/C	CUMULATIVE COST CUM/C
CAUSTIC	10	300		177	123	\$0.00	\$10,266.00
X-CIDE 207	10	96		0	96	\$0.00	\$0.00
NAT BENTONITE	103	1960		1790	170	\$0.00	\$28,478.90
LIGNITE	1	56		18	38	\$0.00	\$360.00
LIME		864		130	734	\$0.00	\$2,015.00
SODA ASH	103	40		4	36	\$0.00	\$144.00
BICARB	103	50		16	34	\$0.00	\$1,264.00
MICA COARSE	1034	48		30	18	\$0.00	\$1,110.00
IDF-FLR	1	7		0	7	\$0.00	\$0.00
VISPLEX II	10	541		541	0	\$0.00	\$198,547.00
ID FREE 208L	103	4		0	4	\$0.00	\$0.00
CELLOPHANE	103	100		34	66	\$0.00	\$1,428.00
MICA MEDIUM	1042	110		0	110	\$0.00	\$0.00
FLOPLEX	10	350		135	215	\$0.00	\$25,920.00
P. SEAL "C"	104	50		50	0	\$0.00	\$1,900.00
P. SEAL "M"	104	16		16	0	\$0.00	\$608.00
CALCARB "325"	1044	448		14	434	\$0.00	\$140.00
CALCARB "SC"	1045	336		33	303	\$0.00	\$330.00
CALCAARB "0"	1045	448		0	448	\$0.00	\$0.00
DETERGENT	104	52		0	52	\$0.00	\$0.00
BARITE	10	10200	120	831	9369	\$2,340.00	\$16,204.50
CALC CHLORIDE		393		0	393	\$0.00	\$0.00
MAGNA FIBER		32		8	24	\$0.00	\$1,024.00
MICA FINE		238		39	200	\$0.00	\$1,443.00
SAWDUST		1400		525	875	\$0.00	\$3,412.50
CALC CARB "FG"		0		0	0	\$0.00	\$0.00
TRUDRILL		353	6	101	252	\$5,400.00	\$90,900.00
NATURAL GEL		240		240	0	\$0.00	\$4,334.40
TRUVIS		480		201	279	\$0.00	\$62,028.60
HYMUL		32		0	32	\$0.00	\$0.00
XCD		160		0	160	\$0.00	\$0.00
INTERDRILL S		800	5	45	755	\$369.15	\$3,322.35
EMUL		44		3	41	\$0.00	\$3,420.00
INTER FL		44		3	41	\$0.00	\$4,590.00
OW		52		17	35	\$0.00	\$27,030.00
ZINC CARB		80		0	80	\$0.00	\$0.00
BARITE	10	720		720	0	\$0.00	\$12,384.00
HSO 600	10	29		0	29	\$0.00	\$0.00
PTS 200	10	8		0	8	\$0.00	\$0.00
FIBER FLUID "F"		500	5	35	465	\$510.00	\$3,570.00
FIBER FLUID "C"		300	5	10	290	\$510.00	\$1,020.00

TOTALS

\$9,129.15 \$507,194.25

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD P-66		LOCATION P-66 LAT 60 40' LONG 123 30'		DATE		11-Mar-97			
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS #26E		REPORT No		506			
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr.		TERRY GORGICHUK		SPUD DATE 12-Jan-97			
ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min			
BIT SIZE (mm)	311.0	LENGTH (m)	SIZE (mm)	LENGTH (m)	TANKS	94	PUMP #1	152X254	OPPOSITE DP	47	
BIT NUMBER	3CRR		508.0	283	HOLE	107	M3/STK	0.0138	OPPOSITE DC	85	
DRILL PIPE #1 (mm)	127.0	1154	339.7	1007	TOTAL	201	PUMP #2	152X254	CIRC. TIME	67	
DRILL PIPE #2 (mm)	127.0	82	LINER	TOP/BOT.	STAND BY	52	M3/STK	0.0138	BOTTOMS UP	32	
COLLAR #1 (mm)	168.0	27					S.P.M.	216			
COLLAR #2 (mm)	228.0	106					M3/MIN	2.9851			
HOLE DATA		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS							
MUD TYPE - TRUDRILL		FLOWLINE WT.		OFF	OFF	kg/m3	MUD WT.		1150 Kg/m3		
HOLE COND. - TIGHT		UNDERFLOW WT.				kg/m3	VISCOSITY		48-52 @ 65 + DEG s/L		
DEVIATION - 29.6 @ 1341 m 207.7 AZ		OVERFLOW WT.				kg/m3	FILTRATE		<20 cm3/30 min.		
CURRENT OP. - REAM & CLEAN		UNDERFLOW RT.				m3/min	pH				
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE			
110x110x110 140-140-140		XX DOUBLE DECK OR HIGH SPEED SHAKER									
MUD PROPERTIES		DAILY PRODUCT USAGE									
TIME SAMPLE TAKEN		20:30		MATERIALS		MATERIALS		RECEIVED		MATERIALS	
SAMPLE FROM		FLOWLINE		RECEIVED		LAST		USED LAST		USED TO	
PRESENT DEPTH		1369		TO DATE		24 HOURS		24 HOURS		DATE	
FLOWLINE TEMPERATURE (C)		67.8									
DENSITY		1210									
FUNNEL VISCOSITY (s/L)		56									
600 READING @ 60 C		63									
300 READING		45									
APPARENT VISCOSITY (mPa.s)		31.5									
PLASTIC VISCOSITY (mPa.s)		18									
YIELD POINT (Pa)		13.5									
GELS @ 10 min. (Pa)		10/11									
pH		STRIP		METER							
FILTRATE @ 90C (cm3)		HTHP X									
FILTER CAKE (mm)		2									
Pom		3.5									
EXCESS LIME KG/M3		12.95									
TOTAL HARDNESS (mg/l)		Ca									
CHLORIDES (mg/L)		NaCl									
SAND CONTENT %		X		FR.		0.5					
SOLIDS CONTENT %		X		FR.		20					
OIL CONTENT %						80.0					
WATER CONTENT %		X				0.0		PREVIOUS COST		\$507,194.25	
ELECTRICAL STABILITY		2000+						DAILY COST		STARTING VOLUME	
OIL WATER RATIO		100/0						CUM. COST		VOL. BUILT	
CaCl2 w/w%								\$507,194.25		VOL. LOST ON SURFACE	
"n"		0.08						CUM. ENG. COST		VOL. LOST ON SUB SURFACE	
"k"		17.58						Discounted/ Total		END VOLUME	
								\$253,597.13		254	
								\$282,877.13		CUM. VOL BUILT.	
										2	
COMMENTS REAM AND CLEAN TO 1369 m PUMP HIMS SWEEP PULL WIPER TRIP REAM TO 1369 CIRC POH											
MAINTAIN											
VISCOSITY @ 50-54 s/L @ 65+DEG C FLOWLINE TEMP WITH TRUVIS ADDED AT 10 MIN PER SACK AS PER ENGINEERS REQUEST DENSITY AT 1170 - 1200 KG/M3 OR AS REQUIRED BY ADDING BARITE. RUN THE CENTRIFUGE ONCE OR TWICE DAILY OVER FULL CIRCULATIONS. ADD INTERDRILL "OW" @ 1 BBL OVER 2 CIRCULATIONS IF SHALE DROPS OFF WET OR FLUID IS RUNNING OFF THE SHAKER TRANSFER TRUDRILL AS REQ'D TO BUILD/MAINTAIN VOLUME RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK 15 M3 OF TRUDRILL TRANSFERRED FROM 400'S WILL REDUCE DENSITY 10 POINTS 50 SX OF BAR WILL RAISE DENSITY 10 POINTS NO LIME ADDITIONS ARE REQUIRED FOR NOW. ADD 5 SX OF INTERDRILL "S" AND 5 SACKS OF FIBER FLUID (FINE) PER TOUR ADD COARSE FIBER FLUID IF LOSSES ARE HIGHER THAN NORMAL MONITOR SURFACE VOLUMES FOR ANY CHANGES THAT MAY INDICATE DOWN HOLE LOSSES OR AN INFLUX											
KEEP ALL SOURCES OF WATER AWAY FROM THE MUD TANKS											
STOCK POINT		GRANDE PRAIRIE (FORMULA)				DOWELL ENGINEER		DAN MAJOCHA		ON LOCATION	
PHONE		532-5078				PHONE NUMBER		CAMP RM. # 5			
BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.											

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD P-66		LOCATION P-66 LAT 60 40' LONG 123 30'		DATE		12-Mar-97	
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS #26E		REPORT No		51	
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr.		TERRY GORGICHUK		SPUD DATE	
								12-Jan-97	
ASSEMBLY		Casing		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min	
BIT SIZE (mm)	311.0	LENGTH (m)	SIZE (mm)	LENGTH (m)	TANKS	94	PUMP #1	152X254	OPPOSITE DP
BIT NUMBER	3CRR		508.0	283	HOLE	108	M3/STK	0.0138	OPPOSITE DC
DRILL PIPE #1 (mm)	127.0	1160	339.7	1007	TOTAL	202	PUMP #2	152X254	CIRC. TIME
DRILL PIPE #2 (mm)	127.0	82	LINER	TOP/BOT.	STAND BY	52	M3/STK	0.0138	BOTTOMS UP
COLLAR #1 (mm)	168.0	27					S.P.M.	212	
COLLAR #2 (mm)	228.0	106					M3/MIN	2.9299	
HOLE DATA		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS					
MUD TYPE - TRUDRILL		FLOWLINE WT.		OFF	OFF	kg/m3	MUD WT.		1150 Kg/m3
HOLE COND.-FAIR		UNDERFLOW WT.				kg/m3	VISCOSITY		48-52 @ 65 + DEG s/L
DEVIATION-30.7 @ 1350 m 207.8 AZ		OVERFLOW WT.				kg/m3	FILTRATE		<20 cm3/30 min.
CURRENT OP.-DRILLING		UNDERFLOW RT.				m3/min	pH		
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE	
110x110x110 140-140-140		XX DOUBLE DECK OR HIGH SPEED SHAKER							
MUD PROPERTIES		DAILY PRODUCT USAGE							
TIME SAMPLE TAKEN	13:30	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE
SAMPLE FROM	FLOWLINE		RECEIVED	LAST	USED LAST	USED TO	REMAINING	COST	COST
PRESENT DEPTH	1375		TO DATE	24 HOURS	24 HOURS	DATE	ON LOCATION		
FLOWLINE TEMPERATURE (C)	71.1	CALCARB "3"	448		108	122	326	\$ 1,080.00	\$ 1,220.00
DENSITY	1205	BARITE	11080		300	1131	9949	\$ 5,850.00	\$ 22,054.50
FUNNEL VISCOSITY (s/L)	56	TRUVIS	488		17	218	262	\$ 5,246.20	\$ 67,274.80
600 READING @ 60 C	66	OW	52		4	21	31	\$ 6,360.00	\$ 33,390.00
300 READING	47	FIBER FLUID	500		5	40	460	\$ 510.00	\$ 4,080.00
APPARENT VISCOSITY (mPa.s)	33	FIBER FLUID	300		5	15	285	\$ 510.00	\$ 1,530.00
PLASTIC VISCOSITY (mPa.s)	19								
YIELD POINT (Pa)	14								
GELS 0/10 min. (Pa)	10/11								
pH	STRIP	METER							
FILTRATE @ 90C (cm3)	HTHP X								
FILTER CAKE (mm)									
Pom	3.5								
EXCESS LIME KG/M3	12.95								
TOTAL HARDNESS (mg/l)		Ca							
CHLORIDES (mg/L)		NaCl							
SAND CONTENT %	X	FR.	0.5						
SOLIDS CONTENT %	X	FR.	20						
OIL CONTENT %			79.0						
WATER CONTENT %	X		1.0	PREVIOUS COST	\$507,194.25	STARTING VOLUME		254	
ELECTRICAL STABILITY	2000+			DAILY COST	\$19,556.20	VOL. BUILT			
OIL WATER RATIO	99/1			CUM. COST	\$526,750.45	VOL. LOST ON SURFACE			
CaCl2 w/w%				CUM. ENG. COST	\$29,780.00	VOL. LOST ON SUB SURFACE			
"n"	0.09			Discounted/ Total	\$263,375.23	\$293,135.23	END VOLUME		254
"c"	17.27						CUM. VOL. BUILT.		2
COMMENTS RIH TO 1007 SLIP & CUT RIH CLEAN 1307 - 1369 m SURVEY DRILL AHEAD									
MAINTAIN									
VISCOSITY @ 50-54 s/L @ 65+DEG C FLOWLINE TEMP WITH TRUVIS ADDED AT 10 MIN PER SACK AS PER ENGINEERS REQUEST DENSITY AT 1170 - 1200 KG/M3 OR AS REQUIRED BY ADDING BARITE. RUN THE CENTRIFUGE ONCE OR TWICE DAILY OVER FULL CIRCULATIONS. ADD INTERDRILL "OW" @ 1 BBL OVER 2 CIRCULATIONS IF SHALE DROPS OFF WET OR FLUID IS RUNNING OFF THE SHAKER TRANSFER TRUDRILL AS REQ'D TO BUILD/MAINTAIN VOLUME RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK 15 M3 OF TRUDRILL TRANSFERRED FROM 400'S WILL REDUCE DENSITY 10 POINTS 50 SX OF BAR WILL RAISE DENSITY 10 POINTS NO LIME ADDITIONS ARE REQUIRED FOR NOW. ADD 5 SX OF INTERDRILL "S" AND 5 SACKS OF FIBER FLUID (FINE) PER TOUR ADD COARSE FIBER FLUID IF LOSSES ARE HIGHER THAN NORMAL MONITOR SURFACE VOLUMES FOR ANY CHANGES THAT MAY INDICATE DOWN HOLE LOSSES OR AN INFUX									
KEEP ALL SOURCES OF WATER AWAY FROM THE MUD TANKS									
STOCK POINT	GRANDE PRAIRIE (FORMULA)			DOWELL ENGINEER		DAN MAJOCHA		ON LOCATION	
PHONE	532-5078			PHONE NUMBER		CAMP RM. # 5			
BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.									

INVENTORY

WELL NAME RANGER FT. LIARD P-68

LOCATION LAT 60 40' LONG 123 30'

DATE 12-Mar-97

OPERATOR RANGER OIL LTD.

CONTRACTOR

CACTUS #26E

REPORT No 61

REPORT FOR Mr. ART SCHRITT

REPORT FOR Mr. TERRY GORGICHUK

SPUD DATE 12-Jan-97

PRODUCTS		MATERIALS RECEIVED TO DATE	MATERIALS USED LAST 24 HOURS	MATERIALS USED TO DATE	MATERIAL REMAINING ON LOCATION	DAILY COST D/C	CUMULATIVE COST CUM/C
CAUSTIC	10	300		177	123	\$0.00	\$10,266.00
X-CIDE 207	10	96		0	96	\$0.00	\$0.00
NAT BENTONITE	10	1980		1790	170	\$0.00	\$28,478.90
LIGNITE	1	56		18	38	\$0.00	\$380.00
LIME		864		130	734	\$0.00	\$2,015.00
SODA ASH	10	40		4	36	\$0.00	\$144.00
BICARB	10	50		16	34	\$0.00	\$1,264.00
MICA COARSE	1034	48		30	18	\$0.00	\$1,110.00
IDF-FLR	1	7		0	7	\$0.00	\$0.00
VISPLEX II	10	541		541	0	\$0.00	\$198,547.00
ID FREE 208L	10	4		0	4	\$0.00	\$0.00
CELLOPHANE	103	100		34	66	\$0.00	\$1,428.00
MICA MEDIUM	1042	110		0	110	\$0.00	\$0.00
FLOPLEX	10	350		135	215	\$0.00	\$25,920.00
P. SEAL "C"	104	50		50	0	\$0.00	\$1,900.00
P. SEAL "M"	104	16		16	0	\$0.00	\$608.00
CALCARB "325"	1049	448	108	122	326	\$1,080.00	\$1,220.00
CALCARB "SC"	1045	336		33	303	\$0.00	\$330.00
CALCAARB "O"	1045	448		0	448	\$0.00	\$0.00
DETERGENT	104	52		0	52	\$0.00	\$0.00
BARITE	10	11080	300	1131	9949	\$5,850.00	\$22,054.50
CALC CHLORIDE		393		0	393	\$0.00	\$0.00
MAGNA FIBER		32		8	24	\$0.00	\$1,024.00
MICA FINE		239		39	200	\$0.00	\$1,443.00
SAWDUST		1400		525	875	\$0.00	\$3,412.50
CALC CARB "FG"		0		0	0	\$0.00	\$0.00
TRUDRILL		353		101	252	\$0.00	\$90,900.00
NATURAL GEL		240		240	0	\$0.00	\$4,334.40
TRUVIS		480	17	218	262	\$5,246.20	\$67,274.80
HYMUL		32		0	32	\$0.00	\$0.00
XCD		160		0	160	\$0.00	\$0.00
INTERDRILL S		800		45	755	\$0.00	\$3,322.35
EMUL		44		3	41	\$0.00	\$3,420.00
INTER FL		44		3	41	\$0.00	\$4,590.00
OW		52	4	21	31	\$6,360.00	\$33,390.00
ZINC CARB		80		0	80	\$0.00	\$0.00
BARITE	10	720		720	0	\$0.00	\$12,384.00
HSO 600	10	29		0	29	\$0.00	\$0.00
PTS 200	10	8		0	8	\$0.00	\$0.00
FIBER FLUID "F"		500	5	40	460	\$510.00	\$4,080.00
FIBER FLUID "C"		300	5	15	285	\$510.00	\$1,530.00

TOTALS \$19,556.20 \$526,750.45

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD P-66		LOCATION P-66 LAT 60 40' LONG 123 30'		DATE		13-Mar-87	
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS #26E		REPORT No		52	
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr. TERRY GORGICHUK		SPUD DATE		12-Jan-87	
ASSEMBLY		CASING		MUD VOL. (B3)		PUMP OUTPUT		ANNULAR VEL. m/min	
BIT SIZE (mm)	311.0	LENGTH (m)		SIZE (mm)	508.0	TANKS	88	PUMP #1	152X254
BIT NUMBER	3CRR			LENGTH (m)	283	HOLE	113	M3/STK	0.0138
DRILL PIPE #1 (mm)	127.0	1196		339.7	1007	TOTAL	201	PUMP #2	152X254
DRILL PIPE #2 (mm)	127.0	82		LINER	TOP/BOT.	STAND BY	52	M3/STK	0.0138
COLLAR #1 (mm)	168.0	27						S.P.M.	210
COLLAR #2 (mm)	228.0	106						M3/MIN	2.9022
HOLE DATA		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS					
MUD TYPE - TRUDRILL		FLOWLINE WT. OFF		OFF		kg/m3		MUD WT.	
HOLE COND.-FAIR		UNDERFLOW WT.				kg/m3		VISCOSITY	
DEVIATION-33.5 @ 1389 204.8 AZ		OVERFLOW WT.				kg/m3		FILTRATE	
CURRENT OP.-DRILLING		UNDERFLOW RT.				m3/min		pH	
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE	
110x110x110 140-140-140		XX DOUBLE DECK OR HIGH SPEED SHAKER							
MUD PROPERTIES		DAILY PRODUCT USAGE							
TIME SAMPLE TAKEN	5:00	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE
SAMPLE FROM	FLOWLINE		RECEIVED	LAST	USED LAST	USED TO	REMAINING	COST	COST
PRESENT DEPTH	1411		TO DATE	24 HOURS	24 HOURS	DATE	ON LOCATION		
FLOWLINE TEMPERATURE (C)	82.2	INTERDRILL S	800		5	50	750	\$ 369.15	\$ 3,691.50
DENSITY	1220	FIBER FLUID	500		5	45	455	\$ 510.00	\$ 4,590.00
FUNNEL VISCOSITY (s/L)	59								
600 READING @ 60 C	70								
300 READING	50								
APPARENT VISCOSITY (mPa.s)	35								
PLASTIC VISCOSITY (mPa.s)	20								
YIELD POINT (Pa)	15								
GELS 0/10 min. (Pa)	10/12								
pH	STRIP	METER							
FILTRATE @ 90C (cm3)	HTHP	X	7						
FILTER CAKE (mm)			1.5						
Pom			3.6						
EXCESS LIME KG/M3			13.32						
TOTAL HARDNESS (mg/l)		Ca							
CHLORIDES (mg/L)		NaCl							
SAND CONTENT %	X	FR.	0.5						
SOLIDS CONTENT %	X	FR.	21						
OIL CONTENT %			79.0						
WATER CONTENT %	X		0.0	PREVIOUS COST	\$526,750.45		STARTING VOLUME	254	
ELECTRICAL STABILITY	2000+			DAILY COST	\$879.15		VOL. BUILT		
OIL WATER RATIO	100/1			CUM. COST	\$527,629.60		VOL. LOST ON SURFACE		
CaCl2 w/w%				CUM. ENG. COST	\$30,240.00		VOL. LOST ON SUB SURFACE		
"n"	0.11			Discounted/ Total	\$263,814.80	\$294,054.80	END VOLUME	254	
"k"	16.74						CUM. VOL BUILT.	2	
COMMENTS		DRILL AHEAD							
MAINTAIN									
VISCOSITY @ 50-54 s/L @ 65+DEG C FLOWLINE TEMP WITH TRUVIS ADDED AT 10 MIN PER SACK AS PER ENGINEERS REQUEST DENSITY AT 1170 - 1200 KG/M3 OR AS REQUIRED BY ADDING BARITE. RUN THE CENTRIFUGE ONCE PER TOUR OVER FULL CIRCULATIONS. ADD INTERDRILL "OW" @ 1 BBL OVER 2 CIRCULATIONS IF SHALE DROPS OFF WET OR FLUID IS RUNNING OFF THE SHAKER TRANSFER TRUDRILL AS REQ'D TO BUILD/MAINTAIN VOLUME. RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK 15 M3 OF TRUDRILL TRANSFERRED FROM 400'S WILL REDUCE DENSITY 10 POINTS 50 SX OF BAR WILL RAISE DENSITY 10 POINTS NO LIME ADDITIONS ARE REQUIRED FOR NOW. ADD 5 SX OF INTERDRILL 'S' AND 5 SACKS OF FIBER FLUID (FINE) PER TOUR. ADD COARSE FIBER FLUID IF LOSSES ARE HIGHER THAN NORMAL MONITOR SURFACE VOLUMES FOR ANY CHANGES THAT MAY INDICATE DOWN HOLE LOSSES OR AN INFLUX									
KEEP ALL SOURCES OF WATER AWAY FROM THE MUD TANKS									
STOCK POINT	GRANDE PRAIRIE (FORMULA)			DOWELL ENGINEER		DAN MAJOCHA		ON LOCATION	
PHONE	532-5078			PHONE NUMBER		CAMP RM. # 5			
BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.									

Schlumberger

Dowell

INVENTORY

WELL NAME RANGER FT. LIARD P-68

LOCATION LAT 60 40' LONG 123 30'

DATE 13-Mar-97

OPERATOR RANGER OIL LTD.

CONTRACTOR

CACTUS #26E

REPORT No 52

REPORT FOR Mr. ART SCHRITT

REPORT FOR Mr. TERRY GORGICHUK

SPUD DATE 12-Jan-97

PRODUCTS		MATERIALS RECEIVED TO DATE	MATERIALS USED LAST 24 HOURS	MATERIALS USED TO DATE	MATERIAL REMAINING ON LOCATION	DAILY COST D/C	CUMULATIVE COST CUM/C
CAUSTIC	10	300		177	123	\$0.00	\$10,268.00
X-CIDE 207	10	96		0	96	\$0.00	\$0.00
NAT BENTONITE	103	1960		1790	170	\$0.00	\$28,478.90
LIGNITE	1	56		18	38	\$0.00	\$360.00
LIME		864		130	734	\$0.00	\$2,015.00
SODA ASH	10	40		4	36	\$0.00	\$144.00
BICARB	10	50		16	34	\$0.00	\$1,264.00
MICA COARSE	103	48		30	18	\$0.00	\$1,110.00
IDF-FLR	1	7		0	7	\$0.00	\$0.00
VISPLEX II	10	541		541	0	\$0.00	\$198,547.00
ID FREE 208L	10	4		0	4	\$0.00	\$0.00
CELLOPHANE	103	100		34	66	\$0.00	\$1,428.00
MICA MEDIUM	104	110		0	110	\$0.00	\$0.00
FLOPLEX	10	350		135	215	\$0.00	\$25,920.00
P. SEAL "C"	10	50		50	0	\$0.00	\$1,900.00
P. SEAL "M"	10	16		16	0	\$0.00	\$608.00
CALCARB "325"	104	448		122	326	\$0.00	\$1,220.00
CALCARB "SC"	104	336		33	303	\$0.00	\$330.00
CALCAARB "D"	104	448		0	448	\$0.00	\$0.00
DETERGENT	10	52		0	52	\$0.00	\$0.00
BARITE	10	11080		1131	9949	\$0.00	\$22,054.50
CALC CHLORIDE		393		0	393	\$0.00	\$0.00
MAGNA FIBER		32		8	24	\$0.00	\$1,024.00
MICA FINE		239		39	200	\$0.00	\$1,443.00
SAWDUST		1400		525	875	\$0.00	\$3,412.50
CALC CARB "FG"		0		0	0	\$0.00	\$0.00
TRUDRILL		353		101	252	\$0.00	\$90,900.00
NATURAL GEL		240		240	0	\$0.00	\$4,334.40
TRUVIS		480		218	262	\$0.00	\$67,274.80
HYMUL		32		0	32	\$0.00	\$0.00
XCD		160		0	160	\$0.00	\$0.00
INTERDRILL S		800	5	50	750	\$369.15	\$3,691.50
EMUL		44		3	41	\$0.00	\$3,420.00
INTER FL		44		3	41	\$0.00	\$4,590.00
OW		52		21	31	\$0.00	\$33,390.00
ZINC CARB		80		0	80	\$0.00	\$0.00
BARITE	10	720		720	0	\$0.00	\$12,384.00
HSO 600	10	29		0	29	\$0.00	\$0.00
PTS 200	10	8		0	8	\$0.00	\$0.00
FIBER FLUID "F"		500	5	45	455	\$510.00	\$4,590.00
FIBER FLUID "C"		300		15	285	\$0.00	\$1,530.00

TOTALS

\$879.15 \$527,629.60

DAILY MUD REPORT

WELL NAME		RANGER FT. UARD P-66		LOCATION P-66 LAT 60 40' LONG 123 30'		DATE		15-Mar-87	
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS #26E		REPORT No		54	
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr. TERRY GORGICHUK		SPUD DATE		12-Jan-87	
ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min	
BIT SIZE (mm)	311.0	LENGTH (m)		SIZE (mm)	263	TANKS	109	PUMP #1	152X254
BIT NUMBER	3CRR			LENGTH (m)	263	HOLE	76	M3/STK	0.0138
DRILL PIPE #1 (mm)	127.0	790		339.7	1007	TOTAL	185	PUMP #2	152X254
DRILL PIPE #2 (mm)	127.0	82		LINER	TOPBOT.	STAND BY	52	M3/STK	0.0138
COLLAR #1 (mm)	168.0	27						S.P.M.	210
COLLAR #2 (mm)	228.0	106						M3/MIN	2.8022
HOLE DATA		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS					
MUD TYPE - INVERT		FLOWLINE WT. OFF		OFF		kg/m3		MUD WT. 1200 Kg/m3	
HOLE COND.-		UNDERFLOW WT.				kg/m3		VISCOSITY 48-52 @ 65 + DEG s/L	
DEVIATION-33.5 @ 1389 204.8 AZ		OVERFLOW WT.				kg/m3		FILTRATE <20 cm3/30 min.	
CURRENT OP.-CIRC AND COND.		UNDERFLOW RT.				m3/min		pH	
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE	
110x110x110 110-110-110 XX DOUBLE DECK OR HIGH SPEED SHAKER									
MUD PROPERTIES		DAILY PRODUCT USAGE							
TIME SAMPLE TAKEN	18:30	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE
SAMPLE FROM	FLOWLINE		RECEIVED	LAST	USED LAST	USED TO	REMAINING	COST	COST
PRESENT DEPTH	1005		TO DATE	24 HOURS	24 HOURS	DATE	ON LOCATION		
FLOWLINE TEMPERATURE (C)	60.0	LIME	864		40	170	694	\$ 620.00	\$ 2,635.00
DENSITY	1255	BARITE	12080		40	1171	10909	\$ 780.00	\$ 22,834.50
FUNNEL VISCOSITY (s/L)	77	INTERDRILL	800		5	65	745	\$ 369.15	\$ 4,060.65
600 READING @ 60 C	88	EMUL	48		10	13	35	\$ 11,400.00	\$ 14,820.00
300 READING	63	INTER FL	48		2	5	43	\$ 3,060.00	\$ 7,650.00
APPARENT VISCOSITY (mPa.s)	44	OW	68		3	24	44	\$ 4,770.00	\$ 38,160.00
PLASTIC VISCOSITY (mPa.s)	25	FIBER FLUID	500		5	50	450	\$ 510.00	\$ 5,100.00
YIELD POINT (Pa)	19	CACL2 BRINE	42		20	20	22	\$ 12,000.00	\$12,000.00
GELS 0/10 min. (Pa)	121/14								
pH	STRIP	METER							
FILTRATE @ 30C (cm3)	HTHP	X	4						
FILTER CAKE (mm)			2						
Pom			2.7						
EXCESS LIME KG/M3			9.99						
TOTAL HARDNESS (mg/l)		Ca							
CHLORIDES (mg/L)	X	NaCl	258,222						
SAND CONTENT %	X	FR.	0.5						
SOLIDS CONTENT %	X	FR.	18						
OIL CONTENT %			72.0						
WATER CONTENT %	X		10.0	PREVIOUS COST	\$527,629.60	STARTING VOLUME	254		
ELECTRICAL STABILITY			1240	DAILY COST	\$33,508.15	VOL. BUILT	20		
OIL WATER RATIO			88/12	CUM. COST	\$561,138.75	VOL. LOST ON SURFACE			
CaCl2 w/w%			31.22	CUM. ENG. COST	\$31,680.00	VOL. LOST ON SUB SURFACE			
"n"			0.12	Discounted/ Total	\$280,569.38 \$312,249.38	END VOLUME	274		
"k"			19.60			CUM. VOL BUILT.	2		
COMMENTS									
CIRC AND CONDITION WAIT ON TOP DRIVE									
MAINTAIN									
VISCOSITY @ 50-54 s/L @ 65+DEG C FLOWLINE TEMP WITH TRUVIS ADDED AT 10 MIN PER SACK AS PER ENGINEERS REQUEST DENSITY AT 1170 - 1200 KG/M3 OR AS REQUIRED BY ADDING BARITE. RUN THE CENTRIFUGE ONCE PER TOUR OVER FULL CIRCULATIONS. ADD INTERDRILL "OW" @ 1 BBL OVER 2 CIRCULATIONS IF SHALE DROPS OFF WET OR FLUID IS RUNNING OFF THE SHAKER TRANSFER TRUDRILL AS REQ'D TO BUILD/MAINTAIN VOLUME. RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK 15 M3 OF TRUDRILL TRANSFERRED FROM 400'S WILL REDUCE DENSITY 10 POINTS 50 SX OF BAR WILL RAISE DENSITY 10 POINTS NO LIME ADDITIONS ARE REQUIRED FOR NOW. ADD 5 SX OF INTERDRILL "S" AND 5 SACKS OF FIBER FLUID (FINE) PER TOUR. ADD COARSE FIBER FLUID IF LOSSES ARE HIGHER THAN NORMAL MONITOR SURFACE VOLUMES FOR ANY CHANGES THAT MAY INDICATE DOWN HOLE LOSSES OR AN INFLUX									
KEEP ALL SOURCES OF WATER AWAY FROM THE MUD TANKS									
STOCK POINT	GRANDE PRAIRIE (FORMULA)			DOWELL ENGINEER	DAN MAJOCHA		ON LOCATION		
PHONE	532-5078			PHONE NUMBER	CAMP RM. # 5				
BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.									

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD P-68		LOCATION P-68 LAT 60 40' LONG 123 30'		DATE		15-Mar-97			
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS #26E		REPORT No		54			
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr. TERRY GORGICHUK		SPUD DATE		12-Jan-97			
ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANGULAR VEL. (rpm)			
BIT SIZE (mm)	311.0	LENGTH (m)	SIZE (mm)	LENGTH (m)	TANKS	109	PUMP #1	152X254	OPPOSITE DP	44	
BIT NUMBER	3CRR		508.0	263	HOLE	76	M3/STK	0.0138	OPPOSITE DC	78	
DRILL PIPE #1 (mm)	127.0	790	339.7	1007	TOTAL	185	PUMP #2	152X254	CIRC. TIME	64	
DRILL PIPE #2 (mm)	127.0	82	LINER	TOP/BOT.	STAND BY	52	M3/STK	0.0138	BOTTOMS UP	23	
COLLAR #1 (mm)	168.0	27					S.P.M.	210			
COLLAR #2 (mm)	228.0	106					M3/MIN	2.9022			
HOLE DATA		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS							
MUD TYPE - INVERT		FLOWLINE WT.		OFF	OFF	kg/m3	MUD WT.				1200 Kg/m3
HOLE COND.-		UNDERFLOW WT.				kg/m3	VISCOSITY				48-52 @ 65 + DEG s/L
DEVIATION-33.5 @ 1389 204.8 AZ		OVERFLOW WT.				kg/m3	FILTRATE				<20 cm3/30 min.
CURRENT OP.-CIRC AND COND.		UNDERFLOW RT.				m3/min	pH				
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE			
110x110x110 110-110-110 XX DOUBLE DECK OR HIGH SPEED SHAKER											
MUD PROPERTIES		DAILY PRODUCT USAGE									
TIME SAMPLE TAKEN	18:30	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE		
SAMPLE FROM	FLOWLINE		RECEIVED	LAST	USED LAST	USED TO	REMAINING	COST	COST		
PRESENT DEPTH	1005		TO DATE	24 HOURS	24 HOURS	DATE	ON LOCATION				
FLOWLINE TEMPERATURE (C)	60.0	LIME	864		40	170	694	\$ 620.00	\$ 2,635.00		
DENSITY	1255	BARITE	12080		40	1171	10909	\$ 780.00	\$ 22,834.50		
FUNNEL VISCOSITY (s/L)	77	INTERDRILL	800		5	55	745	\$ 369.15	\$ 4,060.65		
600 READING @ 60 C	88	EMUL	48		10	13	35	\$ 11,400.00	\$ 14,820.00		
300 READING	63	INTER FL	48		2	5	43	\$ 3,060.00	\$ 7,850.00		
APPARENT VISCOSITY (mPa.s)	44	OW	68		3	24	44	\$ 4,770.00	\$ 38,160.00		
PLASTIC VISCOSITY (mPa.s)	25	FIBER FLUID	500		5	50	450	\$ 510.00	\$ 5,100.00		
YIELD POINT (Pa)	19	CACL2 BRINE	42		20	20	22	\$ 12,000.00	\$12,000.00		
GELS 0/10 min. (Pa)	12/14										
pH	STRIP	METER									
FILTRATE @ 90C (cm3)	HTHP	4									
FILTER CAKE (mm)		2									
Pom		2.7									
EXCESS LIME KG/M3		9.99									
TOTAL HARDNESS (mg/l)		Ca									
CHLORIDES (mg/L)	X	NaCl	258,222								
SAND CONTENT %	X	FR.	0.5								
SOLIDS CONTENT %	X	FR.	18								
OIL CONTENT %			72.0								
WATER CONTENT %	X		10.0	PREVIOUS COST	\$527,629.60	STARTING VOLUME		254			
ELECTRICAL STABILITY			1240	DAILY COST	\$33,509.15	VOL. BUILT		20			
OIL WATER RATIO			88/12	CUM. COST	\$561,138.75	VOL. LOST ON SURFACE					
CaCl2 w/w%			31.22	CUM. ENG. COST	\$31,680.00	VOL. LOST ON SUB SURFACE					
"n"			0.12	Discounted/ Total	\$280,569.38 \$312,249.38	END VOLUME		274			
"k"			19.60			CUM. VOL BUILT.		2			
COMMENTS CIRC AND CONDITION WAIT ON TOP DRIVE											
MAINTAIN											
VISCOSITY @ 50-54 s/L @ 65+DEG C FLOWLINE TEMP WITH TRUVIS ADDED AT 10 MIN PER SACK AS PER ENGINEERS REQUEST DENSITY AT 1170 - 1200 KG/M3 OR AS REQUIRED BY ADDING BARITE. RUN THE CENTRIFUGE ONCE PER TOUR OVER FULL CIRCULATIONS. ADD INTERDRILL "OW" @ 1 BBL OVER 2 CIRCULATIONS IF SHALE DROPS OFF WET OR FLUID IS RUNNING OFF THE SHAKER TRANSFER TRUDRILL AS REQ'D TO BUILD/MAINTAIN VOLUME RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK 15 M3 OF TRUDRILL TRANSFERRED FROM 400'S WILL REDUCE DENSITY 10 POINTS 50 SX OF BAR WILL RAISE DENSITY 10 POINTS NO LIME ADDITIONS ARE REQUIRED FOR NOW. ADD 5 SX OF INTERDRILL "S" AND 5 SACKS OF FIBER FLUID (FINE) PER TOUR ADD COARSE FIBER FLUID IF LOSSES ARE HIGHER THAN NORMAL MONITOR SURFACE VOLUMES FOR ANY CHANGES THAT MAY INDICATE DOWN HOLE LOSSES OR AN INFLUX											
KEEP ALL SOURCES OF WATER AWAY FROM THE MUD TANKS											
STOCK POINT	GRANDE PRAIRIE (FORMULA)			DOWELL ENGINEER	DAN MAJOCHA		ON LOCATION				
PHONE	532-5078			PHONE NUMBER	CAMP RM. # 5						
BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.											

DAILY MUD REPORT

WELL NAME RANGER FT. LIARD P-66 LOCATION P-66 LAT 60 40' LONG 123 30' DATE 17-Mar-97

OPERATOR RANGER OIL LTD. CONTRACTOR CACTUS #28E REPORT No 55

REPORT FOR Mr. ART SCHRITT REPORT FOR Mr. TERRY GORGICHLUK SPUD DATE 12-Jan-97

ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min		
BIT SIZE (mm)	311.0	LENGTH (m)	SIZE (mm)	LENGTH(m)	TANKS	109	PUMP #1	152X254	OPOSITE DP	44
BIT NUMBER	3CRR		508.0	263	HOLE	76	M3/STK	0.0138	OPOSITE DC	78
DRILL PIPE #1(mm)	127.0	790	339.7	1007	TOTAL	185	PUMP #2	152X254	CIRC. TIME	64
DRILLPIPE #2(mm)	127.0	82	LINER	TOP/BOT.	STAND BY	122	M3/STK	0.0138	BOTTOMS UP	23
COLLAR #1(mm)	168.0	27					S.P.M.	210		
COLLAR #2(mm)	228.0	106					M3/MIN	2.9022		

HOLE DATA		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS	
MUD TYPE - INVERT	FLOWLINE WT.	OFF	kg/m3	MUD WT.	1200 Kg/m3
HOLE COND.-	UNDERFLOW WT.		kg/m3	VISCOSITY	48-52 @ 65 + DEG s/L
DEVIATION-33.5 @ 1389 204.8 AZ	OVERFLOW WT.		kg/m3	FILTRATE	<20 cm3/30 min.
CURRENT OP.-WAIT ON TOP DRIVE	UNDERFLOW RT.		m3/min	pH	

EQUIPMENT: XX DEGASSER DESILTER DESANDER XXX CENTRIFUGE
110x110x110 110-110-110 XX DOUBLE DECK OR HIGH SPEED SHAKER

MUD PROPERTIES		DAILY PRODUCT USAGE							
TIME SAMPLE TAKEN	19:00	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE
SAMPLE FROM	FLOWLINE		RECEIVED	LAST	USED LAST	USED TO	REMAINING	COST	COST
PRESENT DEPTH	1005		TO DATE	24 HOURS	24 HOURS	DATE	ON LOCATION		
FLOWLINE TEMPERATURE (C)	65.6	BARITE	12080		30	1201	10879	\$ 585.00	\$ 23,419.50
DENSITY	1255								
FUNNEL VISCOSITY (s/L)	77								
600 READING @ 60 C	88								
300 READING	63								
APPARENT VISCOSITY (mPa.s)	44								
PLASTIC VISCOSITY (mPa.s)	25								
YIELD POINT (Pa)	19								
GELS 0/10 min. (Pa)	12/14								
pH	STRIP	METER							
FILTRATE @ 90C (cm3)	HTHP	X	4						
FILTER CAKE (mm)			2						
Pom			2.7						
EXCESS LIME KG/M3			9.99						
TOTAL HARDNESS (mg/l)		Ca							
CHLORIDES (mg/L)	X	NaCl	250,428						
SAND CONTENT %	X	FR.	0.5						
SOLIDS CONTENT %	X	FR.	18						
OIL CONTENT %			72.0						
WATER CONTENT %	X		10.0	PREVIOUS COST	\$561,138.75		STARTING VOLUME		344
ELECTRICAL STABILITY			1240	DAILY COST	\$585.00		VOL. BUILT		
OIL WATER RATIO			88/12	CUM. COST	\$561,723.75		VOL. LOST ON SURFACE		
CaCl2 w/w%			30.47	CUM. ENG. COST	\$33,120.00		VOL. LOST ON SUB SURFACE		
"n"			0.12	Discounted/ Total	\$280,861.88	\$313,881.88	END VOLUME		344
"k"			19.60				CUM. VOL BUILT.		22

COMMENTS INSTALLING TOP DRIVE
MAINTAIN RETORT FROM CENTRIFUGE UFLOW 60% SOLIDS,35% OIL,5% WATER WEIGHT 2500KG/M3

VISCOSITY @ 50-54 s/L @ 65+DEG C FLOWLINE TEMP WITH TRUVIS ADDED AT 10 MIN PER SACK AS PER ENGINEERS REQUEST
 DENSITY AT 1200 KG/M3 OR AS REQUIRED BY ADDING BARITE. RUN THE CENTRIFUGE ONCE PER TOUR OVER FULL CIRCULATIONS.
 ADD INTERDRILL "OW" @ 1 BBL OVER 2 CIRCULATIONS IF SHALE DROPS OFF WET OR FLUID IS RUNNING OFF THE SHAKER
 TRANSFER TRUDRILL AS REQ'D TO BUILD/MAINTAIN VOLUME RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK
 15 M3 OF TRUDRILL TRANSFERRED FROM 400'S WILL REDUCE DENSITY 10 POINTS 60 SX OF BAR WILL RAISE DENSITY 10 POINTS
 NO LIME ADDITIONS ARE REQUIRED FOR NOW.
 ADD 5 SX OF INTERDRILL "S" AND 5 SACKS OF FIBER FLUID (FINE) PER TOUR ADD COARSE FIBER FLUID IF LOSSES ARE HIGHER THAN NORMAL
 MONITOR SURFACE VOLUMES FOR ANY CHANGES THAT MAY INDICATE DOWN HOLE LOSSES OR AN INFLUX

STOCK POINT GRANDE PRAIRIE (FORMULA) DOWELL ENGINEER JOE SMITH ON LOCATION
PHONE 532-5078 PHONE NUMBER CAMP RM. # 5BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN
SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.

DAILY MUD REPORT

WELL NAME		RANGER FT. UARD P-66		LOCATION P-66 LAT 60 40' LONG 123 30'		DATE		18-Mar-97		
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS #28E		REPORT No		66		
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr. DENNIS BROWN		SPUD DATE		12-Jan-97		
ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min		
BIT SIZE (mm)	311.0	LENGTH (m)	SIZE (mm)	LENGTH (m)	TANKS	102	PUMP #1	152X254	OPPOSITE DP	43
BIT NUMBER	3CRR		508.0	263	HOLE	101	M3/STK	0.0138	OPPOSITE DC	77
DRILL PIPE #1(mm)	127.0	1109	339.7	1007	TOTAL	203	PUMP #2	152X254	CIRC. TIME	75
DRILLPIPE #2(mm)	127.0	82	LINER	TOPIBOT.	STAND BY	122	M3/STK	0.0138	BOTTOMS UP	33
COLLAR #1(mm)	168.0	27					S.P.M.	196		
COLLAR #2(mm)	228.0	106					M3/MIN	2.7087		
HOLE DATA		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS						
MUD TYPE - INVERT		FLOWLINE WT.		OFF	OFF	kg/m3	MUD WT.		1200 Kg/m3	
HOLE COND. - GOOD TO FISH		UNDERFLOW WT.				kg/m3	VISCOSITY		48-52 @ 65 + DEG s/L	
DEVIATION-33.5 @ 1389 204.8 AZ		OVERFLOW WT.				kg/m3	FILTRATE		<10 cm3/30 min.	
CURRENT OP. - CIRC ABOVE FISH		UNDERFLOW RT.				m3/min	pH			
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE		
110x110x110		110-110-110		XX DOUBLE DECK OR HIGH SPEED SHAKER						
MUD PROPERTIES		DAILY PRODUCT USAGE								
TIME SAMPLE TAKEN	19:55	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE	
SAMPLE FROM	FLOWLINE		RECEIVED	LAST	USED LAST	USED TO	REMAINING	COST	COST	
PRESENT DEPTH	1324		TO DATE	24 HOURS	24 HOURS	DATE	ON LOCATION			
FLOWLINE TEMPERATURE (C)	46.1	BARITE	12080		30	1231	\$10,849.00	\$585.00	\$	24,004.50
DENSITY	1225									
FUNNEL VISCOSITY (s/L)	105									
600 READING @ 60 C	103									
300 READING	75									
APPARENT VISCOSITY (mPa.s)	51.5									
PLASTIC VISCOSITY (mPa.s)	28									
YIELD POINT (Pa)	23.5									
GELS 0/10 min. (Pa)	14/16									
pH	STRIP	METER								
FILTRATE @ 90C (cm3)	HTHP	X	6.5							
FILTER CAKE (mm)			2							
Pom			2.2							
EXCESS LIME KG/M3			8.14							
TOTAL HARDNESS (mg/l)		Ca								
CHLORIDES (mg/L)	X	NaCl	258,222							
SAND CONTENT %	X	FR.	0.5							
SOLIDS CONTENT %	X	FR.	15							
OIL CONTENT %			75.0							
WATER CONTENT %	X		10.0	PREVIOUS COST	\$561,723.75		STARTING VOLUME		344	
ELECTRICAL STABILITY			1220	DAILY COST	\$585.00		VOL. BUILT			
OIL WATER RATIO			88/112	CUM. COST	\$562,308.75		VOL. LOST ON SURFACE			
CaCl2 w/w%			31.22	CUM. ENG. COST	\$33,600.00		VOL. LOST ON SUB SURFACE			
h"			0.14	Discounted/ Total	\$281,154.38	\$314,754.38	END VOLUME		344	
K"			22.37				CUM. VOL BUILT.		22	
COMMENTS		INSTALLING TOP DRIVE								
MAINTAIN		RETORT FROM CENTRIFUGE UFLOW 60% SOLIDS, 36% OIL, 6% WATER WEIGHT 2500KG/M3								
VISCOSITY @ 50-54 s/L @ 65+DEG C FLOWLINE TEMP WITH TRUVIS ADDED AT 10 MIN PER SACK AS PER ENGINEERS REQUEST DENSITY AT 1200 KG/M3 OR AS REQUIRED BY ADDING BARITE. RUN THE CENTRIFUGE ONCE PER TOUR OVER FULL CIRCULATIONS. ADD INTERDRILL "OW" @ 1 BBL OVER 2 CIRCULATIONS IF SHALE DROPS OFF WET OR FLUID IS RUNNING OFF THE SHAKER TRANSFER TRUDRILL AS REQD TO BUILD/MAINTAIN VOLUME RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK 15 M3 OF TRUDRILL TRANSFERRED FROM 400'S WILL REDUCE DENSITY 10 POINTS 50 SX OF BAR WILL RAISE DENSITY 10 POINTS ADD INTERDRILL "OW" @ 1 BBL OVER 2 CIRCULATIONS IF SHALE DROPS OFF WET OR FLUID IS RUNNING OFF THE SHAKER ADD 5 SX OF INTERDRILL 'S' AND 5 SACKS OF FIBER FLUID (FINE) PER TOUR ADD COARSE FIBER FLUID IF LOSSES ARE HIGHER THAN NORMAL MONITOR SURFACE VOLUMES FOR ANY CHANGES THAT MAY INDICATE DOWN HOLE LOSSES OR AN INFLUX										
STOCK POINT		GRANDE PRAIRIE (FORMULA)			DOWELL ENGINEER		JOE SMITH		ON LOCATION	
PHONE		532-5078			PHONE NUMBER		CAMP RM. # 5			
BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.										

INVENTORY

WELL NAME RANGER FT. LIARD P-68

LOCATION LAT 60 40' LONG 123 30'

DATE 19-Mar-87

OPERATOR RANGER OIL LTD.

CONTRACTOR

CACTUS #26E

REPORT No 66

REPORT FOR Mr. ART SCHRITT

REPORT FOR Mr.

DENNIS BROWN

SPUD DATE 12-Jan-87

PRODUCTS	MATERIALS RECEIVED TO DATE	MATERIALS USED LAST 24 HOURS	MATERIALS USED TO DATE	MATERIAL REMAINING ON LOCATION	DAILY COST D/C	CUMULATIVE COST CUM/C
12 CAUSTIC 10	300		177	123	\$0.00	\$10,268.00
X-CIDE 207 10	96		0	96	\$0.00	\$0.00
NAT BENTONITE 103	1960		1790	170	\$0.00	\$28,478.90
LIGNITE 1	56		18	38	\$0.00	\$360.00
LIME 1	864		170	694	\$0.00	\$2,635.00
SODA ASH 10	40		4	36	\$0.00	\$144.00
BICARB 10	50		16	34	\$0.00	\$1,264.00
MICA COARSE 103	48		30	18	\$0.00	\$1,110.00
IDF-FLR 1	7		0	7	\$0.00	\$0.00
VISPLEX II 10	541		541	0	\$0.00	\$198,547.00
ID FREE 208L 10	4		0	4	\$0.00	\$0.00
CELLOPHANE 103	100		34	66	\$0.00	\$1,428.00
MICA MEDIUM 104	110		0	110	\$0.00	\$0.00
FLOPLEX 10	350		135	215	\$0.00	\$25,920.00
26 P. SEAL "C" 10	50		50	0	\$0.00	\$1,900.00
P. SEAL "M" 10	16		16	0	\$0.00	\$608.00
28 CALCARB "325" 104	448		122	326	\$0.00	\$1,220.00
CALCARB "SC" 104	336		33	303	\$0.00	\$330.00
CALCARB "O" 104	448		0	448	\$0.00	\$0.00
DETERGENT 10	52		0	52	\$0.00	\$0.00
BARITE	12080	30	1231	10849	\$585.00	\$24,004.50
CALC CHLORIDE	393		0	393	\$0.00	\$0.00
MAGNA FIBER	32		8	24	\$0.00	\$1,024.00
MICA FINE	239		39	200	\$0.00	\$1,443.00
SAWDUST	1400		525	875	\$0.00	\$3,412.50
CALC CARB "FG"	0		0	0	\$0.00	\$0.00
TRUDRILL	423		101	322	\$0.00	\$90,900.00
NATURAL GEL	240		240	0	\$0.00	\$4,334.40
40 TRUVIS	480		218	262	\$0.00	\$67,274.80
HYMUL	32		0	32	\$0.00	\$0.00
XCD	160		0	160	\$0.00	\$0.00
INTERDRILL S	800		55	745	\$0.00	\$4,060.65
44 EMUL	48		13	35	\$0.00	\$14,820.00
45 INTER FL	48		5	43	\$0.00	\$7,650.00
46 OW	68		24	44	\$0.00	\$38,160.00
ZINC CARB	80		0	80	\$0.00	\$0.00
BARITE 10	720		720	0	\$0.00	\$12,384.00
HSO 600 10	29		0	29	\$0.00	\$0.00
PTS 200 10	8		0	8	\$0.00	\$0.00
FIBER FLUID "F"	500		50	450	\$0.00	\$5,100.00
FIBER FLUID "C"	300		15	285	\$0.00	\$1,530.00

TOTALS

\$585.00 \$550,308.75

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD P-68		LOCATION P-68 LAT 60 40' LONG 123 30'		DATE		19-Mar-97		
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS #26E		REPORT No		57		
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr. DENNIS BROWN		SPUD DATE		12-Jan-97		
ASSEMBLY		Casing		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min		
BIT SIZE (mm)	311.0	LENGTH (m)	SIZE (mm)	LENGTH (m)	TANKS	105	PUMP #1	152X254	OPPOSITE DP	42
BIT NUMBER	3CRR		508.0	283	HOLE	101	M3/STK	0.0138	OPPOSITE DC	78
DRILL PIPE #1 (mm)	127.0	1109	339.7	1007	TOTAL	206	PUMP #2	152X254	CIRC. TIME	78
DRILL PIPE #2 (mm)	127.0	82	LINER	TOP/BOT.	STAND BY	122	M3/STK	0.0138	BOTTOMS UP	34
COLLAR #1 (mm)	168.0	27					S.P.M.	192		
COLLAR #2 (mm)	228.0	106					M3/MIN	2.6535		
HOLE DATA		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS						
MUD TYPE - INVERT		FLOWLINE WT. OFF		OFF		kg/m3		MUD WT.		1200 Kg/m3
HOLE COND. - GOOD TO FISH		UNDERFLOW WT.				kg/m3		VISCOSITY		75-90 @ 50C c/L
DEVIATION-33.5 @ 1389 204.8 AZ		OVERFLOW WT.				kg/m3		FILTRATE		<10 cm3/30 min.
CURRENT OP. - CIRC WASH PIPE		UNDERFLOW RT.				m3/min		pH		
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XXX CENTRIFUGE		
110x110x110 110-110-110		XX DOUBLE DECK OR HIGH SPEED SHAKER								
MUD PROPERTIES		DAILY PRODUCT USAGE								
TIME SAMPLE TAKEN	10:30	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE	
SAMPLE FROM	FLOWLINE	RECEIVED	TO DATE	LAST 24 HOURS	USED LAST 24 HOURS	USED TO DATE	REMAINING ON LOCATION	COST	COST	
PRESENT DEPTH	1312									
FLOWLINE TEMPERATURE (C)	51.7									
DENSITY	1240									
FUNNEL VISCOSITY (c/L)	93									
600 READING @ 60 C	95									
300 READING	70									
APPARENT VISCOSITY (mPa.s)	47.5									
PLASTIC VISCOSITY (mPa.s)	25									
YIELD POINT (Pa)	22.5									
GELS 0/10 min. (Pa)	13/13.5									
pH	STRIP	METER								
FILTRATE @ 90C (cm3)	HTHP	X	4							
FILTER CAKE (mm)			2							
Pom			2.2							
EXCESS LIME KG/M3			8.14							
TOTAL HARDNESS (mg/l)		Ca								
CHLORIDES (mg/L)	X	NaCl	273,577							
SAND CONTENT %	X	FR.	0.7							
SOLIDS CONTENT %	X	FR.	15							
OIL CONTENT %			75.0							
WATER CONTENT %	X		10.0	PREVIOUS COST	\$561,723.75	STARTING VOLUME		344		
ELECTRICAL STABILITY			1220	DAILY COST	\$585.00	VOL. BUILT				
OIL WATER RATIO			88/12	CUM. COST	\$562,308.75	VOL. LOST ON SURFACE				
CaCl2 w/w%			32.67	CUM. ENG. COST	\$34,080.00	VOL. LOST ON SUB SURFACE				
"n"			0.14	Discounted/ Total	\$281,154.38	\$315,234.38	END VOLUME		344	
"k"			20.54				CUM. VOL BUILT.		22	
COMMENTS										
ATTEMPTING TO WASH OVER FISH										
MAINTAIN										
ONCE BACK CIRCULATING ADD 15 SACKS OF LIME AT 10 MINUTES PER SACK VISCOSITY @ 50-54 c/L @ 65+DEG C FLOWLINE TEMP WITH TRUVIS ADDED AT 10 MIN PER SACK AS PER ENGINEERS REQUEST DENSITY AT 1200 KG/M3 OR AS REQUIRED BY ADDING BARITE. RUN THE CENTRIFUGE ONCE PER TOUR OVER FULL CIRCULATIONS. ADD INTERDRILL "OW" @ 1 BBL OVER 2 CIRCULATIONS IF SHALE DROPS OFF WET OR FLUID IS RUNNING OFF THE SHAKER TRANSFER TRUDRILL AS REQ'D TO BUILD/MAINTAIN VOLUME RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK 5 M3 OF TRUDRILL TRANSFERRED FROM 400'S WILL REDUCE DENSITY 10 POINTS 50 SX OF BAR WILL RAISE DENSITY 10 POINTS ADD INTERDRILL "OW" @ 1 BBL OVER 2 CIRCULATIONS IF SHALE DROPS OFF WET OR FLUID IS RUNNING OFF THE SHAKER ADD 5 SX OF INTERDRILL "S" AND 5 SACKS OF FIBER FLUID (FINE) PER TOUR ADD COARSE FIBER FLUID IF LOSSES ARE HIGHER THAN NORMAL MONITOR SURFACE VOLUMES FOR ANY CHANGES THAT MAY INDICATE DOWN HOLE LOSSES OR AN INFLUX										
STOCK POINT		GRANDE PRAIRIE (FORMULA)		DOWELL ENGINEER		JOE SMITH		ON LOCATION		
PHONE		532-5078		PHONE NUMBER		CAMP RM. # 5				
BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.										

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD P-66		LOCATION P-66 LAT 60 40' LONG 123 30'		DATE		21-Mar-97		
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS #28E		REPORT No		58		
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr. DENNIS BROWN		SPUD DATE		12-Jan-97		
ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min		
BIT SIZE (mm)	311.0	LENGTH (m)		SIZE (mm)		TANKS	151	PUMP #1	152C254	
BIT NUMBER	3CRR			608.0	283	HOLE	79	M3/STK	0.0138	
DRILL PIPE #1 (mm)	127.0	1034		339.7	1007	TOTAL	230	PUMP #2	152C254	
DRILL PIPE #2 (mm)				LINER	TOP/BOT.	STAND BY	122	M3/STK	0.0138	
COLLAR #1 (mm)								S.P.M.	204	
COLLAR #2 (mm)								M3/MIN	2.8193	
HOLE DATA		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS						
MUD TYPE - INVERT		FLOWLINE WT.		OFF	OFF	kg/m3	MUD WT.			1200 Kg/m3
HOLE COND.-GOOD		UNDERFLOW WT.				kg/m3	VISCOSITY			75-80 @ 50C s/L
DEVIATION-		OVERFLOW WT.				kg/m3	FILTRATE			<10 cm3/30 min.
CURRENT OP.-CIRC TO CEMENT		UNDERFLOW RT.				m3/min	pH			
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XX CENTRIFUGE		
110x110x110 110-110-110		XX DOUBLE DECK OR HIGH SPEED SHAKER								
MUD PROPERTIES		DAILY PRODUCT USAGE								
TIME SAMPLE TAKEN	15:15	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE	
SAMPLE FROM	FLOWLINE		RECEIVED	LAST	USED LAST	USED TO	REMAINING	COST	COST	
PRESENT DEPTH	1034		TO DATE	24 HOURS	24 HOURS	DATE	ON LOCATION			
FLOWLINE TEMPERATURE (C)	43.3	BARITE	12080		80	1311	10769	\$1,560.00	\$25,564.50	
DENSITY	1230	SAWDUST	1400		50	625	775	\$325.00	\$4,062.50	
FUNNEL VISCOSITY (s/L)	115									
600 READING @ 60 C	88									
300 READING	65									
APPARENT VISCOSITY (mPa.s)	44									
PLASTIC VISCOSITY (mPa.s)	23									
YIELD POINT (Pa)	21									
GELS 0/10 min. (Pa)	12.5/14									
pH	STRIP	METER								
FILTRATE @ 90C (cm3)	HTHP	X	4							
FILTER CAKE (mm)			2							
Pom			2.2							
EXCESS LIME KG/M3			8.14							
TOTAL HARDNESS (mg/l)		Ca								
CHLORIDES (mg/L)	X	NaCl	239,914							
SAND CONTENT %	X	FR.	0.75							
SOLIDS CONTENT %	X	FR.	14							
OIL CONTENT %			74.0							
WATER CONTENT %	X		12.0	PREVIOUS COST	\$562,308.75	STARTING VOLUME		344		
ELECTRICAL STABILITY			1070	DAILY COST	\$1,885.00	VOL. BUILT		13		
OIL WATER RATIO			66.0/14.0	CUM. COST	\$564,518.75	VOL. LOST ON SURFACE				
%Cl2 w/w%			29.44	CUM. ENG. COST	\$35,040.00	VOL. LOST ON SUB SURFACE		5		
n"			0.14	Discounted/ Total	\$282,259.38	END VOLUME		352		
K"			20.04			CUM. VOL. BUILT.		35		
COMMENTS SET 2ND CEMENT PLUG SYSTEM TAKEN ON S L										
MAINTAIN										
ONCE BACK CIRCULATING ADD 15 SACKS OF LIME AT 10 MINUTES PER SAC ,ADD 1 DRUM OF OW.										
VISCOSITY AT 75-80S/L AT 65C FLOWLINE TEMP WITH TRUVISADDED AT 10 MIN PER SACK AS PER ENGINEERS REQUEST										
DENSITY AT 1200 KG/M3 OR AS REQUIRED BY ADDING BARITE . RUN THE CENTRIFUGE ONCE PER TOUR OVER FULL CIRCULATIONS.										
ADD INTERDRILL "OW" @ 1 BBL OVER 2 CIRCULATIONS IF SHALE DROPS OFF WET OR FLUID IS RUNNING OFF THE SHAKER										
TRANSFER TRUDRILL AS REQ'D TO BUILD/MAINTAIN VOLUME RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK										
15 M3 OF TRUDRILL TRANSFERRED FROM 400'S WILL REDUCE DENSITY 10 POINTS 50 SX OF BAR WILL RAISE DENSITY 10 POINTS										
ADD 5 SX OF INTERDRILL 'S' AND 5 SACKS OF FIBER FLUID (FINE) PER TOUR ADD COARSE FIBER FLUID IF LOSSES ARE HIGHER THAN NORMAL										
MONITOR SURFACE VOLUMES FOR ANY CHANGES THAT MAY INDICATE DOWN HOLE LOSSES OR AN INFLUX										
SYSTEM HAS TAKEN ON SOME WATER ADD 40 SX OF CALCIUM CHLORIDE, MIX THROUGH HOPPER AT 5 MIN/SACK.										
STOCK POINT	GRANDE PRAIRIE (FORMULA)			DOWELL ENGINEER		JOE SMITH		ON LOCATION		
PHONE	532-5078			PHONE NUMBER		CAMP RM. # 5				
BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.										

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD P-66		LOCATION P-66 LAT 60 40' LONG 123 30'		DATE		22-Mar-97		
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS #26E		REPORT No		59		
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr. DENNIS BROWN		SPUD DATE		12-Jan-97		
ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. (m/min)		
BIT SIZE (mm)	311.0	LENGTH (m)	SIZE (mm)	LENGTH (m)	TANKS	163	PUMP #1	152X254	OPPOSITE DP	44
BIT NUMBER	4C		508.0	263	HOLE	73	M3/STK	0.0138	OPPOSITE DC	83
DRILL PIPE #1 (mm)	127.0	819	339.7	1007	TOTAL	236	PUMP #2	152X254	CIRC. TIME	81
DRILL PIPE #2 (mm)	127.0	82	LINER	TOP/BOT.	STAND BY	122	M3/STK	0.0138	BOTTOMS UP	22
COLLAR #1 (mm)	168.0	27					S.P.M.	210		
COLLAR #2 (mm)	228.0	87					M3/MIN	2.9022		
HOLE DATA		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS						
MUD TYPE - INVERT		FLOWLINE WT. OFF		OFF		kg/m3		MUD WT.		1200 Kg/m3
HOLE COND. - GOOD		UNDERFLOW WT.				kg/m3		VISCOSITY		75-90 @ 50C s/L
DEVIATION-		OVERFLOW WT.				kg/m3		FILTRATE		<10 cm3/30 min.
CURRENT OP. - DRILLING		UNDERFLOW RT.				m3/min		pH		
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XX CENTRIFUGE		
110x110x110 110-110-110		XX DOUBLE DECK OR HIGH SPEED SHAKER								
MUD PROPERTIES		DAILY PRODUCT USAGE								
TIME SAMPLE TAKEN	19:45	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE	
SAMPLE FROM	FLOWLINE	RECEIVED	TO DATE	LAST 24 HOURS	USED LAST 24 HOURS	USED TO DATE	REMAINING ON LOCATION	COST	COST	
PRESENT DEPTH	1043									
FLOWLINE TEMPERATURE (C)	61.7	BARITE	12080		50	1361	10719	\$975.00	\$26,539.50	
DENSITY	1230	LIME	864		14	184	680	\$217.00	\$2,852.00	
FUNNEL VISCOSITY (s/L)	84	CALCIUM CHL	393		40	40	353	\$2,240.00	\$2,240.00	
600 READING @ 60 C	85	TRUDRILL	423		7	108	315	\$6,300.00	\$97,200.00	
300 READING	64	EMUL	48		1	14	34	\$1,140.00	\$15,960.00	
APPARENT VISCOSITY (mPa.s)	42.5	OW	68		1	25	43	\$1,590.00	\$39,750.00	
PLASTIC VISCOSITY (mPa.s)	21									
YIELD POINT (Pa)	21.5									
GELS 0/10 min. (Pa)	12.0/13.5									
pH	STRIP	METER								
FILTRATE @ 90C (cm3)	HTHP	X	4							
FILTER CAKE (mm)			2							
Pom			3.2							
EXCESS LIME KG/M3			11.84							
TOTAL HARDNESS (mg/l)		Ca								
CHLORIDES (mg/L)	X	NaCl	271,821							
SAND CONTENT %	X	FR.	1							
SOLIDS CONTENT %	X	FR.	14							
OIL CONTENT %			73.0							
WATER CONTENT %	X		13.0	PREVIOUS COST	\$564,518.75	STARTING VOLUME		344		
ELECTRICAL STABILITY			900	DAILY COST	\$12,462.00	VOL. BUILT		5		
OIL WATER RATIO			85.0/15.0	CUM. COST	\$576,980.75	VOL. LOST ON SURFACE		1		
CaCl2 w/w%			32.50	CUM. ENG. COST	\$35,520.00	VOL. LOST ON SUB SURFACE		6		
"n"			0.15	Discounted/ Total	\$288,490.38 \$324,010.38	END VOLUME		342		
"k"			18.75			CUM. VOL BUILT.		40		
COMMENTS		DRILL CEMENT TO 1040M DRILL FORMATION L								
MAINTAIN										
ADD INTERDRILL "OW" @ 1 BBL OVER 2 CIRCULATIONS IF SHALE DROPS OFF WET OR FLUID IS RUNNING OFF THE SHAKER										
VISCOSITY AT 75-90S/L AT 65C FLOWLINE TEMP WITH TRUVISADDED AT 10 MIN PER SACK AS PER ENGINEERS REQUEST										
DENSITY AT 1200 KG/M3 OR AS REQUIRED BY ADDING BARITE. RUN THE CENTRIFUGE ONCE PER TOUR OVER FULL CIRCULATIONS.										
ADD 1 DRUM OF OW AND 1 DRUM OF EMUL NOW OVER 85 MINUTES										
TRANSFER TRUDRILL AS REQ'D TO BUILD/MAINTAIN VOLUME. RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK										
15 M3 OF TRUDRILL TRANSFERRED FROM 400'S WILL REDUCE DENSITY 10 POINTS 50 SX OF BAR WILL RAISE DENSITY 10 POINTS										
ADD 5 SX OF INTERDRILL "S" AND 5 SACKS OF FIBER FLUID (FINE) PER TOUR. ADD COARSE FIBER FLUID IF LOSSES ARE HIGHER THAN NORMAL										
MONITOR SURFACE VOLUMES FOR ANY CHANGES THAT MAY INDICATE DOWN HOLE LOSSES OR AN INFLUX										
STOCK POINT	GRANDE PRAIRIE (FORMULA)			DOWELL ENGINEER		JOE SMITH		ON LOCATION		
PHONE	532-5078			PHONE NUMBER		CAMP RM. #5				
BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.										

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD P-66		LOCATION P-66 LAT 60 40' LONG 123 30'		DATE		23-Mar-87	
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS #28E		REPORT No		60	
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr.		DENNIS BROWN		SPUD DATE	
								12-Jan-87	
ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min	
BIT SIZE (mm)	311.0	LENGTH (m)		SIZE (mm)		TANKS	145	PUMP #1	152X254
BIT NUMBER	4C			508.0	263	HOLE	84	M3/STK	0.0138
DRILL PIPE #1(mm)	127.0	976		339.7	1007	TOTAL	229	PUMP #2	152X254
DRILLPIPE #2(mm)	127.0	82		LINER	TOP/BOT.	STAND BY	122	M3/STK	0.0138
COLLAR #1(mm)	168.0	27						S.P.M.	210
COLLAR #2(mm)	228.0	87						M3/MIN	2.9022
HOLE DATA		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS					
MUD TYPE - INVERT		FLOWLINE WT.		running for 1.5		OFF		kg/m3	
HOLE COND. - GOOD		UNDERFLOW WT.				kg/m3		MUD WT.	
DEVIATION - 1.2 at 1136m		OVERFLOW WT.				kg/m3		1200 Kg/m3	
CURRENT OP. - DRILLING		UNDERFLOW RT.				m3/min		VISCOSITY	
						pH		75-80 @ 50C s/L	
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XX CENTRIFUGE	
110x110x110		110-110-110		XX DOUBLE DECK OR HIGH SPEED SHAKER					
MUD PROPERTIES		DAILY PRODUCT USAGE							
TIME SAMPLE TAKEN	21:35	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE
SAMPLE FROM	FLOWLINE		RECEIVED	LAST	USED LAST	USED TO	REMAINING	COST	COST
PRESENT DEPTH	1172		TO DATE	24 HOURS	24 HOURS	DATE	ON LOCATION		
FLOWLINE TEMPERATURE (C)	70.0	OW	68		1	26	42	\$1,590.00	\$41,340.00
DENSITY	1240	EMUL	48		1	15	33	\$1,140.00	\$17,100.00
FUNNEL VISCOSITY (s/L)	74	TRUDRILL	423		7	115	308	\$6,300.00	\$103,500.00
600 READING @ 60 C	92								
300 READING	69								
APPARENT VISCOSITY (mPa.s)	46								
PLASTIC VISCOSITY (mPa.s)	23								
YIELD POINT (Pa)	23								
GELS @ 10 min. (Pa)	13/14								
pH	STRIP	METER							
FILTRATE @ 80C (cm3)	HTHP	X	4						
FILTER CAKE (mm)			2						
Pom			3.2						
EXCESS LIME KG/M3			11.84						
TOTAL HARDNESS (mg/l)		Ca							
CHLORIDES (mg/L)	X	NaCl	277,659						
SAND CONTENT %	X	FR.	1.2						
SOLIDS CONTENT %	X	FR.	15						
OIL CONTENT %			72.0						
WATER CONTENT %	X		13.0	PREVIOUS COST	\$576,980.75	STARTING VOLUME	344		
ELECTRICAL STABILITY			935	DAILY COST	\$9,030.00	VOL. BUILT			
OIL WATER RATIO			85.0/15.0	CUM. COST	\$588,010.75	VOL. LOST ON SURFACE	2		
CaCl2 w/w%			33.05	CUM. ENG. COST	\$36,000.00	VOL. LOST ON SUB SURFACE	5		
"n"			0.15	Discounted/ Total	\$293,005.38	END VOLUME	337		
"k"			20.41			CUM. VOL BUILT.	40		
COMMENTS		WIPER TRIP AT 1117M GOOD L							
MAINTAIN									
ADD INTERDRILL "OW" @ 1 BBL OVER 2 CIRCULATIONS IF SHALE DROPS OFF WET OR FLUID IS RUNNING OFF THE SHAKER									
VISCOSITY AT 75-80S/L AT 65C FLOWLINE TEMP WITH TRUVISADDED AT 10 MIN PER SACK AS PER ENGINEERS REQUEST									
DENSITY AT 1200 KG/M3 OR AS REQUIRED BY ADDING BARITE. RUN THE CENTRIFUGE ONCE PER TOUR OVER FULL CIRCULATIONS.									
ADD 1 DRUM OF OW AND 1 DRUM OF EMUL NOW OVER 85 MINUTES									
TRANSFER TRUDRILL AS REQ'D TO BUILD/MAINTAIN VOLUME. RECORD ALL TRANSFERS FROM THE 400 BBL TANKS IN THE TOUR BOOK									
15 M3 OF TRUDRILL TRANSFERRED FROM 400'S WILL REDUCE DENSITY 10 POINTS 50 SX OF BAR WILL RAISE DENSITY 10 POINTS									
TO INCREASE MUD WEIGHT 20KG/M ADD 160 SX OF BARITE AND 1 DRUM OF OW									
ADD 5 SX OF INTERDRILL "S" AND 5 SACKS OF FIBER FLUID (FINE) PER TOUR. ADD COARSE FIBER FLUID IF LOSSES ARE HIGHER THAN NORMAL									
MONITOR SURFACE VOLUMES FOR ANY CHANGES THAT MAY INDICATE DOWN HOLE LOSSES OR AN INFLUX									
STOCK POINT	GRANDE PRAIRIE (FORMULA)			DOWELL ENGINEER		JOE SMITH		ON LOCATION	
PHONE	532-5078			PHONE NUMBER		CAMP RM. #5			
BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE									

INVENTORY

WELL NAME RANGER FT. LIARD P-66

LOCATION LAT 60 40' LONG 123 30'

DATE 23-Mar-97

OPERATOR RANGER OIL LTD.

CONTRACTOR

CACTUS #26E

REPORT No 60

REPORT FOR Mr. ART SCHRITT

REPORT FOR Mr.

DENNIS BROWN

SPUD DATE 12-Jan-97

PRODUCTS	MATERIALS RECEIVED TO DATE	MATERIALS USED LAST 24 HOURS	MATERIALS USED TO DATE	MATERIAL REMAINING ON LOCATION	DAILY COST D/C	CUMULATIVE COST CUM/C
CAUSTIC 10	300		177	123	\$0.00	\$10,268.00
X-CIDE 207 10	96		0	96	\$0.00	\$0.00
NAT BENTONITE 103	1960		1790	170	\$0.00	\$28,478.90
LIGNITE 1	56		18	38	\$0.00	\$360.00
LIME 1	864	-44	184	680	\$217.00	\$2,852.00
SODA ASH 103	40		4	36	\$0.00	\$144.00
BICARB 10	50		16	34	\$0.00	\$1,264.00
MICA COARSE 1034	48		30	18	\$0.00	\$1,110.00
IDF-FLR 1	7		0	7	\$0.00	\$0.00
VISPLEX II 16	541		541	0	\$0.00	\$198,547.00
ID FREE 208L 10	4		0	4	\$0.00	\$0.00
CELLOPHANE 103	100		34	66	\$0.00	\$1,428.00
MICA MEDIUM 1042	110		0	110	\$0.00	\$0.00
FLOPLEX 10	350		135	215	\$0.00	\$25,920.00
P. SEAL "C" 104	50		50	0	\$0.00	\$1,900.00
P. SEAL "M" 104	16		16	0	\$0.00	\$608.00
CALCARB "325" 1045	448		122	326	\$0.00	\$1,220.00
CALCARB "SC" 1045	336		33	303	\$0.00	\$330.00
CALCARB "O" 1045	448		0	448	\$0.00	\$0.00
DETERGENT 104	52		0	52	\$0.00	\$0.00
BARITE	12080	50	1361	10719	\$975.00	\$26,539.50
CALCIUM CHLORIDE	393	-46	40	353	\$2,240.00	\$2,240.00
MAGNA FIBER	32		8	24	\$0.00	\$1,024.00
MICA FINE	239		39	200	\$0.00	\$1,443.00
SAWDUST	1400		625	775	\$0.00	\$4,062.50
CALC CARB "FG"	0		0	0	\$0.00	\$0.00
TRUDRILL	423	7	115	308	\$6,300.00	\$103,500.00
NATURAL GEL	240		240	0	\$0.00	\$4,334.40
TRUVIS	480		218	262	\$0.00	\$87,274.80
HYMUL	32		0	32	\$0.00	\$0.00
XCD	160		0	160	\$0.00	\$0.00
INTERDRILL S	800		55	745	\$0.00	\$4,060.65
EMUL	48	1	15	33	\$1,140.00	\$17,100.00
INTER FL	48		5	43	\$0.00	\$7,650.00
OW	68	1	26	42	\$1,580.00	\$41,340.00
ZINC CARB	80		0	80	\$0.00	\$0.00
BARITE 10	720		720	0	\$0.00	\$12,384.00
HSO 600 10	29		0	29	\$0.00	\$0.00
PTS 200 10	8		0	8	\$0.00	\$0.00
FIBER FLUID "F"	500		50	450	\$0.00	\$5,100.00
FIBER FLUID "C"	300		15	285	\$0.00	\$1,530.00

TOTALS

\$12,462.00 \$574,010.75

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD P-66		LOCATION P-66 LAT 60 40' LONG 123 30'		DATE		24-Mar-75		
OPERATOR		RANGER OIL LTD.		CONTRACTOR CACTUS #26E		REPORT No		61		
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr. DENNIS BROWN		SPUD DATE		12-Jan-97		
ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min		
BIT SIZE (mm)	311.0	LENGTH (m)	SIZE (mm)	LENGTH(m)	TANKS	133	PUMP #1	152X254	OPPOSITE DP	46
BIT NUMBER	4C		508.0	263	HOLE	90	M3/STK	0.0138	OPPOSITE DC	83
DRILL PIPE #1(mm)	127.0	1081	339.7	1007	TOTAL	223	PUMP #2	152X254	CIRC. TIME	77
DRILLPIPE #2(mm)	127.0	82	LINER	TOPIBOT.	STAND BY	122	M3/STK	0.0138	BOTTOMS UP	27
COLLAR #1(mm)	168.0	27					S.P.M.	210		
COLLAR #2(mm)	228.0	87					M3/MIN	2.9022		
HOLE DATA		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS						
MUD TYPE - INVERT		FLOWLINE WT. OFF		RIGGED OUT kg/m3		MUD WT.		1200 Kg/m3		
HOLE COND.-GOOD		UNDERFLOW WT. 2490		kg/m3		VISCOSITY		65-85s/l at 50C s/L		
DEVIATION-1.3 at 1252m 102 AZ		OVERFLOW WT. 1125		kg/m3		FILTRATE		<10 cm3/30 min.		
CURRENT OP.-DRILLING		UNDERFLOW RT. 3-4U/MIN		m3/min		pH				
EQUIPMENT:		XX DEGASSER		DESILTER		DESANDER		XX CENTRIFUGE		
110x110x110 110-110-110		XX DOUBLE DECK OR HIGH SPEED SHAKER								
MUD PROPERTIES		DAILY PRODUCT USAGE								
TIME SAMPLE TAKEN	19:30	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE	
SAMPLE FROM	FLOWLINE		RECEIVED	LAST	USED LAST	USED TO	REMAINING	COST	COST	
PRESENT DEPTH	1277		TO DATE	24 HOURS	24 HOURS	DATE	ON LOCATION			
FLOWLINE TEMPERATURE (C)	75.0	TRUDRILL	423		8	123	300	\$7,200.00	\$110,700.00	
DENSITY	1220	INTERDRILL S	800		5	60	740	\$369.15	\$4,429.80	
FUNNEL VISCOSITY (s/L)	69	EMUL	80		2	17	43	\$2,280.00	\$19,300.00	
600 READING @ 60 C	92	INTER FL	52		1	6	46	\$1,530.00	\$9,180.00	
300 READING	69	OW	80		1	27	53	\$1,580.00	\$42,930.00	
APPARENT VISCOSITY (mPa.s)	46	FIBER FLUID	500		5	55	445	\$510.00	\$5,610.00	
PLASTIC VISCOSITY (mPa.s)	23									
YIELD POINT (Pa)	23									
GELS 0/10 min. (Pa)	13/15									
pH	STRIP	METER								
FILTRATE @ 90C (cm3)	HTHP	X	3							
FILTER CAKE (mm)			2							
Pom			3							
EXCESS LIME KG/M3			11.1							
TOTAL HARDNESS (mg/l)		Ca								
CHLORIDES (mg/L)	X	NaCl	277,659							
SAND CONTENT %	X	FR.	0.75							
SOLIDS CONTENT %	X	FR.	14							
OIL CONTENT %			73.0							
WATER CONTENT %	X		13.0	PREVIOUS COST	\$586,010.75	STARTING VOLUME	423			
ELECTRICAL STABILITY			915	DAILY COST	\$13,399.15	VOL. BUILT				
OIL WATER RATIO			85.0/115.0	CUM. COST	\$589,409.90	VOL. LOST ON SURFACE	4			
CaCl2 w/w%			33.05	CUM. ENG. COST	\$36,480.00	VOL. LOST ON SUB SURFACE	4			
"Ir"			0.15	Discounted/ Total	\$299,704.95	END VOLUME	345			
"K"			20.41			CUM. VOL BUILT.	45			
COMMENTS		WIPER TRIP TOCSG @ 1258M 1.5M FILL								
MAINTAIN		L								
ADD INTERDRILL "OW" @ 1 BBL OVER 2 CIRCULATIONS IF SHALE DROPS OFF WET OR FLUID IS RUNNING OFF THE SHAKER VISCOSITY AT 75-90S/L AT 65C FLOWLINE TEMP WITH TRUVISADDED AT 10 MIN PER SACK AS PER ENGINEERS REQUEST DENSITY AT 1200 KG/M3 OR AS REQUIRED BY ADDING BARITE. RUN THE CENTRIFUGE ONCE PER TOUR OVER FULL CIRCULATIONS. ADD 1 DRUM OW AND 3 DRUMS EMUL OVER 150 MINUTES BUILD VOLUME IF TANKS ARE LESS THAN 100M3 USING INVERT STORED IN 400 BBL TANK 15-20 M3 AS REQUIRED TO INCREASE MUD WEIGHT 20KG/M ADD 160 SX OF BARITE AND 1 DRUM OF OW ADD 5 SX OF INTERDRILL "S" AND 5 SACKS OF FIBER FLUID (FINE) PER TOUR ADD COARSE FIBER FLUID IF LOSSES ARE HIGHER THAN NORMAL MONITOR SURFACE VOLUMES FOR ANY CHANGES THAT MAY INDICATE DOWN HOLE LOSSES OR AN INFLUX										
STOCK POINT	GRANDE PRAIRIE (FORMULA)			DOWELL ENGINEER		JOE SMITH		ON LOCATION		
PHONE	532-5078			PHONE NUMBER		CAMP RM. # 5				
BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.										

INVENTORY

WELL NAME RANGER FT. LIARD P-68

LOCATION LAT 60 40' LONG 123 30'

DATE 24-Mar-75

OPERATOR RANGER OIL LTD.

CONTRACTOR

CACTUS #26E

REPORT No 61

REPORT FOR Mr. ART SCHRITT

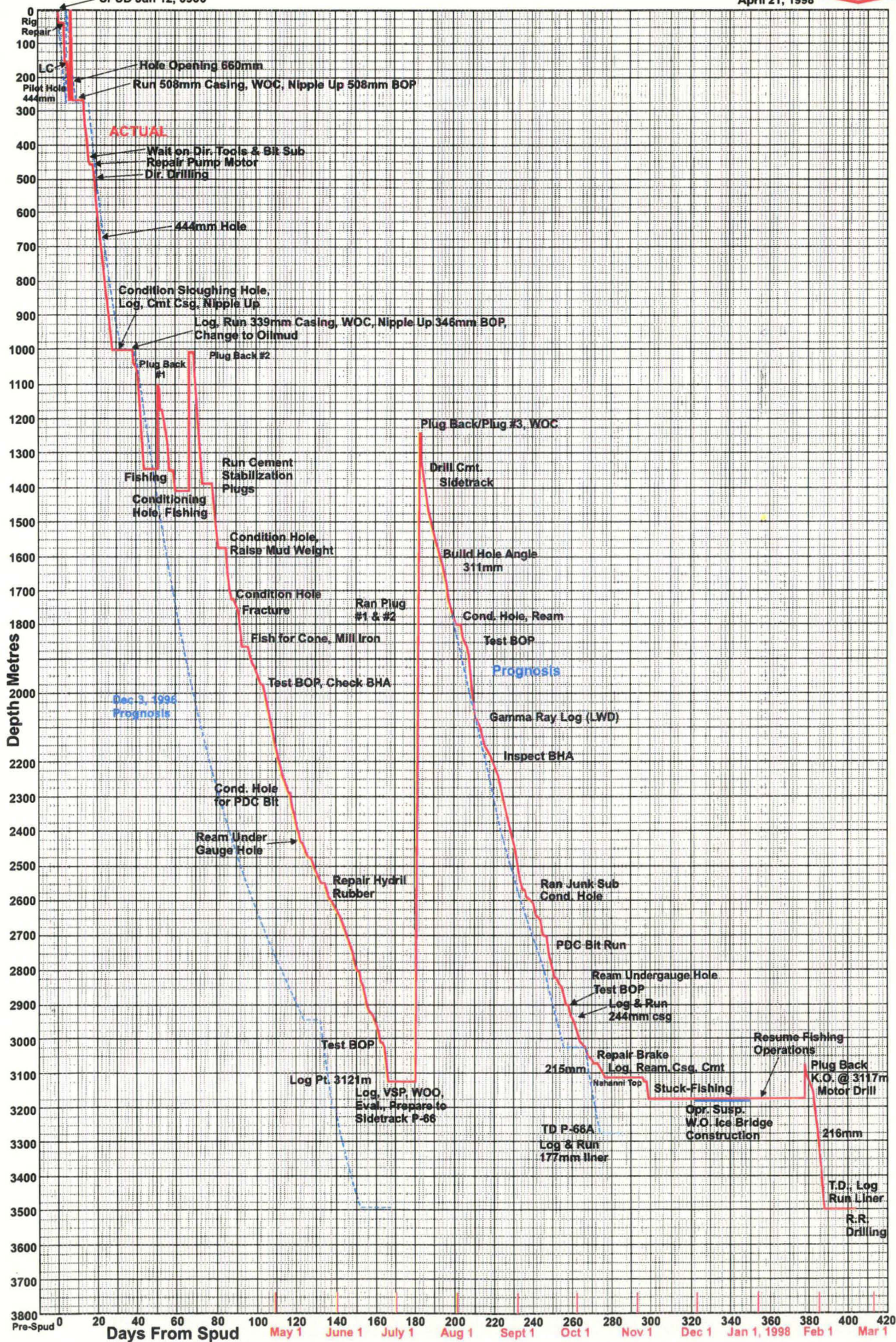
REPORT FOR Mr.

DENNIS BROWN

SPUD DATE 12-Jan-67

PRODUCTS		MATERIALS RECEIVED TO DATE	MATERIALS USED LAST 24 HOURS	MATERIALS USED TO DATE	MATERIAL REMAINING ON LOCATION	DAILY COST D/C	CUMULATIVE COST CUM/C
CAUSTIC	10	360		177	183	\$0.00	\$10,266.00
X-CIDE 207	10	96		0	96	\$0.00	\$0.00
NAT BENTONITE	103	1960		1790	170	\$0.00	\$28,478.90
LIGNITE	1	56		18	38	\$0.00	\$360.00
LIME		864		184	680	\$0.00	\$2,852.00
SODA ASH	103	40		4	36	\$0.00	\$144.00
BICARB	10	50		16	34	\$0.00	\$1,264.00
MICA COARSE	1034	48		30	18	\$0.00	\$1,110.00
IDF-FLR	1	7		0	7	\$0.00	\$0.00
VISPLEX II	10	541		541	0	\$0.00	\$198,547.00
ID FREE 208L	10	4		0	4	\$0.00	\$0.00
CELLOPHANE	103	100		34	66	\$0.00	\$1,428.00
MICA MEDIUM	1042	110		0	110	\$0.00	\$0.00
FLOPLEX	10	400		135	265	\$0.00	\$25,920.00
P. SEAL "C"	10	50		50	0	\$0.00	\$1,900.00
P. SEAL "M"	104	16		16	0	\$0.00	\$608.00
CALCARB "325"	1045	560		122	438	\$0.00	\$1,220.00
CALCARB "SC"	1045	336		33	303	\$0.00	\$330.00
CALCARB "O"	1045	448		0	448	\$0.00	\$0.00
DETERGENT	10	52		0	52	\$0.00	\$0.00
BARITE		12720		1361	11359	\$0.00	\$26,539.50
CALCIUM CHLORIDE		383		40	353	\$0.00	\$2,240.00
MAGNA FIBER		32		8	24	\$0.00	\$1,024.00
MICA FINE		239		39	200	\$0.00	\$1,443.00
SAWDUST		1400		625	775	\$0.00	\$4,062.50
CALCARB "FG"		0		0	0	\$0.00	\$0.00
TRUDRILL		423	8	123	300	\$7,200.00	\$110,700.00
NATURAL GEL		240		240	0	\$0.00	\$4,334.40
TRUVIS		600		218	382	\$0.00	\$67,274.80
HYMUL		32		0	32	\$0.00	\$0.00
XCD		160		0	160	\$0.00	\$0.00
INTERDRILL S		600	5	60	740	\$389.15	\$4,429.80
EMUL		60	2	17	43	\$2,280.00	\$19,300.00
INTER FL		52	1	8	46	\$1,530.00	\$9,180.00
OW		80	1	27	53	\$1,580.00	\$42,930.00
ZINC CARB		80		0	80	\$0.00	\$0.00
BARITE	10	720		720	0	\$0.00	\$12,384.00
HSO 600	10	29		0	29	\$0.00	\$0.00
PTS 200	10	8		0	8	\$0.00	\$0.00
FIBER FLUID "F"		500	5	55	445	\$510.00	\$5,610.00
FIBER FLUID "C"		300		15	285	\$0.00	\$1,530.00

TOTALS \$13,479.15 \$587,409.90





WF

HALLIBURTON ENERGY SERVICES

333 - 5th Avenue Southwest / Suite 1000 / Calgary, Alberta Canada T2P 3B6 / Tel: 403-231-9300 / Fax: 403-231-9420

RANGER OIL LIMITED

RANGER FORT LIARD P-66-A
IN UNIT P SECTION 66

POST WELL REPORT

by

SHERRY CLAUSEN
Halliburton Drilling Systems
1000, 333 5th Avenue S.W.
Calgary, Alberta
(403) 231-9488

Contents

Surveys

Plot

Post Well Summary

Bottom Hole Assembly Reports

Performance Reports

Daily Reports

Distribution

MR. DON SORKILMO

Distribution (HDS)

Lino Vella-Gregory

Garry Burns

Brian Dewald

Leon Ceh

Ken Stenerson

Job Numbers

Calgary: 96D164

Edmonton: 97D006

FEB. 18, 1998

UID:300P666040123300

Halliburton Drilling Systems

Survey Report

Page 1 -
Job No: 97d007s4
Date: 12/02/98
Time: 3:14 pm
Wellpath ID: 97d007s4
Date Created: 27/01/97
Last Revision: 12/02/98

Calculated using the Minimum Curvature Method
Computed using PDS VER2.2.4
Vertical Section Plane: 225.00 deg.

Survey Reference: WELLHEAD

Reference World Coordinates: Lat. 60.35.44 N - Lon. 123.41.25 W

Reference GRID System: UTM Zone: 10, Cent. Merid.: 123.0.0 W

Reference GRID Coordinates: (m.): 6718093.95 N 462189.98 E

North Aligned to: GRID NORTH

Vertical Section Reference: WELLHEAD

Closure Reference: WELLHEAD

TVD Reference: WELLHEAD

RANGER OIL LIMITED
RANGER FORT LIARD P - 66 - A
IN UNIT P SECTION 66
UID: 300P666040123300

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	Course Length (m)	TVD (m)	Vertical Section (m)	Subsea Depth (m)	TOTAL Rectangular Offsets (m)		DLS (dg/30m)
0.00	0.00	0.00	0.00	0.00	0.00	406.00	0.00 N	0.00 E	0.00
First Single-Shot Directional Survey 199m									
199.00	0.50	36.40	199.00	199.00	-0.86	207.00	0.70 N	0.52 E	0.08
226.00	1.75	25.00	27.00	225.99	-1.36	180.01	1.17 N	0.76 E	1.40
253.00	1.50	20.40	27.00	252.98	-2.07	153.02	1.87 N	1.06 E	0.31
283.00	1.75	67.40	30.00	282.97	-2.85	123.03	2.42 N	1.62 E	1.32
312.00	1.90	70.40	29.00	311.96	-3.70	94.04	2.75 N	2.48 E	0.18
343.00	2.00	70.40	31.00	342.94	-4.65	63.06	3.10 N	3.47 E	0.10
374.00	2.25	59.40	31.00	373.92	-5.73	32.08	3.59 N	4.51 E	0.46
403.00	3.00	68.40	29.00	402.89	-6.97	3.11	4.16 N	5.70 E	0.88
433.00	3.30	70.90	30.00	432.84	-8.47	-26.84	4.73 N	7.25 E	0.33
MWD SURVEY'S									
451.00	4.40	71.30	18.00	450.80	-9.56	-44.80	5.12 N	8.39 E	1.83
460.00	4.30	71.10	9.00	459.77	-10.17	-53.77	5.34 N	9.04 E	0.34
470.00	4.30	74.20	10.00	469.75	-10.83	-63.75	5.57 N	9.75 E	0.70
480.00	4.30	79.10	10.00	479.72	-11.47	-73.72	5.74 N	10.48 E	1.10
490.00	4.20	87.40	10.00	489.69	-12.05	-83.69	5.83 N	11.21 E	1.87
499.00	4.10	93.10	9.00	498.67	-12.51	-92.67	5.83 N	11.87 E	1.41
509.00	4.10	99.30	10.00	508.64	-12.96	-102.64	5.75 N	12.58 E	1.33
518.00	4.00	107.10	9.00	517.62	-13.29	-111.62	5.60 N	13.19 E	1.86
528.00	3.80	114.70	10.00	527.60	-13.57	-121.60	5.36 N	13.83 E	1.66
538.00	3.50	123.60	10.00	537.58	-13.75	-131.58	5.06 N	14.38 E	1.92
547.00	3.20	129.50	9.00	546.56	-13.82	-140.56	4.74 N	14.81 E	1.52
557.00	2.80	129.60	10.00	556.55	-13.87	-150.55	4.41 N	15.21 E	1.20

Halliburton Drilling Systems

Survey Report

Page 2
Date: 12/02/98
Wellpath ID: 97d007s4

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	Course Length (m)	TVD (m)	Vertical Section (m)	Subsea Depth (m)	TOTAL Rectangular Offsets (m)		DLS (dg/30m)
566.00	2.40	130.80	9.00	565.54	-13.91	-159.54	4.15 N	15.52 E	1.35
576.00	2.10	128.60	10.00	575.53	-13.94	-169.53	3.90 N	15.82 E	0.94
586.00	1.90	122.80	10.00	585.52	-14.00	-179.52	3.69 N	16.10 E	0.85
596.00	1.70	107.60	10.00	595.52	-14.10	-189.52	3.56 N	16.39 E	1.55
605.00	1.90	97.90	9.00	604.51	-14.25	-198.51	3.50 N	16.66 E	1.21
614.00	2.00	92.80	9.00	613.51	-14.45	-207.51	3.47 N	16.97 E	0.67
624.00	2.20	88.10	10.00	623.50	-14.71	-217.50	3.47 N	17.33 E	0.79
634.00	2.20	92.00	10.00	633.49	-14.98	-227.49	3.47 N	17.72 E	0.45
644.00	2.20	101.00	10.00	643.49	-15.22	-237.49	3.42 N	18.10 E	1.04
654.00	2.30	103.80	10.00	653.48	-15.43	-247.48	3.34 N	18.48 E	0.45
663.00	2.40	113.60	9.00	662.47	-15.59	-256.47	3.22 N	18.83 E	1.38
673.00	2.50	124.30	10.00	672.46	-15.71	-266.46	3.01 N	19.20 E	1.40
683.00	2.40	130.50	10.00	682.45	-15.76	-276.45	2.75 N	19.54 E	0.85
693.00	2.20	136.30	10.00	692.45	-15.78	-286.45	2.48 N	19.83 E	0.92
702.00	1.90	144.50	9.00	701.44	-15.75	-295.44	2.23 N	20.04 E	1.40
712.00	1.60	151.30	10.00	711.43	-15.68	-305.43	1.98 N	20.20 E	1.09
722.00	1.20	151.40	10.00	721.43	-15.61	-315.43	1.76 N	20.32 E	1.20
731.00	0.80	165.00	9.00	730.43	-15.55	-324.43	1.62 N	20.38 E	1.54
741.00	0.40	183.40	10.00	740.43	-15.49	-334.43	1.52 N	20.39 E	1.32
751.00	0.10	158.00	10.00	750.43	-15.46	-344.43	1.47 N	20.39 E	0.94
760.00	0.30	45.00	9.00	759.43	-15.48	-353.43	1.48 N	20.41 E	1.17
770.00	0.70	53.90	10.00	769.43	-15.57	-363.43	1.54 N	20.48 E	1.22
780.00	0.90	64.60	10.00	779.43	-15.70	-373.43	1.61 N	20.60 E	0.75
789.00	1.00	79.60	9.00	788.43	-15.84	-382.43	1.65 N	20.74 E	0.89
799.00	1.10	111.10	10.00	798.43	-15.95	-392.43	1.63 N	20.92 E	1.73
808.00	1.30	135.40	9.00	807.42	-15.98	-401.42	1.53 N	21.07 E	1.81
818.00	1.40	155.00	10.00	817.42	-15.94	-411.42	1.34 N	21.20 E	1.41
827.00	2.00	182.50	9.00	826.42	-15.78	-420.42	1.08 N	21.24 E	3.32
837.00	2.50	208.80	10.00	836.41	-15.45	-430.41	0.71 N	21.13 E	3.40
847.00	2.80	220.10	10.00	846.40	-14.99	-440.40	0.34 N	20.87 E	1.80
857.00	2.90	219.60	10.00	856.39	-14.50	-450.39	0.04 S	20.55 E	0.31
866.00	2.40	211.50	9.00	865.38	-14.09	-459.38	0.38 S	20.31 E	2.08
876.00	2.10	185.40	10.00	875.37	-13.74	-469.37	0.74 S	20.18 E	3.17
886.00	2.00	153.30	10.00	885.36	-13.55	-479.36	1.08 S	20.24 E	3.41
896.00	2.20	123.50	10.00	895.36	-13.53	-489.36	1.34 S	20.48 E	3.29
905.00	2.70	118.00	9.00	904.35	-13.63	-498.35	1.54 S	20.81 E	1.84
914.00	2.70	110.50	9.00	913.34	-13.78	-507.34	1.71 S	21.20 E	1.18
924.00	2.70	111.50	10.00	923.33	-13.97	-517.33	1.88 S	21.63 E	0.14
934.00	2.50	130.60	10.00	933.32	-14.08	-527.32	2.11 S	22.02 E	2.65

Halliburton Drilling Systems

Survey Report

Page 3
Date: 12/02/98
Wellpath ID: 97d007s4

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	Course Length (m)	TVD (m)	Vertical Section (m)	Subsea Depth (m)	TOTAL Rectangular Offsets (m)		DLS (dg/30m)
944.00	3.20	153.20	10.00	943.31	-14.01	-537.31	2.50 S	22.31 E	3.93
954.00	3.60	163.70	10.00	953.29	-13.77	-547.29	3.05 S	22.53 E	2.22
963.00	4.40	164.20	9.00	962.27	-13.47	-556.27	3.65 S	22.70 E	2.67
973.00	5.30	170.50	10.00	972.23	-13.01	-566.23	4.48 S	22.88 E	3.13
983.00	5.60	176.90	10.00	982.19	-12.42	-576.19	5.42 S	22.98 E	2.03
989.00	5.50	178.70	6.00	988.16	-12.02	-582.16	6.00 S	23.00 E	1.00
INTERPOLATED 13 3/4 CAS. POINT									
1007.00	5.39	179.13	18.00	1006.08	-10.84	-600.08	7.71 S	23.04 E	0.20
1019.00	4.80	179.30	12.00	1018.03	-10.10	-612.03	8.77 S	23.05 E	1.48
1029.00	4.40	176.80	10.00	1028.00	-9.55	-622.00	9.57 S	23.08 E	1.34
1039.00	4.00	174.50	10.00	1037.97	-9.07	-631.97	10.30 S	23.13 E	1.30
1048.00	3.50	170.40	9.00	1046.95	-8.71	-640.95	10.89 S	23.21 E	1.89
1058.00	3.00	169.30	10.00	1056.93	-8.39	-650.93	11.45 S	23.31 E	1.51
1068.00	2.60	166.80	10.00	1066.92	-8.12	-660.92	11.92 S	23.41 E	1.25
1077.00	2.00	160.40	9.00	1075.91	-7.95	-669.91	12.27 S	23.51 E	2.17
1087.00	1.60	144.50	10.00	1085.91	-7.85	-679.91	12.55 S	23.65 E	1.91
1097.00	1.20	128.50	10.00	1095.91	-7.84	-689.91	12.73 S	23.81 E	1.67
1106.00	1.20	115.70	9.00	1104.90	-7.88	-698.90	12.83 S	23.97 E	0.89
1116.00	1.10	106.10	10.00	1114.90	-7.96	-708.90	12.90 S	24.16 E	0.65
1126.00	1.20	105.30	10.00	1124.90	-8.06	-718.90	12.95 S	24.35 E	0.30
1136.00	1.20	114.10	10.00	1134.90	-8.15	-728.90	13.02 S	24.55 E	0.55
1146.00	1.20	108.80	10.00	1144.90	-8.23	-738.90	13.10 S	24.74 E	0.33
1156.00	1.30	109.60	10.00	1154.89	-8.33	-748.89	13.17 S	24.95 E	0.30
1165.00	1.30	101.40	9.00	1163.89	-8.43	-757.89	13.23 S	25.14 E	0.62
1175.00	1.60	98.00	10.00	1173.89	-8.57	-767.89	13.27 S	25.39 E	0.94
1185.00	1.60	95.40	10.00	1183.88	-8.75	-777.88	13.30 S	25.67 E	0.22
1193.00	1.30	97.90	8.00	1191.88	-8.87	-785.88	13.32 S	25.87 E	1.15
TIE-IN FOR SIDETRACK # 3									
1203.00	1.20	94.50	10.00	1201.88	-9.01	-795.88	13.35 S	26.09 E	0.37
1233.00	1.30	94.10	30.00	1231.87	-9.43	-825.87	13.40 S	26.74 E	0.10
1262.00	1.40	107.80	29.00	1260.86	-9.81	-854.86	13.53 S	27.40 E	0.35
TIE-IN FOR SIDETRACK #4									
1291.00	1.10	112.40	29.00	1289.86	-10.08	-883.86	13.74 S	28.00 E	0.33
1310.00	0.40	110.50	19.00	1308.86	-10.18	-902.86	13.84 S	28.23 E	1.11
1320.00	1.20	117.10	10.00	1318.85	-10.23	-912.85	13.90 S	28.36 E	2.41
INTERPOLATED - KICK OFF POINT									
1327.00	1.66	125.42	7.00	1325.85	-10.26	-919.85	13.99 S	28.50 E	2.16
1329.00	1.80	127.00	2.00	1327.85	-10.27	-921.85	14.02 S	28.55 E	2.22
1339.00	2.50	120.40	10.00	1337.84	-10.35	-931.84	14.23 S	28.87 E	2.22
1349.00	2.90	115.50	10.00	1347.83	-10.49	-941.83	14.45 S	29.28 E	1.38

Halliburton Drilling Systems

Survey Report

Page 4
Date: 12/02/98
Wellpath ID: 97d007s4

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	Course Length (m)	TVD (m)	Vertical Section (m)	Subsea Depth (m)	TOTAL Rectangular Offsets (m)		DLS (dg/30m)
1358.00	3.10	114.40	9.00	1356.82	-10.65	-950.82	14.65 S	29.71 E	0.69
1368.00	3.20	118.40	10.00	1366.81	-10.83	-960.81	14.89 S	30.20 E	0.72
1378.00	3.00	123.50	10.00	1376.79	-10.96	-970.79	15.17 S	30.67 E	1.02
1388.00	3.20	136.50	10.00	1386.78	-11.00	-980.78	15.51 S	31.08 E	2.19
1398.00	3.60	151.50	10.00	1396.76	-10.91	-990.76	15.99 S	31.42 E	2.92
1408.00	4.40	169.70	10.00	1406.73	-10.60	-1000.73	16.65 S	31.64 E	4.47
1417.00	5.20	182.00	9.00	1415.70	-10.10	-1009.70	17.39 S	31.68 E	4.33
1427.00	6.20	190.40	10.00	1425.65	-9.33	-1019.65	18.38 S	31.57 E	3.90
1436.00	6.90	197.40	9.00	1434.60	-8.45	-1028.60	19.37 S	31.32 E	3.54
1446.00	8.00	205.30	10.00	1444.51	-7.26	-1038.51	20.57 S	30.84 E	4.50
1456.00	9.30	211.40	10.00	1454.40	-5.82	-1048.40	21.89 S	30.13 E	4.77
1465.00	10.70	214.80	9.00	1463.26	-4.29	-1057.26	23.20 S	29.27 E	5.06
1474.00	11.60	217.20	9.00	1472.09	-2.57	-1066.09	24.61 S	28.25 E	3.37
1484.00	12.40	218.80	10.00	1481.87	-0.51	-1075.87	26.24 S	26.96 E	2.60
1494.00	12.60	219.30	10.00	1491.63	1.64	-1085.63	27.93 S	25.60 E	0.68
1503.00	12.80	220.00	9.00	1500.41	3.61	-1094.41	29.45 S	24.34 E	0.84
1513.00	12.90	220.20	10.00	1510.16	5.83	-1104.16	31.15 S	22.91 E	0.33
1523.00	13.30	219.40	10.00	1519.90	8.09	-1113.90	32.89 S	21.46 E	1.32
1533.00	13.70	219.60	10.00	1529.63	10.41	-1123.63	34.69 S	19.97 E	1.21
1543.00	14.50	220.60	10.00	1539.33	12.84	-1133.33	36.56 S	18.40 E	2.51
1553.00	15.10	221.00	10.00	1548.99	15.38	-1142.99	38.49 S	16.73 E	1.83
1562.00	15.80	223.20	9.00	1557.67	17.78	-1151.67	40.27 S	15.12 E	3.04
1572.00	16.70	222.30	10.00	1567.27	20.57	-1161.27	42.32 S	13.22 E	2.80
1582.00	17.50	222.80	10.00	1576.83	23.51	-1170.83	44.49 S	11.24 E	2.44
1592.00	17.90	224.70	10.00	1586.35	26.55	-1180.35	46.68 S	9.13 E	2.11
1602.00	18.10	225.30	10.00	1595.86	29.64	-1189.86	48.87 S	6.95 E	0.82
1612.00	18.10	225.60	10.00	1605.37	32.75	-1199.37	51.05 S	4.73 E	0.28
1621.00	18.60	225.00	9.00	1613.91	35.58	-1207.91	53.04 S	2.72 E	1.78
1631.00	19.70	225.60	10.00	1623.36	38.86	-1217.36	55.35 S	0.39 E	3.35
1640.00	20.60	226.80	9.00	1631.81	41.96	-1225.81	57.49 S	1.85W	3.30
1650.00	21.40	226.00	10.00	1641.14	45.54	-1235.14	59.96 S	4.44W	2.55
1659.00	22.70	226.00	9.00	1649.49	48.92	-1243.49	62.31 S	6.87W	4.33
1668.00	24.10	225.80	9.00	1657.74	52.50	-1251.74	64.80 S	9.44W	4.67
1677.00	25.90	226.70	9.00	1665.90	56.30	-1259.90	67.43 S	12.19W	6.13
1687.00	27.60	226.80	10.00	1674.83	60.80	-1268.83	70.51 S	15.47W	5.10
1697.00	28.80	226.80	10.00	1683.64	65.52	-1277.64	73.75 S	18.91W	3.60
1707.00	29.60	227.20	10.00	1692.37	70.40	-1286.37	77.07 S	22.48W	2.47
1717.00	30.50	226.90	10.00	1701.03	75.40	-1295.03	80.49 S	26.15W	2.74
1727.00	31.20	226.50	10.00	1709.61	80.53	-1303.61	84.00 S	29.88W	2.19

Halliburton Drilling Systems

Survey Report

Page 5

Date: 12/02/98

Wellpath ID: 97d007s4

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	Course Length (m)	TVD (m)	Vertical Section (m)	Subsea Depth (m)	TOTAL Rectangular Offsets (m)		DLS (dg/30m)
1736.00	32.50	226.60	9.00	1717.26	85.27	-1311.26	87.27 S	33.32W	4.34
1746.00	33.80	226.70	10.00	1725.63	90.74	-1319.63	91.02 S	37.30W	3.90
1755.00	35.10	226.20	9.00	1733.05	95.83	-1327.05	94.53 S	40.99W	4.43
1764.00	36.10	225.50	9.00	1740.37	101.07	-1334.37	98.18 S	44.75W	3.60
1774.00	37.20	224.00	10.00	1748.39	107.04	-1342.39	102.42 S	48.95W	4.25
1784.00	38.40	223.50	10.00	1756.29	113.16	-1350.29	106.85 S	53.19W	3.72
1793.00	39.60	223.80	9.00	1763.29	118.83	-1357.29	110.95 S	57.10W	4.05
1803.00	40.80	225.00	10.00	1770.93	125.28	-1364.93	115.56 S	61.61W	4.28
1813.00	41.60	223.90	10.00	1778.45	131.87	-1372.45	120.26 S	66.23W	3.24
1826.00	43.10	224.50	13.00	1788.06	140.62	-1382.06	126.54 S	72.33W	3.58
1836.00	43.40	224.20	10.00	1795.34	147.47	-1389.34	131.44 S	77.12W	1.09
1847.00	43.40	225.40	11.00	1803.33	155.03	-1397.33	136.80 S	82.45W	2.25
1857.00	43.70	224.70	10.00	1810.58	161.92	-1404.58	141.67 S	87.32W	1.70
1866.00	44.60	225.90	9.00	1817.04	168.19	-1411.04	146.08 S	91.78W	4.09
1876.00	44.90	225.60	10.00	1824.14	175.23	-1418.14	150.99 S	96.82W	1.10
1885.00	45.70	226.40	9.00	1830.47	181.62	-1424.47	155.43 S	101.42W	3.27
1895.00	46.20	228.20	10.00	1837.42	188.81	-1431.42	160.30 S	106.71W	4.16
1904.00	46.50	228.80	9.00	1843.64	195.31	-1437.64	164.62 S	111.58W	1.76
1914.00	46.80	228.50	10.00	1850.50	202.56	-1444.50	169.42 S	117.04W	1.11
1923.00	47.10	229.40	9.00	1856.65	209.12	-1450.65	173.74 S	122.00W	2.41
1933.00	47.50	231.30	10.00	1863.43	216.44	-1457.43	178.43 S	127.66W	4.36
1942.00	48.40	231.40	9.00	1869.46	223.08	-1463.46	182.61 S	132.88W	3.01
1952.00	48.50	231.20	10.00	1876.09	230.52	-1470.09	187.28 S	138.72W	0.54
1962.00	48.60	231.20	10.00	1882.71	237.97	-1476.71	191.98 S	144.56W	0.30
1971.00	49.00	231.60	9.00	1888.64	244.70	-1482.64	196.21 S	149.85W	1.67
1981.00	48.50	231.70	10.00	1895.23	252.17	-1489.23	200.87 S	155.75W	1.52
1990.00	47.90	231.70	9.00	1901.23	258.83	-1495.23	205.03 S	161.02W	2.00
2000.00	48.00	232.60	10.00	1907.93	266.20	-1501.93	209.58 S	166.88W	2.03
2010.00	48.30	232.40	10.00	1914.60	273.59	-1508.60	214.12 S	172.79W	1.00
2019.00	47.80	232.30	9.00	1920.61	280.22	-1514.61	218.21 S	178.09W	1.69
2028.00	47.40	231.30	9.00	1926.68	286.82	-1520.68	222.32 S	183.31W	2.80
2038.00	47.70	231.30	10.00	1933.43	294.16	-1527.43	226.93 S	189.07W	0.90
2048.00	47.90	230.50	10.00	1940.15	301.53	-1534.15	231.60 S	194.82W	1.88
2065.00	47.40	229.60	17.00	1951.60	314.04	-1545.60	239.67 S	204.45W	1.47
2075.00	46.50	229.30	10.00	1958.43	321.33	-1552.43	244.42 S	210.00W	2.78
2084.00	45.90	228.50	9.00	1964.66	327.81	-1558.66	248.69 S	214.90W	2.78
2094.00	46.70	229.80	10.00	1971.57	335.02	-1565.57	253.42 S	220.37W	3.70
2104.00	47.50	230.20	10.00	1978.37	342.31	-1572.37	258.13 S	225.98W	2.56
2113.00	47.40	231.40	9.00	1984.46	348.91	-1578.46	262.32 S	231.12W	2.97

Halliburton Drilling Systems

Survey Report

Page 6

Date: 12/02/98

Wellpath ID: 97d007s4

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	Course Length (m)	TVD (m)	Vertical Section (m)	Subsea Depth (m)	TOTAL Rectangular Offsets (m)		DLS (dg/30m)
2123.00	47.20	230.50	10.00	1991.24	356.22	-1585.24	266.95 S	236.82W	2.07
2133.00	47.20	230.80	10.00	1998.04	363.52	-1592.04	271.60 S	242.50W	0.66
2142.00	47.60	231.50	9.00	2004.13	370.11	-1598.13	275.76 S	247.66W	2.17
2152.00	47.80	232.60	10.00	2010.86	377.45	-1604.86	280.30 S	253.49W	2.51
2162.00	46.90	232.70	10.00	2017.63	384.74	-1611.63	284.77 S	259.34W	2.71
2171.00	45.90	232.90	9.00	2023.84	391.19	-1617.84	288.71 S	264.53W	3.37
2181.00	46.00	233.00	10.00	2030.79	398.31	-1624.79	293.04 S	270.26W	0.37
2191.00	46.40	233.90	10.00	2037.71	405.45	-1631.71	297.34 S	276.06W	2.29
2201.00	46.60	232.90	10.00	2044.60	412.63	-1638.60	301.66 S	281.88W	2.26
2211.00	46.20	233.00	10.00	2051.49	419.80	-1645.49	306.02 S	287.66W	1.22
2221.00	45.60	232.10	10.00	2058.45	426.92	-1652.45	310.39 S	293.37W	2.65
2231.00	45.00	231.60	10.00	2065.49	433.98	-1659.49	314.78 S	298.95W	2.09
2240.00	44.40	231.80	9.00	2071.88	440.26	-1665.88	318.70 S	303.92W	2.05
2249.00	43.90	230.20	9.00	2078.34	446.50	-1672.34	322.65 S	308.79W	4.07
2259.00	43.60	228.70	10.00	2085.57	453.39	-1679.57	327.14 S	314.05W	3.24
2269.00	43.90	227.90	10.00	2092.79	460.29	-1686.79	331.74 S	319.21W	1.89
2278.00	44.90	226.60	9.00	2099.22	466.59	-1693.22	336.02 S	323.83W	4.51
2288.00	46.10	226.00	10.00	2106.23	473.72	-1700.23	340.95 S	328.99W	3.82
2298.00	47.40	225.40	10.00	2113.08	481.00	-1707.08	346.03 S	334.20W	4.11
2307.00	48.00	225.70	9.00	2119.14	487.66	-1713.14	350.69 S	338.96W	2.13
2317.00	48.00	225.50	10.00	2125.83	495.09	-1719.83	355.89 S	344.27W	0.45
2327.00	47.70	226.00	10.00	2132.54	502.50	-1726.54	361.07 S	349.58W	1.43
2336.00	47.60	226.70	9.00	2138.60	509.15	-1732.60	365.66 S	354.39W	1.76
2346.00	47.10	227.50	10.00	2145.38	516.50	-1739.38	370.67 S	359.78W	2.32
2356.00	46.60	227.80	10.00	2152.22	523.79	-1746.22	375.58 S	365.17W	1.64
2365.00	46.10	228.60	9.00	2158.43	530.29	-1752.43	379.92 S	370.02W	2.55
2375.00	45.70	227.40	10.00	2165.39	537.46	-1759.39	384.73 S	375.36W	2.85
2384.00	45.20	226.70	9.00	2171.70	543.87	-1765.70	389.10 S	380.05W	2.35
2393.00	45.30	226.30	9.00	2178.04	550.26	-1772.04	393.50 S	384.69W	1.00
2403.00	45.70	224.50	10.00	2185.05	557.39	-1779.05	398.50 S	389.77W	4.03
2419.00	46.30	224.10	16.00	2196.16	568.90	-1790.16	406.74 S	397.81W	1.25
2429.00	46.80	223.50	10.00	2203.04	576.16	-1797.04	411.98 S	402.83W	1.99
2439.00	46.80	224.10	10.00	2209.89	583.45	-1803.89	417.24 S	407.88W	1.31
2448.00	46.30	224.10	9.00	2216.07	589.98	-1810.07	421.93 S	412.42W	1.67
2457.00	46.00	225.50	9.00	2222.31	596.47	-1816.31	426.54 S	417.00W	3.51
2467.00	45.70	225.90	10.00	2229.28	603.64	-1823.28	431.55 S	422.13W	1.25
2477.00	45.40	226.80	10.00	2236.28	610.78	-1830.28	436.48 S	427.30W	2.13
2487.00	45.50	228.20	10.00	2243.29	617.90	-1837.29	441.29 S	432.55W	3.01
2496.00	45.50	228.20	9.00	2249.60	624.31	-1843.60	445.57 S	437.34W	0.00

Halliburton Drilling Systems

Survey Report

Page 7

Date: 12/02/98

Wellpath ID: 97d007s4

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	Course Length (m)	TVD (m)	Vertical Section (m)	Subsea Depth (m)	T O T A L Rectangular Offsets (m)		DLS (dg/30m)
2506.00	45.40	228.10	10.00	2256.62	631.42	-1850.62	450.33 S	442.64W	0.37
2516.00	45.60	229.70	10.00	2263.63	638.54	-1857.63	455.01 S	448.02W	3.48
2525.00	45.60	229.40	9.00	2269.92	644.95	-1863.92	459.19 S	452.91W	0.71
2535.00	45.50	229.00	10.00	2276.93	652.07	-1870.93	463.85 S	458.32W	0.91
2544.00	45.30	230.30	9.00	2283.25	658.46	-1877.25	468.00 S	463.20W	3.16
2555.00	45.20	230.30	11.00	2290.99	666.23	-1884.99	472.99 S	469.21W	0.27
2564.00	44.80	230.20	9.00	2297.35	672.57	-1891.35	477.06 S	474.10W	1.35
2574.00	44.80	229.00	10.00	2304.45	679.60	-1898.45	481.62 S	479.47W	2.54
2583.00	45.30	228.10	9.00	2310.81	685.95	-1904.81	485.84 S	484.24W	2.70
2593.00	45.90	227.10	10.00	2317.80	693.09	-1911.80	490.66 S	489.52W	2.80
2603.00	46.70	225.50	10.00	2324.71	700.32	-1918.71	495.65 S	494.74W	4.22
2612.00	46.70	224.10	9.00	2330.89	706.87	-1924.89	500.30 S	499.36W	3.40
2622.00	46.50	223.50	10.00	2337.76	714.13	-1931.76	505.55 S	504.39W	1.44
2632.00	46.60	224.10	10.00	2344.63	721.39	-1938.63	510.79 S	509.41W	1.34
2641.00	46.30	224.50	9.00	2350.84	727.91	-1944.84	515.45 S	513.97W	1.39
2651.00	45.70	223.80	10.00	2357.78	735.10	-1951.78	520.61 S	518.98W	2.35
2660.00	44.90	223.40	9.00	2364.11	741.50	-1958.11	525.25 S	523.39W	2.83
2670.00	44.30	223.30	10.00	2371.23	748.52	-1965.23	530.35 S	528.21W	1.81
2680.00	44.30	224.70	10.00	2378.39	755.50	-1972.39	535.38 S	533.06W	2.93
2689.00	44.30	224.70	9.00	2384.83	761.79	-1978.83	539.84 S	537.48W	0.00
2699.00	44.50	225.30	10.00	2391.98	768.78	-1985.98	544.79 S	542.43W	1.40
2709.00	44.60	225.80	10.00	2399.10	775.80	-1993.10	549.70 S	547.44W	1.09
2718.00	44.70	225.40	9.00	2405.50	782.12	-1999.50	554.13 S	551.96W	0.99
2728.00	44.80	226.60	10.00	2412.61	789.16	-2006.61	559.02 S	557.02W	2.55
2738.00	45.10	227.60	10.00	2419.68	796.22	-2013.68	563.83 S	562.20W	2.30
2747.00	45.40	228.00	9.00	2426.02	802.60	-2020.02	568.12 S	566.93W	1.38
2756.00	45.40	229.30	9.00	2432.34	809.00	-2026.34	572.36 S	571.74W	3.09
2766.00	44.80	230.00	10.00	2439.40	816.06	-2033.40	576.94 S	577.14W	2.34
2776.00	43.80	229.30	10.00	2446.56	823.02	-2040.56	581.46 S	582.46W	3.34
2785.00	43.00	229.80	9.00	2453.09	829.18	-2047.09	585.48 S	587.17W	2.90
2795.00	42.50	227.90	10.00	2460.44	835.96	-2054.44	589.94 S	592.28W	4.15
2804.00	42.20	228.20	9.00	2467.09	842.01	-2061.09	593.99 S	596.79W	1.21
2814.00	42.20	227.00	10.00	2474.50	848.72	-2068.50	598.52 S	601.75W	2.42
2827.00	42.40	226.80	13.00	2484.11	857.47	-2078.11	604.50 S	608.14W	0.56
2836.00	43.20	227.60	9.00	2490.72	863.58	-2084.72	608.66 S	612.62W	3.22
2845.00	43.40	226.90	9.00	2497.27	869.74	-2091.27	612.85 S	617.16W	1.73
2855.00	43.30	226.50	10.00	2504.54	876.60	-2098.54	617.55 S	622.15W	0.88
2864.00	43.10	226.10	9.00	2511.10	882.76	-2105.10	621.81 S	626.61W	1.13
2874.00	43.30	226.50	10.00	2518.39	889.61	-2112.39	626.54 S	631.56W	1.02

Halliburton Drilling Systems

Survey Report

Page 8

Date: 12/02/98

Wellpath ID: 97d007s4

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	Course Length (m)	TVD (m)	Vertical Section (m)	Subsea Depth (m)	TOTAL Rectangular Offsets (m)		DLS (dg/30m)
2883.00	43.40	226.40	9.00	2524.93	895.78	-2118.93	630.80 S	636.03W	0.40
2893.00	43.30	225.80	10.00	2532.20	902.65	-2126.20	635.56 S	640.98W	1.27
2903.00	43.70	224.80	10.00	2539.46	909.53	-2133.46	640.40 S	645.87W	2.39
2913.00	44.00	224.10	10.00	2546.67	916.46	-2140.67	645.34 S	650.72W	1.71
2921.00	44.80	222.40	8.00	2552.39	922.05	-2146.39	649.42 S	654.56W	5.38
2931.00	45.30	222.20	10.00	2559.45	929.12	-2153.45	654.66 S	659.32W	1.56
2940.00	45.80	223.80	9.00	2565.75	935.54	-2159.75	659.35 S	663.70W	4.16
2950.00	46.10	222.50	10.00	2572.71	942.72	-2166.71	664.60 S	668.62W	2.94
2959.00	46.40	222.10	9.00	2578.93	949.22	-2172.93	669.41 S	672.99W	1.39
2969.00	46.30	220.90	10.00	2585.83	956.44	-2179.83	674.82 S	677.79W	2.62
2978.00	45.40	220.60	9.00	2592.10	962.88	-2186.10	679.72 S	682.00W	3.08
2988.00	44.80	220.00	10.00	2599.16	969.94	-2193.16	685.12 S	686.58W	2.21
2998.00	44.80	220.10	10.00	2606.26	976.96	-2200.26	690.51 S	691.12W	0.21
3013.00	45.20	220.40	15.00	2616.86	987.53	-2210.86	698.61 S	697.97W	0.91
3023.00	45.20	220.60	10.00	2623.91	994.60	-2217.91	704.00 S	702.58W	0.43
3032.00	44.90	219.70	9.00	2630.27	1000.95	-2224.27	708.87 S	706.69W	2.35
3036.00	44.80	219.70	4.00	2633.10	1003.76	-2227.10	711.04 S	708.49W	0.75
3045.00	44.90	219.60	9.00	2639.48	1010.08	-2233.48	715.93 S	712.54W	0.41
3054.00	44.60	219.50	9.00	2645.88	1016.39	-2239.88	720.81 S	716.57W	1.03
3064.00	44.50	219.20	10.00	2653.00	1023.37	-2247.00	726.24 S	721.02W	0.70
3073.00	44.30	219.40	9.00	2659.43	1029.63	-2253.43	731.11 S	725.01W	0.81
3085.00	44.30	219.60	12.00	2668.02	1037.98	-2262.02	737.58 S	730.34W	0.35
3095.00	43.90	219.80	10.00	2675.20	1044.91	-2269.20	742.93 S	734.79W	1.27
3122.00	40.40	214.70	27.00	2695.22	1062.85	-2289.22	757.33 S	745.77W	5.44
3138.00	36.90	208.80	16.00	2707.72	1072.57	-2301.72	765.81 S	751.03W	9.52
3157.00	37.00	208.70	19.00	2722.90	1083.53	-2316.90	775.82 S	756.53W	0.18
3185.00	37.80	209.50	28.00	2745.15	1099.89	-2339.15	790.68 S	764.80W	1.00
3195.00	38.10	209.90	10.00	2753.03	1105.82	-2347.03	796.02 S	767.85W	1.16
3204.00	38.10	207.60	9.00	2760.12	1111.15	-2354.12	800.89 S	770.52W	4.73
3214.00	38.40	207.70	10.00	2767.97	1117.06	-2361.97	806.37 S	773.39W	0.92
3224.00	38.50	208.10	10.00	2775.80	1123.00	-2369.80	811.87 S	776.30W	0.80
3253.00	34.70	206.30	29.00	2799.08	1139.47	-2393.08	827.24 S	784.21W	4.08
3282.00	33.40	202.80	29.00	2823.11	1154.68	-2417.11	842.00 S	790.96W	2.43
3311.00	34.60	204.90	29.00	2847.15	1169.80	-2441.15	856.82 S	797.52W	1.74
3340.00	35.30	204.80	29.00	2870.92	1185.40	-2464.92	871.90 S	804.51W	0.73
3369.00	35.40	205.00	29.00	2894.57	1201.15	-2488.57	887.12 S	811.57W	0.16
3397.00	35.60	205.30	28.00	2917.37	1216.45	-2511.37	901.84 S	818.48W	0.28
3416.00	35.60	204.80	19.00	2932.82	1226.84	-2526.82	911.86 S	823.16W	0.46
3426.00	35.50	203.90	10.00	2940.95	1232.28	-2534.95	917.15 S	825.56W	1.60

Halliburton Drilling Systems

Survey Report

Page 9

Date: 12/02/98

Wellpath ID: 97d007s4

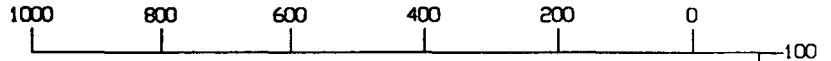
Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	Course Length (m)	TVD (m)	Vertical Section (m)	Subsea Depth (m)	TOTAL Rectangular Offsets (m)		DLS (dg/30m)
3436.00	35.50	204.50	10.00	2949.09	1237.71	-2543.09	922.45 S	827.94W	1.05
3445.00	35.70	205.70	9.00	2956.41	1242.64	-2550.41	927.19 S	830.16W	2.42
3455.00	36.00	204.50	10.00	2964.52	1248.14	-2558.52	932.50 S	832.65W	2.29
3465.00	36.30	204.30	10.00	2972.59	1253.67	-2566.59	937.87 S	835.08W	0.97
3474.00	36.60	205.20	9.00	2979.83	1258.68	-2573.83	942.72 S	837.32W	2.04
3482.00	36.80	204.70	8.00	2986.25	1263.17	-2580.25	947.06 S	839.34W	1.35
EXTRAPOLATED TO T.D.									
3500.00	37.26	203.59	18.00	3000.62	1273.30	-2594.62	956.95 S	843.77W	1.35

RANGER OIL LIMITED
 RANGER FORT LIARD P - 66 - A
 IN UNIT P SECTION 66
 UID: 300P666040123300

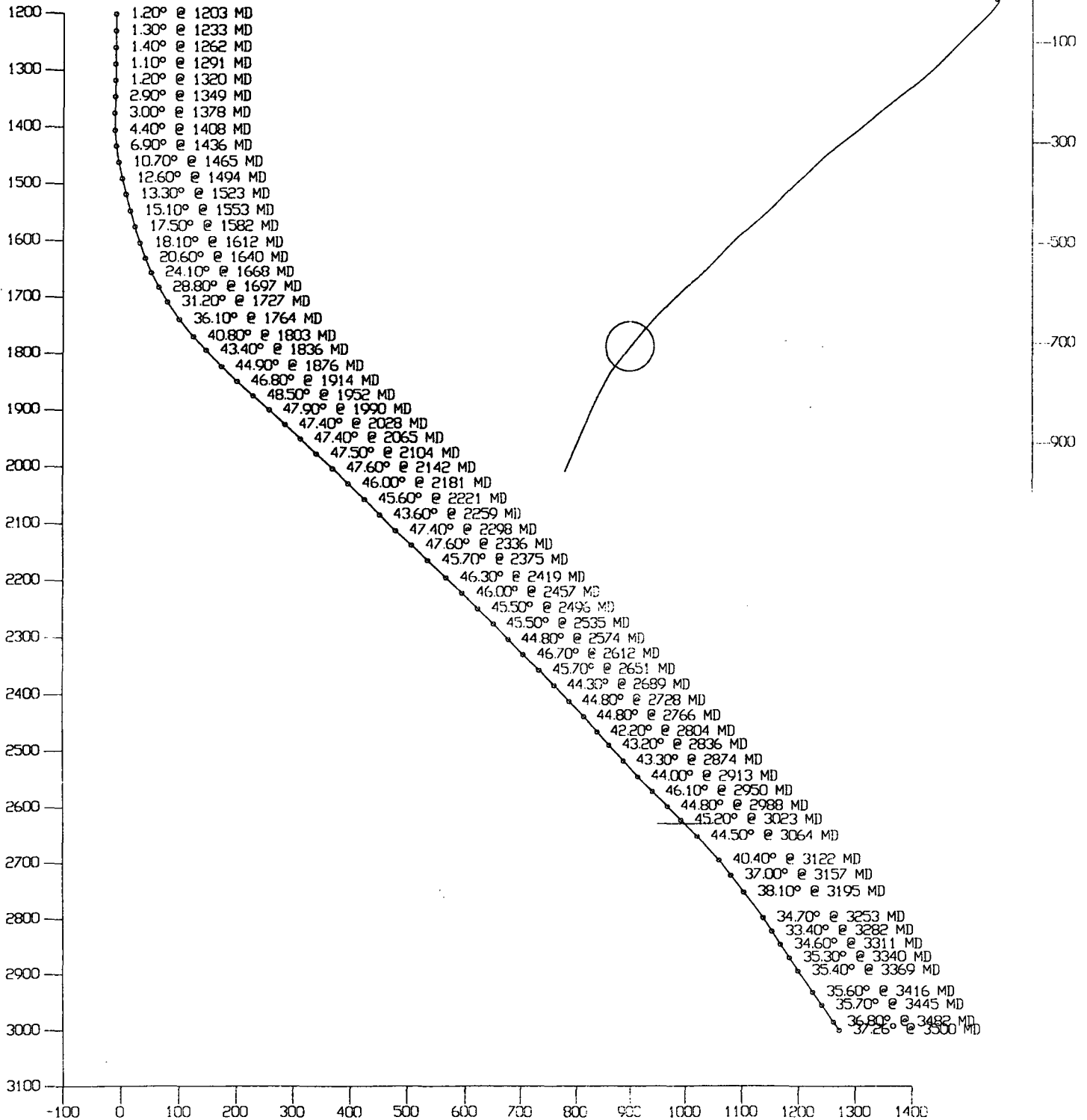


18/02/98 8:21 am

HORIZONTAL VIEW (GRID NORTH)
 SCALE 200 m. / DIVISION
 SURVEY REF: WELLHEAD



VERTICAL VIEW
 SCALE 100 m. / DIVISION
 TVD REF: WELLHEAD
 VERTICAL SECTION REF: WELLHEAD



VERTICAL SECTION PLANE: 225.00°



POST WELL SUMMARY

From January 23, 1998 To February 5, 1998

Page 1
2/12/98 3:22:48 pm
Version VER2.2.4

Job No.: 97d007s4
Operator: RANGER OIL LIMITED.
Field: FORT LIARD
Well: 97d007s4

AFE No.: E6D-015
Location:
MWD Operator(s): DEAN MCNEIL, DEON GAULTON
Dir'l Driller(s): JIM MCFARLANE

Company Man: ART SCHRITT

METERAGE DRILLED	DRILLING HOURS	AVERAGE ROP	DRILLING DAYS	AVERAGE MTG/DAY	AVERAGE DRILLING HRS/DAY
383.50	135.75	2.83	12.46	30.77	10.89

RUN No.	BHA No.	DEPTH IN	ANGLE IN	DEPTH OUT	ANGLE OUT	METERAGE DRILLED	DRILLING HOURS	AVERAGE ROP	AVERAGE BUILD	FLOW m3/min	ON-BOTTOM kpa	MAX. BH TEMP °C	MOTOR SERIAL No.
1	1	3115.00	41.29	3115.00	41.29	0.00	0.00	0.00	---	0	0	---	625-17006
1	2	3116.50	41.09	3140.00	36.91	23.50	29.83	0.79	-5.34	0	7000	---	625-14-043
1	3	3140.00	36.91	3246.00	35.61	106.00	32.08	3.30	-0.37	0	7624	---	HT64051X
1	4	3246.00	35.61	3500.00	37.26	254.00	73.83	3.44	0.19	0	8470	---	HT64051X

RUN No.	BHA No.	BIT SIZE(mm)	BIT MODEL	BIT NOZZLES (mm)	MOTOR Description_CAP	STAB O.D.	DISTANCE CTR TO BIT	REASON FOR TRIP
1	1	215.000	D12ST		161.000 mm HIGH SPEED X 1.83° bend	---	---	<undefined>
1	2	215.000	D12ST		158.000 mm HIGH SPEED X 1.83° bend	---	---	<undefined>
1	3	215.900	EHP51A	11.1 11.1 11.9	164.000 mm F2000 X 1.50° bend	---	---	<undefined>
1	4	215.900	SS86F	11.1 11.1 11.1	164.000 mm F2000 X 1.50° bend	---	---	<undefined>

RUN No.	BHA No.	SLIDE MTG	ROTATE MTG	SLIDE HRS	ROTATE HRS	SLIDE ROP	ROTATE ROP	CIRCULATE HRS	COMMENTS
1	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1	2	23.50	0.00	29.83	0.00	0.79	0.00	30.58	
1	3	4.00	102.00	1.50	30.58	2.67	3.34	38.25	
1	4	3.00	251.00	1.17	72.67	2.57	3.45	81.58	



Job No.: 97d007s4
Operator: RANGER OIL LIMITED.
Field: FORT LIARD
Well: 97d007s4
Run No.: 1

AFE No.: E6D-015
Location:
MWD Operator(s): DEAN MCNEIL, DEON GAULTON
Dir'l Driller(s): JIM MCFARLANE
BHA No.: 1

Company Man: ART SCHRITT

Hole Size: 215.900 mm

BOTTOM HOLE ASSEMBLY

Motor Size / Type: 161.000 mm / HIGH SPEED

Serial No.: 625-17006

Circulating : 0.00 hrs

No.	Serial No.	Tool Description	OD (mm)	ID (mm)	Length (m)	Total Length (m)	Connections Up	Down	Conn
1	JQ7603	(BIT) SMITH,D12ST,Natural Diamond	215.000		0.30	0.30	4 1/2 Reg		P
2	625-17006	(MTR) VECTOR,HIGH SPEED, 1.830° Bend	161.000		7.80	8.10	4 1/2 Reg	4 1/2 Reg	B/B
3	XO6019	(SUB) Cross-Over Sub	159.000	62.000	0.33	8.43	4 1/2 Reg	4 1/2 Reg	P/P
4	PC5327	(MWD) PULSER D.C. battery(b0024), das(das-4793), inter. plug/tandem sub(dipl-1272), muleshoe stinger(ml-001), pulser, mud operated(tp-4339), collar(pc-5327), float sub(xs-4096), muleshoe sub(ml-4104)	166.000		5.09	13.52	4 1/2 IF	4 1/2 Reg	B/B
5	6650-3055	(DC) Flex Non-Mag Drill Collar	163.000	73.000	9.20	22.72	4 1/2 IF	4 1/2 IF	B/P
6	6250-304685	(DC) Flex Non-Mag Drill Collar	154.000	74.000	9.26	31.98	4 1/2 IF	4 1/2 IF	B/P
7	10708	(JAR) FASTER Jar	174.000	72.000	6.09	38.07	4 1/2 IF	4 1/2 IF	B/P
8	RIG	(HW) 24 jts, Hevi-Wate Drill Pipe	161.000	73.000	220.06	258.13	4 1/2 IF	4 1/2 IF	B/P

BIT DATA

Manufacturer: SMITH
Bit Type: Natural Diamond
Serial No.: JQ7603
Hours On Bit : 0.00

IADC:
Depth In: 3115.00 - 3115.00 (0.00) m
Nozzles: mm
MTG On Bit : 0.00

Model: D12ST

Length: 0.30 m
Gage Length: 0.00 mm
TFA: 0.000 mm2

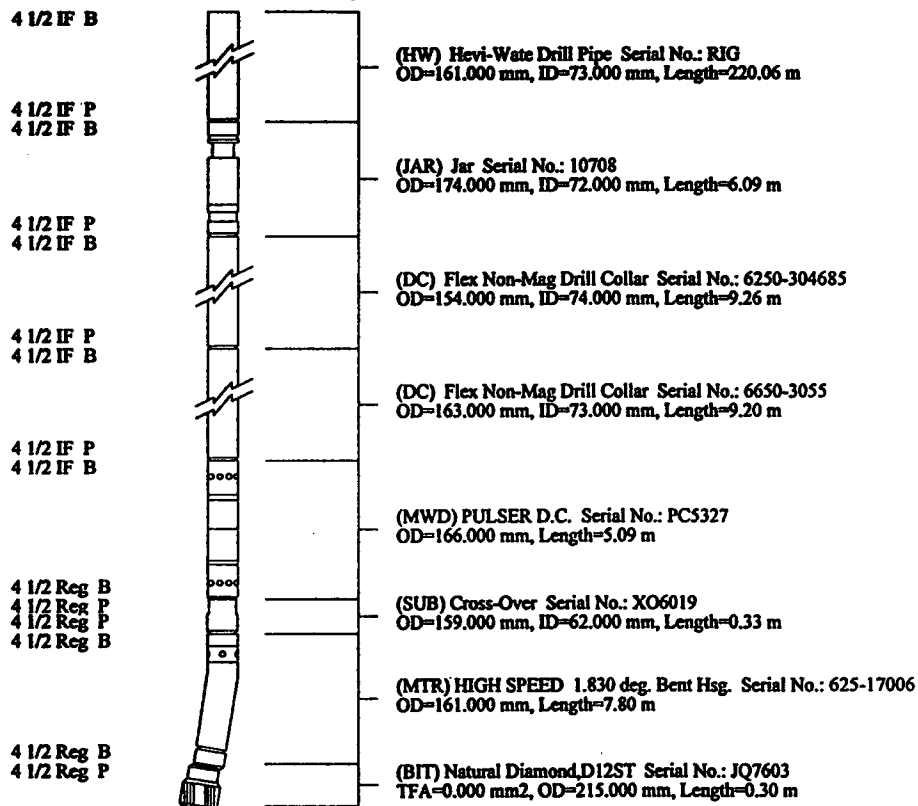


Bottom Hole Assembly #1 215.900 mm Hole Size

Company: H.D.S.
Field: FORT LIARD
Location:
Well: 97d007s4
Run No.: 1
Company Man: ART SCHRITT
MWD Operator(s): DEAN MCNEIL, DEON GAULTON
Directional Driller(s): JIM MCFARLANE

Assembly Type: <undefined>

Total Length = 258.13 m



**HALLIBURTON****BHA REPORT**

From January 27, 1998 To January 28, 1998

Page 1
2/12/98 3:23:38 pm
Version VER2.2.4Job No.: 97d007s4
Operator: RANGER OIL LIMITED.
Field: FORT LIARD
Well: 97d007s4
Run No.: 1AFE No.: E6D-015
Location:
MWD Operator(s): DEAN MCNEIL, DEON GAULTON
Dir'l Driller(s): JIM MCFARLANE
BHA No.: 2Company Man: ART SCHRITT
Hole Size: 215.900 mm**BOTTOM HOLE ASSEMBLY**

Motor Size / Type: 158.000 mm / HIGH SPEED

Serial No.: 625-14-043

Circulating : 30.58 hrs
Flow Rate : 1.20 m3/min
SPM : 103.00Sliding(100.0%): 23.50 m @ 29.83 hrs ==> 0.79 m/hr
Rotating(0.0%): 0.00 m @ 0.00 hrs ==> 0.00 m/hr
Total Drilled: 23.50 m @ 29.83 hrs ==> 0.79 m/hr

No.	Serial No.	Tool Description	OD (mm)	ID (mm)	Length (m)	Total Length (m)	Connections Up	Down	Conn
1	JQ7603	(BIT) SMITH,D12ST,Natural Diamond	215.000		0.30	0.30	4 1/2 Reg		P
2	625-14-043	(MTR) VECTOR,HIGH SPEED, 1.830° Bend	158.000		7.62	7.92	4 1/2 Reg	4 1/2 Reg	B/B
3	XO6019	(SUB) Cross-Over Sub	159.000	62.000	0.33	8.25	4 1/2 Reg	4 1/2 Reg	P/P
4	PC5327	(MWD) PULSER D.C. battery(b0024), das(das-4793), inter. plug/tandem sub(dipl-1272), muleshoe stinger(ml-001), pulser, mud operated(tp-4339), collar(pc-5327), float sub(xs-4096), muleshoe sub(ml-4104)	166.000		5.09	13.34	4 1/2 IF	4 1/2 Reg	B/B
5	6650-3055	(DC) Flex Non-Mag Drill Collar	163.000	73.000	9.20	22.54	4 1/2 IF	4 1/2 IF	B/P
6	6250-304685	(DC) Flex Non-Mag Drill Collar	154.000	74.000	9.26	31.80	4 1/2 IF	4 1/2 IF	B/P
7	10708	(JAR) FASTER Jar	174.000	72.000	6.09	37.89	4 1/2 IF	4 1/2 IF	B/P
8	RIG	(HW) 24 Jts, Hevi-Wate Drill Pipe	161.000	73.000	220.06	257.95	4 1/2 IF	4 1/2 IF	B/P

BIT DATAManufacturer: SMITH
Bit Type: Natural Diamond
Serial No.: JQ7603
Hours On Bit : 29.83IADC:
Depth In: 3116.50 - 3140.00 (23.50) m
Nozzles: mm
MTG On Bit : 23.50

Model: D12ST

Length: 0.30 m
Gage Length: 0.00 mm
TFA: 0.000 mm2

PERFORMANCE REPORT

From January 27, 1998 To January 28, 1998

Job No.: 97d007s4
Operator: RANGER OIL LIMITED.
Field: FORT LIARD
Well: 97d007s4
Run No.: 1

AFE No.: E6D-015
Location:
MWD Operator(s): DEAN MCNEIL, DEON GAULTON
Dir'l Driller(s): JIM MCFARLANE
BHA No.: 2

Company Man: ART SCHRITT

Hole Size: 215.900 mm

Interval	Depth	Incl	Azi	Interval Change		DLS	S/R	Tool	RPM	Rotary Torque			WOB	Hookload			Pumps	Flow	Pressure		Comments
End		deg	deg	Build	Turn			Face		Min	Max	Off	dN	PU	SO	Rot	SPM	m3/min	On	Off	
Time	m			deg/30n				deg		N-m	N-m	N-m		dN	dN	dN			kpa	kpa	
January 27, 1998																					
12:15	3126	39.5	213.3	-6.77	-10.44	9.52	S	240	0	0	0	0	2000	140	120	127	0	0	0	0	TIME DRILLING OFF CEMENT PLUG
24:00	3134	37.7	210.4	0.13	-0.41	0.00	S	240	0	0	0	0	2000	140	120	127	103	1	7000	6000	
January 28, 1998																					
02:15	3136	37.3	209.6	0.04	-0.11	0.00	S	240	0	0	0	0	2000	140	120	127	103	1	7000	6000	
06:25	3140	36.9	208.8	6.76	10.79	9.34	S	240	0	0	0	0	2000	140	120	127	103	1	7000	6000	

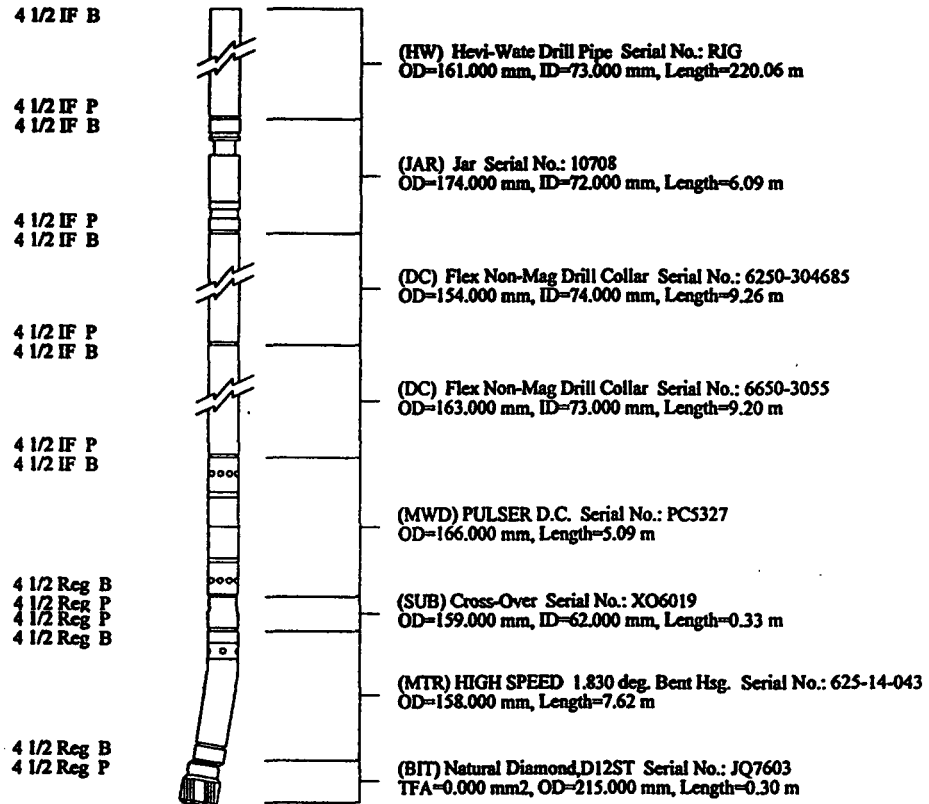


Bottom Hole Assembly #2 215.900 mm Hole Size

Company: H.D.S.
Field: FORT LIARD
Location:
Well: 97d007s4
Run No.: 1
Company Man: ART SCHRITT
MWD Operator(s): DEAN MCNEIL, DEON GAULTON
Directional Driller(s): JIM MCFARLANE

Assembly Type: <undefined>

Total Length = 257.95 m



BHA REPORT

From January 28, 1998 To January 31, 1998

Page 1
2/12/98 3:25:41 pm
Version VER2.2.4

Job No.: 97d007s4
Operator: RANGER OIL LIMITED.
Field: FORT LIARD
Well: 97d007s4
Run No.: 1

AFE No.: E6D-015
Location:
MWD Operator(s): DEAN MCNEIL, DEON GAULTON
Dir'l Driller(s): JIM MCFARLANE
BHA No.: 3

Company Man: ART SCHRITT

Hole Size: 215.900 mm

BOTTOM HOLE ASSEMBLY

Motor Size / Type: 164.000 mm / F2000

Sliding(4.7%): 4.00 m @ 1.50 hrs ⇒ 2.67 m/hr

Rotating(95.3%): 102.00 m @ 30.58 hrs ⇒ 3.34 m/hr

Total Drilled: 106.00 m @ 32.08 hrs ⇒ 3.30 m/hr

Serial No.: HT64051X

Circulating : 38.25 hrs

Flow Rate : 1.20 m3/min

SPM : 103.00

No.	Serial No.	Tool Description	OD (mm)	ID (mm)	Length (m)	Total Length (m)	Connections Up	Down	Conn
1	TB6005	(BIT) REED,EHP51A,TCI	215.900		0.25	0.25	4 1/2 Reg		P
2	HT64051X	(MTR) H.D.S.,F2000, 1.500° Bend	164.000		6.92	7.17	4 1/2 Reg	4 1/2 Reg	B/B
3	XO6019	(SUB) Cross-Over Sub	159.000	62.000	0.33	7.50	4 1/2 Reg	4 1/2 Reg	P/P
4	PC5327	(MWD) PULSER D.C. battery(b0024), das(das-4793), inter. plug/tandem sub(dipl-1272), muleshoe stinger(mi-001), pulser, mud operated(tp-4339), collar(pc-5327), float sub(xs-4096), muleshoe sub(mi-4104)	166.000		5.09	12.59	4 1/2 IF	4 1/2 Reg	B/B
5	6650-3055	(DC) Flex Non-Mag Drill Collar	163.000	73.000	9.20	21.79	4 1/2 IF	4 1/2 IF	B/P
6	6250-304685	(DC) Flex Non-Mag Drill Collar	154.000	74.000	9.26	31.05	4 1/2 IF	4 1/2 IF	B/P
7	10708	(JAR) FASTER Jar	174.000	72.000	6.09	37.14	4 1/2 IF	4 1/2 IF	B/P
8	RIG	(HW) 24 jts, Hevi-Wate Drill Pipe	161.000	73.000	220.06	257.20	4 1/2 IF	4 1/2 IF	B/P

BIT DATA

Manufacturer: REED

Bit Type: TCI

Serial No.: TB6005

Hours On Bit : 32.08

IADC: 517

Depth In: 3140.00 - 3246.00 (106.00) m

Nozzles: 11.1(2),11.9 mm

MTG On Bit : 106.00

Model: EHP51A

Length: 0.25 m

Gage Length: 0.00 mm

TFA: 304.758 mm2

PERFORMANCE REPORT

From January 28, 1998 To January 31, 1998

Job No.: 97d007s4
Operator: RANGER OIL LIMITED.
Field: FORT LIARD
Well: 97d007s4
Run No.: 1

AFE No.: E6D-015
Location:
MWD Operator(s): DEAN MCNEIL, DEON GAULTON
Dir'l Driller(s): JIM MCFARLANE
BHA No.: 3

Company Man: ART SCHRITT

Hole Size: 215.900 mm

Interval End Time	Depth m	Incl deg	Azi deg	Interval Change			S/R	Tool Face deg	RPM	Rotary Torque			WOB dN	Hookload			Rot dN	Pumps		Pressure		Comments
				Build deg/30n	Turn deg/30n	DLS				Min N-m	Max N-m	Off N-m		PU dN	SO dN	SPM		Flow m3/min	On kpa	Off kpa		
January 29, 1998																						
06:35	3154	37.0	208.7	0.16	-0.16	0.18	R	0	0	0	0	0	2000	140	120	127	103	1	7000	6000		
07:00	3156	37.0	208.7	0.00	0.00	0.00	R	0	0	0	0	0	2000	140	120	127	103	1	7000	6000		
09:05	3164	37.2	208.9	0.70	1.03	0.82	R	0	35	0	0	0	6000	140	120	127	103	1	7800	7000		
12:30	3165	37.2	208.9	0.00	0.00	0.00	R	0	35	0	0	0	6000	140	120	127	103	1	7800	7000		
15:20	3175	37.5	209.2	0.00	-0.01	0.00	R	0	35	0	0	0	6000	140	120	127	103	1	7800	7000		
18:10	3184	37.8	209.5	0.00	-0.01	0.00	R	0	35	0	0	0	6000	140	120	127	103	1	7800	7000		
20:55	3193	38.0	209.8	0.04	0.34	0.16	R	0	35	0	0	0	6000	140	120	127	103	1	7800	7000		
24:00	3194	38.1	209.9	0.00	0.00	0.00	R	0	35	0	0	0	6000	140	120	127	103	1	7800	7000		
January 30, 1998																						
03:15	3203	38.1	207.9	-0.91	-8.87	3.57	R	0	35	0	0	0	6000	140	120	127	103	1	7800	7000		
07:20	3213	38.4	207.7	0.91	7.97	3.81	R	0	35	0	0	0	6000	140	120	127	103	1	7800	7000		
10:25	3222	38.5	208.0	-0.60	0.90	0.11	R	0	35	0	0	0	6000	140	120	127	103	1	7800	7000		
17:00	3232	37.4	207.6	-4.24	-2.95	3.28	R	0	35	0	0	0	6000	140	120	127	103	1	7800	7000		
18:35	3236	36.9	207.4	0.00	-0.02	0.00	S	0	35	0	0	0	6000	140	120	127	103	1	7800	7000		
19:55	3242	36.1	207.0	0.00	-0.03	0.00	R	0	35	0	0	0	6000	140	120	127	103	1	7800	7000		
21:20	3246	35.6	206.8	0.00	-0.02	0.00	R	0	35	0	0	0	6000	140	120	127	103	1	7800	7000		

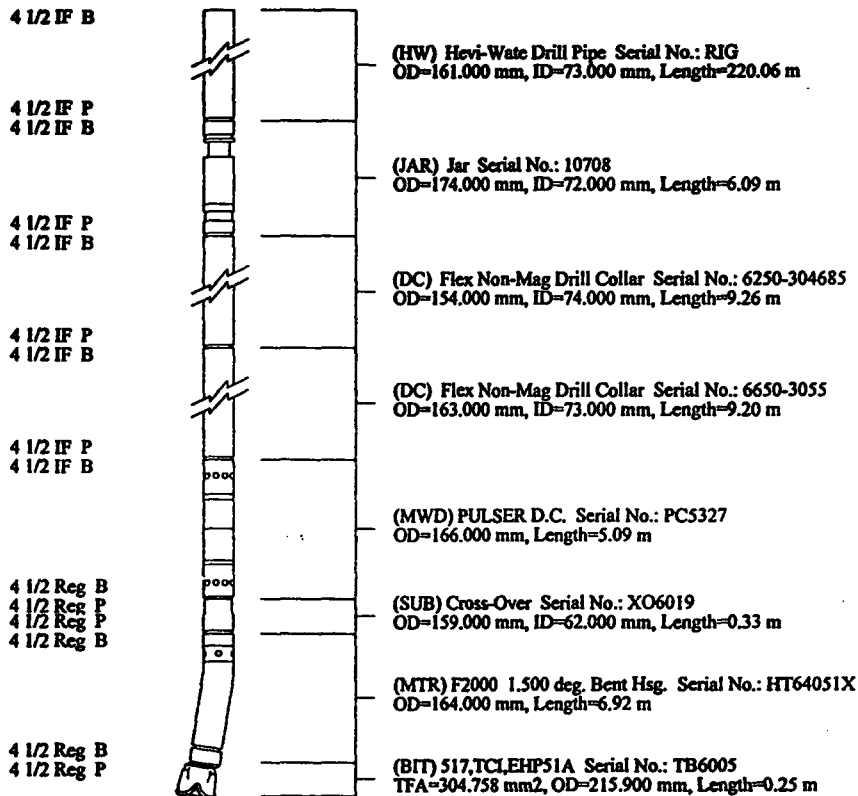


Bottom Hole Assembly #3 215.900 mm Hole Size

Company: H.D.S.
Field: FORT LIARD
Location:
Well: 97d007s4
Run No.: 1
Company Man: ART SCHRITT
MWD Operator(s): DEAN MCNEIL, DEON GAULT
Directional Driller(s): JIM MCFARLANE

Assembly Type: <undefined>

Total Length = 257.20 m



**HALLIBURTON****BHA REPORT**

From January 31, 1998 To February 5, 1998

Page 1
2/12/98 3:25:59 pm
Version VER2.2.4Job No.: 97d007s4
Operator: RANGER OIL LIMITED.
Field: FORT LIARD
Well: 97d007s4
Run No.: 1AFE No.: E6D-015
Location:
MWD Operator(s): DEAN MCNEIL, DEON GAULTON
Dir'l Driller(s): JIM MCFARLANE
BHA No.: 4Company Man: ART SCHRITT
Hole Size: 215.900 mm**BOTTOM HOLE ASSEMBLY**

Motor Size / Type: 164.000 mm / F2000

Serial No.: HT64051X

Circulating : 81.58 hrs
Flow Rate : 1.20 m3/min
SPM : 103.00Sliding(1.6%): 3.00 m @ 1.17 hrs ==> 2.57 m/hr
Rotating(98.4%): 251.00 m @ 72.67 hrs ==> 3.45 m/hr
Total Drilled: 254.00 m @ 73.83 hrs ==> 3.44 m/hr

No.	Serial No.	Tool Description	OD (mm)	ID (mm)	Length (m)	Total Length (m)	Connections Up	Down	Conn
1	629161	(BIT) SECURITY,SS86F,TCI	215.900		0.25	0.25	4 1/2 Reg		P
2	HT64051X	(MTR) H.D.S.,F2000, 1.500° Bend	164.000		6.92	7.17	4 1/2 Reg	4 1/2 Reg	B/B
3	XO6019	(SUB) Cross-Over Sub	159.000	62.000	0.33	7.50	4 1/2 Reg	4 1/2 Reg	P/P
4	PC5327	(MWD) PULSER D.C. battery(b0024), das(das-4793), inter. plug/tandem sub(dipl-1272), muleshoe stinger(ml-001), pulser, mud operated(tp-4339), collar(pc-5327), float sub(xs-4096), muleshoe sub(ml-4104)	166.000		5.09	12.59	4 1/2 IF	4 1/2 Reg	B/B
5	6650-3055	(DC) Flex Non-Mag Drill Collar	163.000	73.000	9.20	21.79	4 1/2 IF	4 1/2 IF	B/P
6	6250-304685	(DC) Flex Non-Mag Drill Collar	154.000	74.000	9.26	31.05	4 1/2 IF	4 1/2 IF	B/P
7	10708	(JAR) FASTER Jar	174.000	72.000	6.09	37.14	4 1/2 IF	4 1/2 IF	B/P
8	RIG	(HW) 24 Jts, Hevi-Wate Drill Pipe	161.000	73.000	220.06	257.20	4 1/2 IF	4 1/2 IF	B/P

BIT DATAManufacturer: SECURITY
Bit Type: TCI
Serial No.: 629161
Hours On Bit : 73.83IADC: 537
Depth In: 3246.00 - 3500.00 (254.00) m
Nozzles: 11.1(3) mm
MTG On Bit : 254.00

Model: SS86F

Length: 0.25 m
Gage Length: 0.00 mm
TFA: 290.307 mm2

PERFORMANCE REPORT

From January 31, 1998 To February 5, 1998

Job No.: 97d007s4
Operator: RANGER OIL LIMITED.
Field: FORT LIARD
Well: 97d007s4
Run No.: 1

AFE No.: E6D-015
Location:
MWD Operator(s): DEAN MCNEIL, DEON GAULTON
Dir'l Driller(s): JIM MCFARLANE
BHA No.: 4

Company Man: ART SCHRITT

Hole Size: 215.900 mm

Interval End Time	Depth m	Incl deg	Azi deg	Interval Change			S/R	Tool Face deg	RPM	Rotary Torque			Hookload				Pumps		Pressure		Comments	
				Build deg/30n	Turn	DLS				Min N-m	Max N-m	Off N-m	WOB dN	PU dN	SO dN	Rot dN	SPM	Flow m3/min	On kpa	Off kpa		
January 31, 1998																						
15:45	3251	35.0	206.4	-3.93	-1.85	4.08	R	0	35	0	0	0	6000	170	117	150	103	1	8500	7400		
16:10	3252	34.8	206.4	0.00	-0.01	0.00	R	0	35	0	0	0	6000	170	117	150	103	1	8500	7400		
18:35	3261	34.3	205.4	2.55	-1.68	1.65	R	0	35	0	0	0	6000	170	117	150	103	1	8500	7400		
20:35	3271	33.9	204.2	0.02	-0.04	0.00	R	0	35	0	0	0	6000	170	117	150	103	1	8500	7400		
23:20	3279	33.5	203.2	0.01	-0.03	0.00	R	0	35	0	0	0	6000	170	117	150	103	1	8500	7400		
23:55	3280	33.5	203.0	0.00	0.00	0.00	R	0	35	0	0	0	6000	170	117	150	103	1	8500	7400		
February 1, 1998																						
02:05	3290	33.7	203.4	2.58	5.83	0.70	R	0	35	0	0	0	6000	170	117	150	103	1	8500	7400		
03:20	3293	33.9	203.6	0.00	-0.01	0.00	S	0	35	0	0	0	6000	170	117	150	103	1	8500	7400		
03:20	3293	33.9	203.6	0.00	0.00	0.00	S	0	0	0	0	0	6000	170	117	150	103	1	8500	7400		
05:05	3300	34.1	204.1	0.00	-0.02	0.00	R	0	0	0	0	0	6000	170	117	150	103	1	8500	7400		
07:30	3309	34.5	204.8	0.01	-0.02	0.00	R	0	35	0	0	0	6000	170	117	150	103	1	8500	7400		
14:55	3319	34.8	204.9	-0.52	-2.28	1.01	R	0	35	0	0	0	6000	170	117	150	103	1	8500	7400		
17:45	3329	35.0	204.8	0.00	0.00	0.00	R	0	35	0	0	0	6000	170	117	150	103	1	8500	7400		
21:05	3337	35.2	204.8	0.00	0.00	0.00	R	0	35	0	0	0	6000	170	117	150	103	1	8500	7400		
21:25	3338	35.3	204.8	0.00	0.00	0.00	R	0	35	0	0	0	6000	170	117	150	103	1	8500	7400		
24:00	3345	35.3	204.8	-0.62	0.31	0.57	R	0	35	0	0	0	6000	170	117	150	103	1	8500	7400		
February 2, 1998																						
01:20	3348	35.3	204.9	0.00	0.00	0.00	R	0	35	0	0	0	6000	170	117	150	103	1	8500	7400		
04:55	3358	35.4	204.9	0.00	0.00	0.00	R	0	35	0	0	0	6000	170	117	150	103	1	8500	7400		
08:10	3367	35.4	205.0	0.00	0.00	0.00	R	0	35	0	0	0	7000	170	117	150	103	1	8500	7400		
12:05	3377	35.5	205.1	0.11	0.12	0.13	R	0	35	0	0	0	7000	170	117	150	103	1	8500	7400		
14:25	3387	35.5	205.2	0.00	0.00	0.00	R	0	35	0	0	0	7000	170	117	150	103	1	8500	7400		
16:35	3396	35.6	205.3	0.00	0.00	0.00	R	0	35	0	0	0	7000	170	117	150	103	1	8500	7400		
23:30	3406	35.6	205.1	-0.22	-1.11	0.18	R	0	35	0	0	0	7000	170	117	150	103	1	8500	7400		
24:00	3408	35.6	205.0	0.00	0.00	0.00	R	0	35	0	0	0	7000	170	117	150	103	1	8500	7400		
February 3, 1998																						
01:45	3415	35.6	204.8	0.00	0.00	0.00	R	0	35	0	0	0	7000	170	117	150	103	1	8500	7400		
04:00	3424	35.5	204.1	-0.30	-1.91	1.14	R	0	35	0	0	0	7000	170	117	150	103	1	8500	7400		
04:15	3425	35.5	204.0	0.00	0.00	0.00	R	0	35	0	0	0	7000	170	117	150	103	1	8500	7400		
06:15	3434	35.5	204.4	0.30	4.50	0.55	R	0	35	0	0	0	7000	170	117	150	103	1	8500	7400		
08:30	3444	35.7	205.6	0.66	2.20	1.38	R	0	35	0	0	0	7000	170	117	150	103	1	8500	7400		
10:10	3450	35.8	205.1	0.22	-7.62	0.13	R	0	35	0	0	0	7000	170	117	150	103	1	8500	7400		
11:35	3454	36.0	204.6	0.01	0.01	0.00	R	0	35	0	0	0	7000	170	117	150	103	1	8500	7400		
15:30	3463	36.2	204.3	0.00	3.00	1.33	R	0	35	0	0	0	7000	170	117	150	103	1	8500	7400		
18:30	3473	36.6	205.1	0.10	3.60	1.08	R	0	35	0	0	0	7000	170	117	150	103	1	8500	7400		
21:45	3482	36.8	204.7	-0.25	-4.87	0.70	R	0	35	0	0	0	7000	170	117	150	103	1	8500	7400		
22:10	3483	36.8	204.6	0.01	0.01	0.00	R	0	35	0	0	0	7000	170	117	150	103	1	8500	7400		
24:00	3488	37.0	204.3	0.00	0.01	0.00	R	0	35	0	0	0	7000	170	117	150	103	1	8500	7400		
February 4, 1998																						
01:15	3492	37.1	204.1	0.00	0.00	0.00	R	0	35	0	0	0	7000	170	117	150	103	1	8500	7400		

PERFORMANCE REPORT

From January 31, 1998 To February 5, 1998

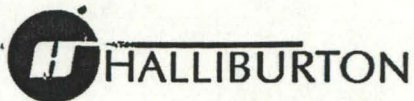
Job No.: 97d007s4
Operator: RANGER OIL LIMITED.
Field: FORT LIARD
Well: 97d007s4
Run No.: 1

AFE No.: E6D-015
Location:
MWD Operator(s): DEAN MCNEIL, DEON GAULTON
Dir'l Driller(s): JIM MCFARLANE
BHA No.: 4

Company Man: ART SCHRITT

Hole Size: 215.900 mm

Interval End Time	Depth m	Incl deg	Azi deg	Interval Change			S/R	Tool Face deg	RPM	Rotary Torque			WOB dN	Hookload			Rot dN	Pumps		Pressure		Comments
				Build	Turn deg/30n	DLS				Min N-m	Max N-m	Off N-m		PU dN	SO dN	SPM		Flow m3/min	On kpa	Off kpa		
04:10	3500	37.3	203.6	0.00	0.01	0.00	R	0	35	0	0	0	7000	170	117	150	103	1	8500	7400		

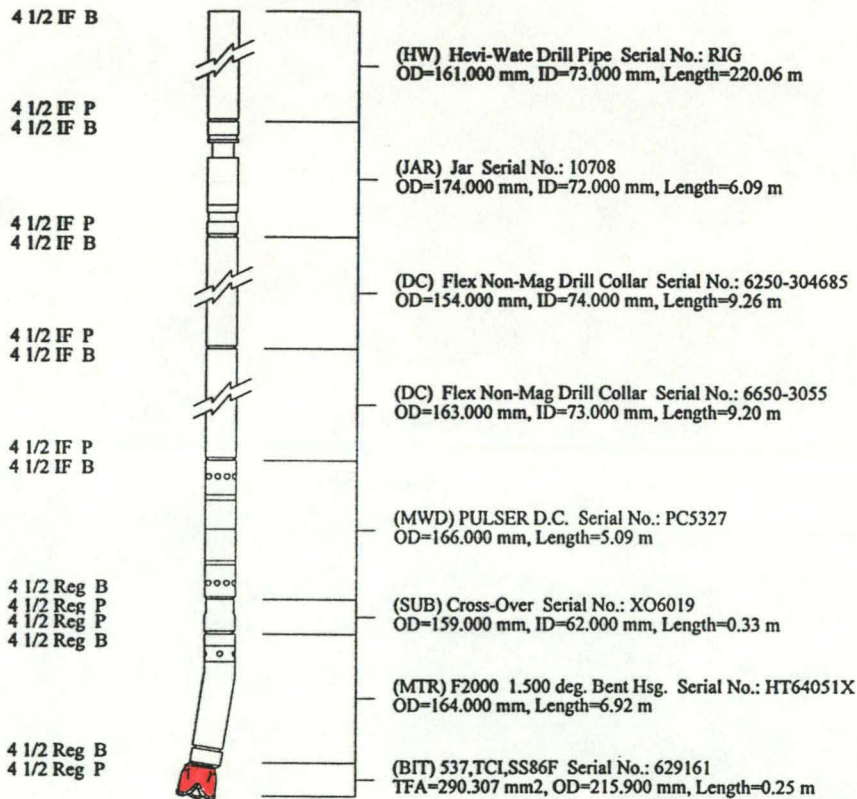


Bottom Hole Assembly #4 215.900 mm Hole Size

Company: H.D.S..
Field: FORT LIARD
Location:
Well: 97d007s4
Run No.: 1
Company Man: ART SCHRITT
MWD Operator(s): DEAN MCNEIL, DEON GAULTO
Directional Driller(s): JIM MCFARLANE

Assembly Type: <undefined>

Total Length = 257.20 m



**HALLIBURTON****DAILY REPORT**

January 23, 1998

Page 1
2/12/98 3:23:08 pm
Version VER2.2.4Job No.: 97d007s4
Operator: RANGER OIL LIMITED.
Field: FORT LIARD
Well: 97d007s4AFE No.: E6D-015
Location:
MWD Operator(s): DEAN MCNEIL, DEON GAULTON
Dir'l Driller(s): JIM MCFARLANE

Company Man: ART SCHRITT

LAST SURVEY

MD	TVD	Incl	Azi	N/S	E/W	Vertical Section	DLS
m	m	deg	deg	m	m	m	deg/30m
0.00	0.00	0.00	0.00	0.00(E)	0.00(W)	0.00	0.00

BIT DATA

Manufacturer: SMITH	IADC:	Model: D12ST	Length: 0.30 m
Bit Type: Natural Diamond	Depth In: 0.00 - 0.00 (0.00) m		Gage Length: 0.00 mm
Serial No.: JQ7603	Nozzles: mm		TFA: 0.000 mm2
Hours On Bit: 0.00	MTG On Bit: 0.00		

BOTTOM HOLE ASSEMBLY

Run No.: 1	BHA No.: 1	Hole Size: 215.900 mm
Motor Size / Type: 161.000 mm / HIGH SPEED	Serial No.: 625-17006	Circulating: 0.00 hrs

ACTIVITY LOG

Date From: January 23, 1998	Time From: 00:00	Start Depth: 0.00 m
Date To: January 23, 1998	Time To: 24:00	End Depth: 0.00 m
Total Hours Logged: 16.00		Total Drilled: 0.00 m

END DATE	TIME	FROM m	TO m	ROP m/hr	CODE	COMMENTS
23/01/98	08:00-15:00	0.00	0.00		OTHER	FLY TO FT. NELSON, RIG TRUCK TO RIG.
23/01/98	15:00-24:00	0.00	0.00		OTHER	WAIT ON RIG TO TRIP TO RUN ANOTHER CEMENT PLUG

Today's Cost: \$ _____
Total Cost To Date: \$ _____Operator: _____
Directional Driller: _____

**HALLIBURTON****DAILY REPORT**

January 24, 1998

Page 1
2/12/98 3:23:08 pm
Version VER2.2.4Job No.: 97d007s4
Operator: RANGER OIL LIMITED.
Field: FORT LIARD
Well: 97d007s4AFE No.: E6D-015
Location:
MWD Operator(s): DEAN MCNEIL, DEON GAULTON
Dir'l Driller(s): JIM MCFARLANE

Company Man: ART SCHRITT

LAST SURVEY

MD	TVD	Incl	Azi	N/S	E/W	Vertical Section	DLS
m	m	deg	deg	m	m	m	deg/30m
0.00	0.00	0.00	0.00	0.00(E)	0.00(W)	0.00	0.00

BIT DATA

Manufacturer: SMITH	IADC:	Model: D12ST	Length: 0.30 m
Bit Type: Natural Diamond	Depth In: 0.00 - 0.00 (0.00) m		Gage Length: 0.00 mm
Serial No.: JQ7603	Nozzles: mm		TFA: 0.000 mm2
Hours On Bit: 0.00	MTG On Bit: 0.00		

BOTTOM HOLE ASSEMBLY

Run No.: 1	BHA No.: 1	Hole Size: 215.900 mm
Motor Size / Type: 161.000 mm / HIGH SPEED	Serial No.: 625-17006	Circulating: 0.00 hrs

ACTIVITY LOG

Date From: January 24, 1998	Time From: 00:00	Start Depth: 0.00 m
Date To: January 24, 1998	Time To: 24:00	End Depth: 0.00 m
	Total Hours Logged: 24.00	Total Drilled: 0.00 m

END DATE	TIME	FROM m	TO m	ROP m/hr	CODE	COMMENTS
24/01/98	00:00-24:00	0.00	0.00		WOC	RUN PLUG #2, 1ST PLUG NO GOOD, R.I.H. WITH BIT, W.O.C TO FEEL FOR PLUG.

Today's Cost: \$ _____
Total Cost To Date: \$ _____Operator: _____
Directional Driller: _____

**HALLIBURTON****DAILY REPORT**

January 25, 1998

Page 1
2/12/98 3:23:09 pm
Version VER2.2.4Job No.: 97d007s4
Operator: RANGER OIL LIMITED.
Field: FORT LIARD
Well: 97d007s4AFE No.: E6D-015
Location:
MWD Operator(s): DEAN MCNEIL, DEON GAULTON
Dir'l Driller(s): JIM MCFARLANE

Company Man: ART SCHRITT

LAST SURVEY

MD m	TVD m	Incl deg	Azi deg	N/S m	E/W m	Vertical Section m	DLS deg/30m
2000.00	1907.93	48.00	232.60	209.58(E)	166.88(W)	266.20	2.03

BIT DATA

Manufacturer: SMITH	IADC:	Model: D12ST	Length: 0.30 m
Bit Type: Natural Diamond	Depth In: 0.00 - 0.00 (0.00) m		Gage Length: 0.00 mm
Serial No.: JQ7603	Nozzles: mm		TFA: 0.000 mm2
Hours On Bit: 0.00	MTG On Bit: 0.00		

BOTTOM HOLE ASSEMBLY

Run No.: 1	BHA No.: 1	Hole Size: 215.900 mm
Motor Size / Type: 161.000 mm / HIGH SPEED	Serial No.: 625-17006	Circulating: 0.00 hrs

ACTIVITY LOG

Date From: January 25, 1998	Time From: 00:00	Start Depth: 0.00 m
Date To: January 25, 1998	Time To: 24:00	End Depth: 2000.00 m
	Total Hours Logged: 24.00	Total Drilled: 0.00 m

END DATE	TIME	FROM m	TO m	ROP m/hr	CODE	COMMENTS
25/01/98	00:00-07:00	0.00	0.00		WOC	
25/01/98	07:00-10:30	0.00	0.00		OTHER	DRILL CEMENT AND POLISH PLUG TO 3116.50
25/01/98	10:30-12:00	0.00	0.00		OTHER	CIRC. BOTTOMS UP.
25/01/98	12:00-18:00	3116.50	0.00		POOH	
25/01/98	18:00-20:00	0.00	0.00		MAKBHA	
25/01/98	20:00-24:00	0.00	2000.00		TRIPIN	

Today's Cost: \$ _____
Total Cost To Date: \$ _____Operator: _____
Directional Driller: _____

**HALLIBURTON****DAILY REPORT**

January 27, 1998

Page 1
2/12/98 3:23:09 pm
Version VER2.2.4Job No.: 97d007s4
Operator: RANGER OIL LIMITED.
Field: FORT LIARD
Well: 97d007s4AFE No.: E6D-015
Location:
MWD Operator(s): DEAN MCNEIL, DEON GAULTON
Dir'l Driller(s): JIM MCFARLANE

Company Man: ART SCHRITT

LAST SURVEY

MD m	TVD m	Incl deg	Azi deg	N/S m	E/W m	Vertical Section m	DLS deg/30m
3122.00	2695.22	40.40	214.70	757.33(E)	745.77(W)	1062.85	5.44

BIT DATA

Manufacturer: SMITH	IADC:	Model: D12ST	Length: 0.30 m
Bit Type: Natural Diamond	Depth In: 3116.50 - 3134.00 (17.50) m	Gage Length: 0.00 mm	
Serial No.: JQ7603	Nozzles: mm	TFA: 0.000 mm2	
Hours On Bit: 23.58	MTG On Bit: 17.50		

BOTTOM HOLE ASSEMBLY

Run No.: 1	BHA No.: 2	Hole Size: 215.900 mm
Motor Size / Type: 158.000 mm / HIGH SPEED	Serial No.: 625-14-043	Circulating: 23.92 hrs
Sliding(100.0%): 17.50 m @ 23.58 hrs ⇒ 0.74 m/hr	Press on Bot: 7000 kpa	Flow Rate: 1.20 m3/min
Rotating(0.0%): 0.00 m @ 0.00 hrs ⇒ 0.00 m/hr	Press off Bot: 6000 kpa	SPM: 103.00
Total Drilled: 17.50 m @ 23.58 hrs ⇒ 0.74 m/hr		

ACTIVITY LOG

Date From: January 27, 1998	Time From: 00:00	Start Depth: 0.00 m
Date To: January 27, 1998	Time To: 24:00	End Depth: 3134.00 m
Total Hours Logged: 24.00	Total Drilled: 17.50 m	

END DATE	TIME	FROM m	TO m	ROP m/hr	CODE	COMMENTS
27/01/98	00:00-00:15	0.00	0.00		CIRC	CIRC. AND SURVEY
27/01/98	00:15-12:15	3116.50	3126.00	0.79	SLIDE	TIME DRILLING OFF CEMENT PLUG
27/01/98	12:15-12:20	3126.00	3126.00		CONNCT	
27/01/98	12:20-12:25	3126.00	3126.00		CIRC	CIRC. AND SURVEY.
27/01/98	12:25-24:00	3126.00	3134.00	0.69	SLIDE	

Today's Cost: \$ _____
Total Cost To Date: \$ _____Operator: _____
Directional Driller: _____

**HALLIBURTON****DAILY REPORT**

January 28, 1998

Page 1
2/12/98 3:23:10 pm
Version VER2.2.4Job No.: 97d007s4
Operator: RANGER OIL LIMITED.
Field: FORT LIARD
Well: 97d007s4AFE No.: E6D-015
Location:
MWD Operator(s): DEAN MCNEIL, DEON GAULTON
Dir'l Driller(s): JIM MCFARLANE

Company Man: ART SCHRITT

LAST SURVEY

MD m	TVD m	Incl deg	Azi deg	N/S m	E/W m	Vertical Section m	DLS deg/30m
3095.00	2675.20	43.90	219.80	742.93(E)	734.79(W)	1044.91	1.27

BIT DATA

Manufacturer: REED	IADC: 517	Model: EHP51A	Length: 0.25 m
Bit Type: TCI	Depth In: 0.00 - 0.00 (0.00) m		Gage Length: 0.00 mm
Serial No.: TB6005	Nozzles: 11.1(2), 11.9 mm		TFA: 304.758 mm2
Hours On Bit: 0.00	MTG On Bit: 0.00		

BOTTOM HOLE ASSEMBLY

Run No.: 1	BHA No.: 2	Hole Size: 215.900 mm
Motor Size / Type: 158.000 mm / HIGH SPEED	Serial No.: 625-14-043	Circulating: 6.67 hrs
Sliding(100.0%): 6.00 m @ 6.25 hrs ⇒ 0.96 m/hr		Flow Rate: 1.20 m3/min
Rotating(0.0%): 0.00 m @ 0.00 hrs ⇒ 0.00 m/hr	Press on Bot: 7000 kpa	SPM: 103.00
Total Drilled: 6.00 m @ 6.25 hrs ⇒ 0.96 m/hr	Press off Bot: 6000 kpa	

ACTIVITY LOG

Date From: January 28, 1998	Time From: 00:00	Start Depth: 3134.00 m
Date To: January 28, 1998	Time To: 24:00	End Depth: 0.00 m
Total Hours Logged: 16.25	Total Drilled: 6.00 m	

END DATE	TIME	FROM m	TO m	ROP m/hr	CODE	COMMENTS
28/01/98	00:00-02:15	3134.00	3136.00	0.89	SLIDE	
28/01/98	02:15-02:20	3136.00	3136.00		CONNCT	
28/01/98	02:20-02:25	3136.00	3136.00		CIRC	CIRC. AND SURVEY.
28/01/98	02:25-06:25	3136.00	3140.00	1.00	SLIDE	
28/01/98	06:25-06:45	3140.00	3140.00		CIRC	CIRC. AND SURVEY.
28/01/98	06:45-16:15	3140.00	0.00		POOH	P.O.H. LAY DOWN HIGH SPEED MOTOR AND DIAMOND BIT.

BOTTOM HOLE ASSEMBLY

Run No.: 1	BHA No.: 3	Hole Size: 215.900 mm
Motor Size / Type: 164.000 mm / F2000	Serial No.: HT64051X	Circulating: 0.00 hrs

ACTIVITY LOG

Date From: January 28, 1998	Time From: 00:00	Start Depth: 0.00 m
Date To: January 28, 1998	Time To: 24:00	End Depth: 3115.00 m
Total Hours Logged: 7.75	Total Drilled: 0.00 m	

END DATE	TIME	FROM m	TO m	ROP m/hr	CODE	COMMENTS
28/01/98	16:15-18:45	0.00	0.00		MAKBHA	MAKE UP B.H.A. #3
28/01/98	18:45-24:00	0.00	3115.00		TRIPIN	

Today's Cost: \$ _____
Total Cost To Date: \$ _____Operator: _____
Directional Driller: _____

**HALLIBURTON****DAILY REPORT**

January 29, 1998

Page 1
2/12/98 3:23:11 pm
Version VER2.2.4Job No.: 97d007s4
Operator: RANGER OIL LIMITED.
Field: FORT LIARD
Well: 97d007s4AFE No.: E6D-015
Location:
MWD Operator(s): DEAN MCNEIL, DEON GAULTON
Dir'l Driller(s): JIM MCFARLANE

Company Man: ART SCHRITT

LAST SURVEY

MD m	TVD m	Incl deg	Azi deg	N/S m	E/W m	Vertical Section m	DLS deg/30m
3185.00	2745.15	37.80	209.50	790.68(E)	764.80(W)	1099.89	1.00

BIT DATA

Manufacturer: REED	IADC: 517	Model: EHP51A	Length: 0.25 m
Bit Type: TCI	Depth In: 3140.00 - 3194.00 (54.00) m		Gage Length: 0.00 mm
Serial No.: TB6005	Nozzles: 11.1(2), 11.9 mm		TFA: 304.758 mm ²
Hours On Bit: 14.92	MTG On Bit: 54.00		

BOTTOM HOLE ASSEMBLY

Run No.: 1	BHA No.: 3	Hole Size: 215.900 mm
Motor Size / Type: 164.000 mm / F2000	Serial No.: HT64051X	Circulating: 19.33 hrs
Sliding(0.0%): 0.00 m @ 0.00 hrs ⇒ 0.00 m/hr		Flow Rate: 1.20 m ³ /min
Rotating(100.0%): 54.00 m @ 14.92 hrs ⇒ 3.62 m/hr	Press on Bot: 7800 kpa	SPM: 103.00
Total Drilled: 54.00 m @ 14.92 hrs ⇒ 3.62 m/hr	Press off Bot: 7000 kpa	

ACTIVITY LOG

Date From: January 29, 1998	Time From: 00:00	Start Depth: 3115.00 m
Date To: January 29, 1998	Time To: 24:00	End Depth: 3194.00 m
	Total Hours Logged: 24.00	Total Drilled: 54.00 m

END DATE	TIME	FROM m	TO m	ROP m/hr	CODE	COMMENTS
29/01/98	00:00-01:00	3115.00	3140.00		CIRC	CIRC. AND CLEAN TO BOTTOM
29/01/98	01:00-01:20	3140.00	3140.00		OTHER	WORK ON PUMP
29/01/98	01:20-02:45	3140.00	3140.00		CIRC	CIRC. AND REPAIR PUMP
29/01/98	02:45-06:35	3140.00	3154.00	3.65	ROTATE	
29/01/98	06:35-06:40	3154.00	3154.00		CONNCT	
29/01/98	06:40-07:00	3154.00	3156.00	6.00	ROTATE	
29/01/98	07:00-07:05	3156.00	3156.00		CIRC	CIRC. AND SURVEY
29/01/98	07:05-09:05	3156.00	3164.00	4.00	ROTATE	
29/01/98	09:05-10:00	3164.00	3164.00		CIRC	
29/01/98	10:00-11:30	3164.00	3164.00		WIPER	
29/01/98	11:30-12:10	3164.00	3164.00		CIRC	
29/01/98	12:10-12:30	3164.00	3165.00	3.00	ROTATE	
29/01/98	12:30-12:35	3165.00	3165.00		CIRC	CIRC. AND SURVEY
29/01/98	12:35-15:20	3165.00	3175.00	3.64	ROTATE	
29/01/98	15:20-15:25	3175.00	3175.00		CIRC	CIRC. AND SURVEY.
29/01/98	15:25-18:10	3175.00	3184.00	3.27	ROTATE	
29/01/98	18:10-18:15	3184.00	3184.00		CIRC	CIRC. AND SURVEY
29/01/98	18:15-20:55	3184.00	3193.00	3.37	ROTATE	
29/01/98	20:55-21:00	3193.00	3193.00		CIRC	CIRC. AND SURVEY
29/01/98	21:00-23:45	3193.00	3193.00		WIPER	
29/01/98	23:45-24:00	3193.00	3194.00	4.00	ROTATE	

Today's Cost: \$ _____
Total Cost To Date: \$ _____Operator: _____
Directional Driller: _____

Job No.: 97d007s4
Operator: RANGER OIL LIMITED.
Field: FORT LIARD
Well: 97d007s4

AFE No.: E6D-015
Location:
MWD Operator(s): DEAN MCNEIL, DEON GAULTON
Dir'l Driller(s): JIM MCFARLANE

Company Man: ART SCHRITT

LAST SURVEY

MD m	TVD m	Incl deg	Azi deg	N/S m	E/W m	Vertical Section m	DLS deg/30m
2496.00	2249.60	45.50	228.20	445.57(E)	437.34(W)	624.31	0.00

BIT DATA

Manufacturer: REED	IADC: 517	Model: EHP51A	Length: 0.25 m
Bit Type: TCI	Depth In: 3194.00 - 3246.00 (52.00) m		Gage Length: 0.00 mm
Serial No.: TB6005	Nozzles: 11.1(2), 11.9 mm		TFA: 304.758 mm ²
Hours On Bit: 17.17	MTG On Bit: 52.00		

BOTTOM HOLE ASSEMBLY

Run No.: 1	BHA No.: 3	Hole Size: 215.900 mm
Motor Size / Type: 164.000 mm / F2000	Serial No.: HT64051X	Circulating: 18.92 hrs
Sliding(8.7%): 4.00 m @ 1.50 hrs ⇒ 2.67 m/hr		Flow Rate: 1.20 m ³ /min
Rotating(91.3%): 48.00 m @ 15.67 hrs ⇒ 3.06 m/hr	Press on Bot: 7800 kpa	SPM: 103.00
Total Drilled: 52.00 m @ 17.17 hrs ⇒ 3.03 m/hr	Press off Bot: 7000 kpa	

ACTIVITY LOG

Date From: January 30, 1998	Time From: 00:00	Start Depth: 3194.00 m
Date To: January 30, 1998	Time To: 24:00	End Depth: 2500.00 m
	Total Hours Logged: 24.00	Total Drilled: 52.00 m

END DATE	TIME	FROM m	TO m	ROP m/hr	CODE	COMMENTS
30/01/98	00:00-03:15	3194.00	3203.00	2.77	ROTATE	
30/01/98	03:15-03:20	3203.00	3203.00		CIRC	
30/01/98	03:20-07:20	3203.00	3213.00	2.50	ROTATE	
30/01/98	07:20-07:25	3213.00	3213.00		CIRC	CIRC. AND SURVEY.
30/01/98	07:25-10:25	3213.00	3222.00	3.00	ROTATE	
30/01/98	10:25-10:55	3222.00	3222.00		CIRC	CIRC. AND SURVEY
30/01/98	10:55-14:15	3222.00	3222.00		WIPER	
30/01/98	14:15-17:00	3222.00	3232.00	3.64	ROTATE	
30/01/98	17:00-17:05	3232.00	3232.00		CIRC	CIRC. AND SURVEY
30/01/98	17:05-18:35	3232.00	3236.00	2.67	SLIDE	
30/01/98	18:35-19:55	3236.00	3242.00	4.50	ROTATE	
30/01/98	19:55-20:00	3242.00	3242.00		CONNCT	
30/01/98	20:00-21:20	3242.00	3246.00	3.00	ROTATE	
30/01/98	21:20-22:20	3246.00	3246.00		CIRC	
30/01/98	22:20-24:00	3246.00	2500.00		POOH	

Today's Cost: \$ _____
Total Cost To Date: \$ _____

Operator: _____
Directional Driller: _____



Job No.: 97d007s4
Operator: RANGER OIL LIMITED.
Field: FORT LIARD
Well: 97d007s4

AFE No.: E6D-015
Location:
MWD Operator(s): DEAN MCNEIL, DEON GAULTON
Dir'l Driller(s): JIM MCFARLANE

Company Man: ART SCHRITT

LAST SURVEY

MD m	TVD m	Incl deg	Azi deg	N/S m	E/W m	Vertical Section m	DLS deg/30m
3253.00	2799.08	34.70	206.30	827.24(E)	784.21(W)	1139.47	4.08

BIT DATA

Manufacturer: SECURITY	IADC: 537	Model: SS86F	Length: 0.25 m
Bit Type: TCI	Depth In: 3246.00 - 3280.00 (34.00) m		Gage Length: 0.00 mm
Serial No.: 629161	Nozzles: 11.1(3) mm		TFA: 290.307 mm2
Hours On Bit: 8.67	MTG On Bit: 34.00		

BOTTOM HOLE ASSEMBLY

Run No.: 1	BHA No.: 3	Hole Size: 215.900 mm
Motor Size / Type: 164.000 mm / F2000	Serial No.: HT64051X	Circulating: 0.00 hrs

ACTIVITY LOG

Date From: January 31, 1998	Time From: 00:00	Start Depth: 2500.00 m
Date To: January 31, 1998	Time To: 24:00	End Depth: 0.00 m
Total Hours Logged: 7.25	Total Drilled: 0.00 m	

END DATE	TIME	FROM m	TO m	ROP m/hr	CODE	COMMENTS
31/01/98	00:00-05:00	2500.00	0.00		POOH	
31/01/98	05:00-05:30	2500.00	0.00		POOH	
31/01/98	05:30-07:15	0.00	0.00		MAKBHA	

BOTTOM HOLE ASSEMBLY

Run No.: 1	BHA No.: 4	Hole Size: 215.900 mm
Motor Size / Type: 164.000 mm / F2000	Serial No.: HT64051X	Circulating: 10.08 hrs
Sliding(0.0%): 0.00 m @	0.00 hrs =>	0.00 m/hr
Rotating(100.0%): 34.00 m @	8.67 hrs =>	3.92 m/hr
Total Drilled: 34.00 m @	8.67 hrs =>	3.92 m/hr
	Press on Bot: 8500 kpa	
	Press off Bot: 7400 kpa	
	Flow Rate: 1.20 m3/min	
	SPM: 103.00	

ACTIVITY LOG

Date From: January 31, 1998	Time From: 00:00	Start Depth: 0.00 m
Date To: January 31, 1998	Time To: 24:00	End Depth: 3280.00 m
Total Hours Logged: 16.75	Total Drilled: 34.00 m	

END DATE	TIME	FROM m	TO m	ROP m/hr	CODE	COMMENTS
31/01/98	07:15-09:00	0.00	700.00		TRIPIN	
31/01/98	09:00-09:45	700.00	700.00		CUTDRL	
31/01/98	09:45-13:45	700.00	3115.00		TRIPIN	
31/01/98	13:45-14:30	3115.00	3246.00		CIRC	WASH AND CLEAN TO BOTTOM.
31/01/98	14:30-15:45	3246.00	3251.00	4.00	ROTATE	
31/01/98	15:45-15:55	3251.00	3251.00		CIRC	CIRC. AND WORK PIPE
31/01/98	15:55-16:00	3251.00	3251.00		CONNCT	
31/01/98	16:00-16:10	3251.00	3252.00	6.00	ROTATE	
31/01/98	16:10-16:15	3252.00	3252.00		CIRC	CIRC. AND SURVEY.
31/01/98	16:15-18:35	3252.00	3261.00	3.86	ROTATE	
31/01/98	18:35-18:40	3261.00	3261.00		CIRC	CIRC. AND SURVEY
31/01/98	18:40-20:35	3261.00	3271.00	5.22	ROTATE	
31/01/98	20:35-20:40	3271.00	3271.00		CIRC	CIRC. AND SURVEY
31/01/98	20:40-23:20	3271.00	3279.00	3.00	ROTATE	
31/01/98	23:20-23:30	3279.00	3279.00		CIRC	CIRC. AND WORK PIPE
31/01/98	23:30-23:35	3279.00	3279.00		CONNCT	
31/01/98	23:35-23:55	3279.00	3280.00	3.00	ROTATE	
31/01/98	23:55-24:00	3280.00	3280.00		CIRC	CIRC. AND SURVEY.

**HALLIBURTON****DAILY REPORT**

February 1, 1998

Page 2
2/12/98 3:23:14 pm
Version VER2.2.4Job No.: 97d007s4
Operator: RANGER OIL LIMITED.
Field: FORT LIARD
Well: 97d007s4AFE No.: E6D-015
Location:
MWD Operator(s): DEAN MCNEIL, DEON GAULTON
Dir'l Driller(s): JIM MCFARLANE

Company Man: ART SCHRITT

LAST SURVEY

MD m	TVD m	Incl deg	Azi deg	N/S m	E/W m	Vertical Section m	DLS deg/30m
3340.00	2870.92	35.30	204.80	871.90(E)	804.51(W)	1185.40	0.73

BIT DATAManufacturer: SECURITY
Bit Type: TCI
Serial No.: 629161
Hours On Bit: 19.50IADC: 537
Depth In: 3280.00 - 3345.00 (65.00) m
Nozzles: 11.1(3) mm
MTG On Bit: 65.00

Model: SS86F

Length: 0.25 m
Gage Length: 0.00 mm
TFA: 290.307 mm2**BOTTOM HOLE ASSEMBLY**Run No.: 1
Motor Size / Type: 164.000 mm / F2000
Sliding(6.0%): 3.00 m @ 1.17 hrs ⇒
Rotating(94.0%): 62.00 m @ 18.33 hrs ⇒
Total Drilled: 65.00 m @ 19.50 hrs ⇒BHA No.: 4
Serial No.: HT64051X
Press on Bot: 8500 kpa
Press off Bot: 7400 kpaHole Size: 215.900 mm
Circulating: 20.58 hrs
Flow Rate: 1.20 m3/min
SPM: 103.00**ACTIVITY LOG**Date From: February 1, 1998
Date To: February 1, 1998Time From: 00:00
Time To: 24:00
Total Hours Logged: 24.00Start Depth: 3280.00 m
End Depth: 3345.00 m
Total Drilled: 65.00 m

END DATE	TIME	FROM m	TO m	ROP m/hr	CODE	COMMENTS
01/02/98	00:00-02:05	3280.00	3290.00	4.80	ROTATE	
01/02/98	02:05-02:10	3290.00	3290.00		CIRC	CIRC. AND SURVEY
01/02/98	02:10-03:20	3290.00	3293.00	2.57	SLIDE	
01/02/98	03:20-03:20	3293.00	3293.00		SLIDE	
01/02/98	03:20-05:05	3293.00	3300.00	4.00	ROTATE	
01/02/98	05:05-05:10	3300.00	3300.00		CIRC	CIRC. AND SURVEY
01/02/98	05:10-07:30	3300.00	3309.00	3.86	ROTATE	
01/02/98	07:30-07:35	3309.00	3309.00		CIRC	CIRC. AND SURVEY
01/02/98	07:35-08:00	3309.00	3220.00		CIRC	CIRC. AND PULL UP INTO CASING
01/02/98	08:00-08:15	3220.00	3220.00		SRVC	
01/02/98	08:15-11:15	3220.00	3309.00		WIPER	
01/02/98	11:15-14:55	3309.00	3319.00	2.73	ROTATE	
01/02/98	14:55-15:00	3319.00	3319.00		CIRC	CIRC. AND SURVEY
01/02/98	15:00-17:45	3319.00	3329.00	3.64	ROTATE	
01/02/98	17:45-18:00	3329.00	3329.00		CIRC	CIRC. AND SURVEY.
01/02/98	18:00-21:05	3329.00	3337.00	2.59	ROTATE	
01/02/98	21:05-21:15	3337.00	3337.00		CONNCT	
01/02/98	21:15-21:25	3337.00	3338.00	6.00	ROTATE	
01/02/98	21:25-21:30	3338.00	3338.00		CIRC	CIRC. AND SURVEY.
01/02/98	21:30-24:00	3338.00	3345.00	2.80	ROTATE	

Today's Cost: \$ _____
Total Cost To Date: \$ _____Operator: _____
Directional Driller: _____



HALLIBURTON

DAILY REPORT

February 2, 1998

Page 2
2/12/98 3:23:15 pm
Version VER2.2.4

Job No.: 97d007s4
Operator: RANGER OIL LIMITED.
Field: FORT LIARD
Well: 97d007s4

AFE No.: E6D-015
Location:
MWD Operator(s): DEAN MCNEIL, DEON GAULTON
Dir'l Driller(s): JIM MCFARLANE

Company Man: ART SCHRITT

LAST SURVEY

MD m	TVD m	Incl deg	Azi deg	N/S m	E/W m	Vertical Section m	DLS deg/30m
3397.00	2917.37	35.60	205.30	901.84(E)	818.48(W)	1216.45	0.28

BIT DATA

Manufacturer: SECURITY	IADC: 537	Model: SS86F	Length: 0.25 m
Bit Type: TCI	Depth In: 3345.00 - 3408.00 (63.00) m		Gage Length: 0.00 mm
Serial No.: 629161	Nozzles: 11.1(3) mm		TFA: 290.307 mm2
Hours On Bit: 18.92	MTG On Bit: 63.00		

BOTTOM HOLE ASSEMBLY

Run No.: 1	BHA No.: 4	Hole Size: 215.900 mm
Motor Size / Type: 164.000 mm / F2000	Serial No.: HT64051X	Circulating: 21.25 hrs
Sliding(0.0%): 0.00 m @ 0.00 hrs ⇒ 0.00 m/hr		Flow Rate: 1.20 m3/min
Rotating(100.0%): 63.00 m @ 18.92 hrs ⇒ 3.33 m/hr	Press on Bot: 8500 kpa	SPM: 103.00
Total Drilled: 63.00 m @ 18.92 hrs ⇒ 3.33 m/hr	Press off Bot: 7400 kpa	

ACTIVITY LOG

Date From: February 2, 1998	Time From: 00:00	Start Depth: 3345.00 m
Date To: February 2, 1998	Time To: 24:00	End Depth: 3408.00 m
Total Hours Logged: 24.00		Total Drilled: 63.00 m

END DATE	TIME	FROM m	TO m	ROP m/hr	CODE	COMMENTS
02/02/98	00:00-01:20	3345.00	3348.00	2.25	ROTATE	
02/02/98	01:20-01:25	3348.00	3348.00		CIRC	CIRC. AND SURVEY
02/02/98	01:25-04:55	3348.00	3358.00	2.86	ROTATE	
02/02/98	04:55-05:00	3358.00	3358.00		CIRC	CIRC. AND SURVEY.
02/02/98	05:00-08:10	3358.00	3367.00	2.84	ROTATE	
02/02/98	08:10-08:30	3367.00	3367.00		CIRC	CIRC. AND SURVEY.
02/02/98	08:30-08:40	3367.00	3367.00		CONNECT	
02/02/98	08:40-12:05	3367.00	3377.00	2.93	ROTATE	
02/02/98	12:05-12:20	3377.00	3377.00		CIRC	CIRC. AND SURVEY
02/02/98	12:20-14:25	3377.00	3387.00	4.80	ROTATE	
02/02/98	14:25-14:35	3387.00	3387.00		CIRC	CIRC. AND SURVEY.
02/02/98	14:35-16:35	3387.00	3396.00	4.50	ROTATE	
02/02/98	16:35-16:55	3396.00	3396.00		CIRC	CIRC. WORK PIPE, AND SURVEY.
02/02/98	16:55-17:25	3396.00	3396.00		CIRC	CIRC. AND TRIP UP INTO CASING.
02/02/98	17:25-20:00	3396.00	3396.00		WIPER	
02/02/98	20:00-20:30	3396.00	3396.00		CIRC	CIRC. AND CLEAN TO BOTTOM
02/02/98	20:30-23:30	3396.00	3406.00	3.33	ROTATE	
02/02/98	23:30-23:35	3406.00	3406.00		CIRC	CIRC. AND SURVEY.
02/02/98	23:35-24:00	3406.00	3408.00	4.80	ROTATE	

Today's Cost: \$ _____
Total Cost To Date: \$ _____

Operator: _____
Directional Driller: _____

DAILY REPORT

February 3, 1998

Page 2
2/12/98 3:23:15 pm
Version VER2.2.4



Job No.: 97d007s4
Operator: RANGER OIL LIMITED.
Field: FORT LIARD
Well: 97d007s4

AFE No.: E6D-015
Location:
MWD Operator(s): DEAN MCNEIL, DEON GAULTON
Dir'l Driller(s): JIM MCFARLANE

Company Man: ART SCHRITT

LAST SURVEY

MD m	TVD m	Incl deg	Azi deg	N/S m	E/W m	Vertical Section m	DLS deg/30m
3500.00	3000.62	37.26	203.59	956.95(E)	843.77(W)	1273.30	1.35

BIT DATA

Manufacturer: SECURITY	IADC: 537	Model: SS86F	Length: 0.25 m
Bit Type: TCI	Depth In: 3408.00 - 3488.00 (80.00) m		Gage Length: 0.00 mm
Serial No.: 629161	Nozzles: 11.1(3) mm		TFA: 290.307 mm2
Hours On Bit: 22.67	MTG On Bit: 80.00		

MUD/PUMP DATA

Mud Type: KELZAN/BEN	Wt: 1035.00 kg/m3	PV: 17.00 cp	YP: 8.00 pa	oil: 0.00%
Water Loss: 12.00 cc	Funnel Visc.: 52.00 sec	pH: 11.0	Total Gas: 0 PPM	Sand: 0.00%
LCM Type: Type A	LCM Size: 0.00 mm		LCM Volume: 0.00 kg/m3	Solids: 2.10%
Diesel Grade: 0	Aniline Pt.: 0.00 °C		Chlorides: 1100 PPM	H2S: 0 PPM
BH(max): -17.78 °C	Flow Line(max): 70.00 °C		Temperature Gradient: 0.00 °C/30m	

BOTTOM HOLE ASSEMBLY

Run No.: 1	BHA No.: 1	Hole Size: 215.900 mm
Motor Size / Type: 161.000 mm / HIGH SPEED	Serial No.: 625-17006	Circulating: 0.00 hrs

ACTIVITY LOG

Date From: February 3, 1998	Time From: 00:00	Start Depth: 0.00 m
Date To: February 3, 1998	Time To: 24:00	End Depth: 0.00 m
Total Hours Logged: 4.25	Total Drilled: 0.00 m	

END DATE	TIME	FROM m	TO m	ROP m/hr	CODE	COMMENTS
03/02/98	13:45-18:00	0.00	0.00		MAKBHA	UNPLUG ALL TOOLS, COULD NOT UNPLUG MOTOR, PICK UP NEW MOTOR AND SHALLOW TEST M.W. D.

BOTTOM HOLE ASSEMBLY

Run No.: 1	BHA No.: 4	Hole Size: 215.900 mm
Motor Size / Type: 164.000 mm / F2000	Serial No.: HT64051X	Circulating: 23.67 hrs
Sliding(0.0%): 0.00 m @ 0.00 hrs =>	0.00 m/hr	Flow Rate: 1.20 m3/min
Rotating(100.0%): 80.00 m @ 22.67 hrs =>	3.53 m/hr	SPM: 103.00
Total Drilled: 80.00 m @ 22.67 hrs =>	3.53 m/hr	
	Bit Press. Drop: 2718.91 kpa	
	Press on Bot: 8500 kpa	
	Press off Bot: 7400 kpa	

ACTIVITY LOG

Date From: February 3, 1998	Time From: 00:00	Start Depth: 3408.00 m
Date To: February 3, 1998	Time To: 24:00	End Depth: 3488.00 m
Total Hours Logged: 24.00	Total Drilled: 80.00 m	

END DATE	TIME	FROM m	TO m	ROP m/hr	CODE	COMMENTS
03/02/98	00:00-01:45	3408.00	3415.00	4.00	ROTATE	
03/02/98	01:45-01:50	3415.00	3415.00		CIRC	CIRC. AND SURVEY
03/02/98	01:50-04:00	3415.00	3424.00	4.15	ROTATE	
03/02/98	04:00-04:05	3424.00	3424.00		CONNCT	
03/02/98	04:05-04:15	3424.00	3425.00	6.00	ROTATE	
03/02/98	04:15-04:20	3425.00	3425.00		CIRC	CIRC. AND SURVEY.
03/02/98	04:20-06:15	3425.00	3434.00	4.70	ROTATE	
03/02/98	06:15-06:20	3434.00	3434.00		CIRC	CIRC. AND SURVEY.
03/02/98	06:20-08:30	3434.00	3444.00	4.62	ROTATE	
03/02/98	08:30-08:35	3444.00	3444.00		CIRC	CIRC. AND SURVEY.

**HALLIBURTON****DAILY REPORT**

February 3, 1998

Page 3
2/12/98 3:23:17 pm
Version VER2.2.4Job No.: 97d007s4
Operator: RANGER OIL LIMITED.
Field: FORT LIARD
Well: 97d007s4AFE No.: E6D-015
Location:
MWD Operator(s): DEAN MCNEIL, DEON GAULTON
Dir'l Driller(s): JIM MCFARLANE

Company Man: ART SCHRITT

03/02/98	08:35-10:10	3444.00	3450.00	3.79	ROTATE	
03/02/98	10:10-10:20	3450.00	3450.00		CIRC	CIRC. AND SURVEY.
03/02/98	10:20-11:35	3450.00	3454.00	3.20	ROTATE	
03/02/98	11:35-11:50	3454.00	3454.00		CIRC	CIRC. AND SURVEY.
03/02/98	11:50-12:00	3454.00	3454.00		CONNCT	
03/02/98	12:00-15:30	3454.00	3463.00	2.57	ROTATE	
03/02/98	15:30-15:35	3463.00	3463.00		CIRC	CIRC. AND SURVEY.
03/02/98	15:35-18:30	3463.00	3473.00	3.43	ROTATE	
03/02/98	18:30-18:35	3473.00	3473.00		CIRC	CIRC. AND SURVEY.
03/02/98	18:35-21:45	3473.00	3482.00	2.84	ROTATE	
03/02/98	21:45-21:50	3482.00	3482.00		CONNCT	
03/02/98	21:50-22:10	3482.00	3483.00	3.00	ROTATE	
03/02/98	22:10-22:15	3483.00	3483.00		CIRC	CIRC. AND SURVEY.
03/02/98	22:15-24:00	3483.00	3488.00	2.86	ROTATE	

Today's Cost: \$ _____
Total Cost To Date: \$ _____Operator: _____
Directional Driller: _____


HALLIBURTON
DAILY REPORT

February 4, 1998

 Page 3
 2/12/98 3:23:17 pm
 Version VER2.2.4

 Job No.: 97d007s4
 Operator: RANGER OIL LIMITED.
 Field: FORT LIARD
 Well: 97d007s4

 AFE No.: E6D-015
 Location:
 MWD Operator(s): DEAN MCNEIL, DEON GAULTON
 Dir'l Driller(s): JIM MCFARLANE

Company Man: ART SCHRITT

LAST SURVEY

MD	TVD	Incl	Azi	N/S	E/W	Vertical Section	DLS
m	m	deg	deg	m	m	m	deg/30m
0.00	0.00	0.00	0.00	0.00(E)	0.00(W)	0.00	0.00

BIT DATA

Manufacturer: SECURITY	IADC: 537	Model: SS86F	Length: 0.25 m
Bit Type: TCI	Depth In: 3488.00 - 3500.00 (12.00) m		Gage Length: 0.00 mm
Serial No.: 629161	Nozzles: 11.1(3) mm		TFA: 290.307 mm2
Hours On Bit: 4.08	MTG On Bit: 12.00		

MUD/PUMP DATA

Mud Type: KELZAN/BEN	Wt: 1035.00 kg/m3	PV: 17.00 cp	YP: 8.00 pa	oil: 0.00%
Water Loss: 12.00 cc	Funnel Visc.: 52.00 sec	pH: 11.0	Total Gas: 0 PPM	Sand: 0.00%
LCM Type: Type A	LCM Size: 0.00 mm		LCM Volume: 0.00 kg/m3	Solids: 2.10%
Diesel Grade: 0	Aniline Pt.: 0.00 °C		Chlorides: 1100 PPM	H2S: 0 PPM
BH(max): -17.78 °C	Flow Line(max): 70.00 °C		Temperature Gradient: 0.00 °C/30m	

BOTTOM HOLE ASSEMBLY

Run No.: 1	BHA No.: 4	Hole Size: 215.900 mm
Motor Size / Type: 164.000 mm / F2000	Serial No.: HT64051X	Circulating: 6.00 hrs
Sliding(0.0%): 0.00 m @ 0.00 hrs =>	Bit Press.Drop: 2718.91 kpa	Flow Rate: 1.20 m3/min
Rotating(100.0%): 12.00 m @ 4.08 hrs =>	Press on Bot: 8500 kpa	SPM: 103.00
Total Drilled: 12.00 m @ 4.08 hrs =>	Press off Bot: 7400 kpa	

ACTIVITY LOG

Date From: February 4, 1998	Time From: 00:00	Start Depth: 3488.00 m
Date To: February 4, 1998	Time To: 24:00	End Depth: 0.00 m
	Total Hours Logged: 24.00	Total Drilled: 12.00 m

END DATE	TIME	FROM m	TO m	ROP m/hr	CODE	COMMENTS
04/02/98	00:00-01:15	3488.00	3492.00	3.20	ROTATE	
04/02/98	01:15-01:20	3492.00	3492.00		CIRC	CIRC. AND SURVEY.
04/02/98	01:20-04:10	3492.00	3500.00	2.82	ROTATE	
04/02/98	04:10-04:15	3500.00	3500.00		CIRC	CIRC. AND SURVEY.
04/02/98	04:15-06:00	3500.00	3500.00		CIRC	CIRC. BOTTOMS UP,CIRC. AND PULL UP INTO CASING..
04/02/98	06:00-13:00	3500.00	0.00		POOH	
04/02/98	13:00-16:00	0.00	0.00		LAYDWN	
04/02/98	16:00-24:00	0.00	0.00		OTHER	STANDBY IN CAMP. WAIT ON AIRPLANE.

 Today's Cost: \$ _____
 Total Cost To Date: \$ _____

 Operator: _____
 Directional Driller: _____

**HALLIBURTON****DAILY REPORT**

February 5, 1998

Page 3
2/12/98 3:23:18 pm
Version VER2.2.4Job No.: 97d007s4
Operator: RANGER OIL LIMITED.
Field: FORT LIARD
Well: 97d007s4AFE No.: E6D-015
Location:
MWD Operator(s): DEAN MCNEIL, DEON GAULTON
Dir'l Driller(s): JIM MCFARLANE

Company Man: ART SCHRITT

LAST SURVEY

MD m	TVD m	Incl deg	Azi deg	N/S m	E/W m	Vertical Section m	DLS deg/30m
0.00	0.00	0.00	0.00	0.00(E)	0.00(W)	0.00	0.00

MUD/PUMP DATA

Mud Type: KELZAN/BEN	Wt: 1035.00 kg/m3	PV: 17.00 cp	YP: 8.00 pa	oil: 0.00%
Water Loss: 12.00 cc	Funnel Visc.: 52.00 sec	pH: 11.0	Total Gas: 0 PPM	Sand: 0.00%
LCM Type: Type A	LCM Size: 0.00 mm		LCM Volume: 0.00 kg/m3	Solids: 2.10%
Diesel Grade: 0	Aniline Pt.: 0.00 °C		Chlorides: 1100 PPM	H2S: 0 PPM
BH(max): -17.78 °C	Flow Line(max): 70.00 °C		Temperature Gradient: 0.00 °C/30m	

BOTTOM HOLE ASSEMBLYRun No.: 1
Motor Size / Type: 164.000 mm / F2000BHA No.: 4
Serial No.: HT64051XHole Size: 215.900 mm
Circulating: 0.00 hrs**ACTIVITY LOG**

Date From: February 5, 1998	Time From: 00:00	Start Depth: 0.00 m
Date To: February 5, 1998	Time To: 24:00	End Depth: 0.00 m
Total Hours Logged: 18.00	Total Drilled: 0.00 m	

END DATE	TIME	FROM m	TO m	ROP m/hr	CODE	COMMENTS
----------	------	-----------	---------	-------------	------	----------

05/02/98	00:00-08:00	0.00	0.00		OTHER	WAIT AT CAMP FOR AIRPLANE.
05/02/98	08:00-12:00	0.00	0.00		OTHER	DRIVE TO FORT NELSON WITH RIG CREWCAB.
05/02/98	12:00-18:00	0.00	0.00		OTHER	WAIT AT FT. NELSON AND FLY BACK TO EDMONTON VIA CAN. AIRLINES

CONTINENTAL LABORATORIES

CL CONSULTANTS LIMITED

1958 - 1998
"Logging the Past 40 Years"

RANGER FORT LIARD P66A

P66 LAT 60 40'/LONG 123 30'

File No: 96NB-1666

Prepared By:

H. WENNEKERS/ D. FERGUSON/ F. RICHARDSON
Geological Wellsite Consultants
CL Consultants Limited

Prepared for:

Peter Goetz
RANGER OIL LIMITED

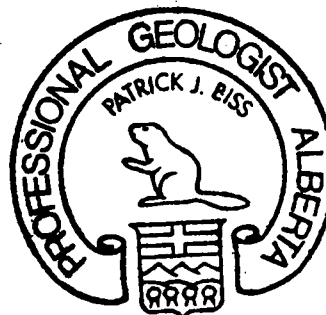
PERMIT TO PRACTICE
CL CONSULTANTS LIMITED

Signature: _____

Date: March 16, 1998

PERMIT NUMBER: P2911

The Association of Professional Engineers,
Geologists and Geophysicists of Alberta



**CL Consultants
Limited**

INDEX

<u>Subject</u>	<u>Page Number</u>
SYNOPSIS	2
FORMATION TOPS (m)	3
DEVIATION SURVEY RECORD	4
BIT RECORD	11
DAILY DRILLING CHRONOLOGY	13
LITHOLOGY	47
GEOLOGICAL SUMMARY AND CONCLUSIONS	90

SYNOPSIS

OPERATOR: RANGER OIL LIMITED

WELL NAME: RANGER FORT LIARD P66-A

LOCATION: LAT 60 30' / LONG 123 30'

FIELD: UNDEFINED

PROVINCE: Alberta

ELEVATIONS: G.L. - 449.49 m K.B. - 459.89 m

SPUD DATE: ~~January 12~~ ^{July 14}, 1997 0900 hrs

T.D. DATE: ~~February 04~~, 1998 04:00 hrs

CONTRACTOR: PRECISION DRILLING Rig: 426 E

HOLE SIZE: 311 mm

COLLARS: MONEL 228 mm

MUD COMPANY: DOWELL

MUD TYPE: INVERT

WIRELINE LOGGING CO.: COMPUTALOG

LOG RECORD: Run #1

1) XY-GR	3118.0 m - 1005.0 m		
2) STI-BCS-GR	3116.4 m - 1006.0 m		
1) STI-SONIC	3500M TD - 3112 CSG	RUN #1	FEB 9/98
2) DENSITY	3500M TD - 3112 CSG	RUN #2	FEB 9/98
3) NEUTRON	3500M TD - 3112 CSG	RUN #3	FEB 9/98
4) EMI	3500M TD - 3112 CSG	RUN #4	FEB 9/98

DRILLING SUPERVISION: JOHN FAULKNER / ART SCHRITT

GEOLOGICAL SUPERVISION: HENRI WENNEKERS / D FERGUSON

TOTAL DEPTH: 3501 meters

FORMATION TOPS (m)

FORMATION	PROGNOSIS		SAMPLES		LOGS	
	(MD)	(TVD)	(MD)	(TVD)	(MD)	(TVD)
KICKOFF POINT	1327	1327				
DEVONIAN 2ND BLACK SH	2256	2085				
FT SIMPSON	2387	2180	2054m / 1944m			
FAULT	2431	2210				
FT SIMPSON SEIS MKR	2612	2340				
HORN R	2812	2480	2796m / 2461m			
NAHANNI TOP	3025	2630	3116m / 2690m			
NAHANNI TOP[WHIP 4]	3128	2699.8				
TD	3501		3500m / 3000.62m			

DEVIATION SURVEY RECORD

Depth (m)	Incl	Azimuth	TVD	Vert Sect	Rectangular Offsets	
0.00	0.00	0.00	0.00	0.00	0.00 N	0.00 E
199.00	0.50	36.40	199.00	-0.86	0.70 N	0.52 E
226.00	1.75	25.00	225.99	-1.36	1.17 N	0.76 E
253.00	1.50	20.40	252.98	-2.07	1.87 N	1.06 E
262.50	1.46	36.51	262.48	-2.30	2.09 N	1.17 E
283.00	1.75	67.40	282.97	-2.85	2.42 N	1.62 E
312.00	1.90	70.40	311.96	-3.70	2.75 N	2.48 E
343.00	2.00	70.40	342.94	-4.65	3.10 N	3.47 E
374.00	2.25	59.40	373.92	-5.73	3.59 N	4.51 E
403.00	3.00	68.40	402.89	-6.97	4.16 N	5.70 E
433.00	3.30	70.90	432.84	-8.47	4.73 N	7.25 E
451.00	4.40	71.30	450.80	-9.56	5.12 N	8.39 E
460.00	4.30	71.10	459.77	-10.17	5.34 N	9.04 E
470.00	4.30	74.20	469.75	-10.83	5.57 N	9.75 E
480.00	4.30	79.10	479.72	-11.47	5.74 N	10.48 E
490.00	4.20	87.40	489.69	-12.05	5.83 N	11.21 E
499.00	4.10	93.10	498.67	-12.51	5.83 N	11.87 E
509.00	4.10	99.30	508.64	-12.96	5.75 N	12.58 E
518.00	4.00	107.10	517.62	-13.29	5.60 N	13.19 E
528.00	3.80	114.70	527.60	-13.57	5.36 N	13.83 E
538.00	3.50	123.60	537.58	-13.75	5.06 N	14.38 E
547.00	3.20	129.50	546.56	-13.82	4.74 N	14.81 E
557.00	2.80	129.60	556.55	-13.87	4.41 N	15.21 E
566.00	2.40	130.80	565.54	-13.91	4.15 N	15.52 E
576.00	2.10	128.60	575.53	-13.94	3.90 N	15.82 E
586.00	1.90	122.80	585.52	-14.00	3.69 N	16.10 E
596.00	1.70	107.60	595.52	-14.10	3.56 N	16.39 E
605.00	1.90	97.90	604.51	-14.25	3.50 N	16.66 E
614.00	2.00	92.80	613.51	-14.45	3.47 N	16.97 E
624.00	2.20	88.10	623.50	-14.71	3.47 N	17.33 E
634.00	2.20	92.00	633.49	-14.98	3.47 N	17.72 E
644.00	2.20	101.00	643.49	-15.22	3.42 N	18.10 E
654.00	2.30	103.80	653.48	-15.43	3.34 N	18.48 E
663.00	2.40	113.60	662.47	-15.59	3.22 N	18.83 E
673.00	2.50	124.30	672.46	-15.71	3.01 N	19.20 E
683.00	2.40	130.50	682.45	-15.76	2.75 N	19.54 E
693.00	2.20	136.30	692.45	-15.78	2.48 N	19.83 E
702.00	1.90	144.50	701.44	-15.75	2.23 N	20.04 E
712.00	1.60	151.30	711.43	-15.68	1.98 N	20.20 E
722.00	1.20	151.40	721.43	-15.61	1.76 N	20.32 E
731.00	0.80	165.00	730.43	-15.55	1.62 N	20.38 E
741.00	0.40	183.40	740.43	-15.49	1.52 N	20.39 E
751.00	0.10	158.00	750.43	-15.46	1.47 N	20.39 E
760.00	0.30	45.00	759.43	-15.48	1.48 N	20.41 E
770.00	0.70	53.90	769.43	-15.57	1.54 N	20.48 E

DEVIATION SURVEY RECORD

Depth (m)	Incl	Azimuth	TVD	Vert Sect	Rectangular Offsets	
780.00	0.90	64.60	779.43	-15.70	1.61 N	20.60 E
789.00	1.00	79.60	788.43	-15.84	1.65 N	20.74 E
799.00	1.10	111.10	798.43	-15.95	1.63 N	20.92 E
808.00	1.30	135.40	807.42	-15.98	1.53 N	21.07 E
818.00	1.40	155.00	817.42	-15.94	1.34 N	21.20 E
827.00	2.00	182.50	826.42	-15.78	1.08 N	21.24 E
837.00	2.50	208.80	836.41	-15.45	0.71 N	21.13 E
847.00	2.80	220.10	846.40	-14.99	0.34 N	20.87 E
857.00	2.90	219.60	856.39	-14.50	0.04 S	20.55 E
866.00	2.40	211.50	865.38	-14.09	0.38 S	20.31 E
876.00	2.10	185.40	875.37	-13.74	0.74 S	20.18 E
886.00	2.00	153.30	885.36	-13.55	1.08 S	20.24 E
896.00	2.20	123.50	895.36	-13.53	1.34 S	20.48 E
905.00	2.70	118.00	904.35	-13.63	1.54 S	20.81 E
914.00	2.70	110.50	913.34	-13.78	1.71 S	21.20 E
924.00	2.70	111.50	923.33	-13.97	1.88 S	21.63 E
934.00	2.50	130.60	933.32	-14.08	2.11 S	22.02 E
944.00	3.20	153.20	943.31	-14.01	2.50 S	22.31 E
954.00	3.60	163.70	953.29	-13.77	3.05 S	22.53 E
963.00	4.40	164.20	962.27	-13.47	3.65 S	22.70 E
973.00	5.30	170.50	972.23	-13.01	4.48 S	22.88 E
983.00	5.60	176.90	982.19	-12.42	5.42 S	22.98 E
989.00	5.50	178.70	988.16	-12.02	6.00 S	23.00 E
1007.00	5.39	179.13	1006.08	-10.84	7.71 S	23.04 E
1019.00	4.80	179.30	1018.03	-10.10	8.77 S	23.05 E
1029.00	4.40	176.80	1028.00	-9.55	9.57 S	23.08 E
1039.00	4.00	174.50	1037.97	-9.07	10.30 S	23.13 E
1048.00	3.50	170.40	1046.95	-8.71	10.89 S	23.21 E
1058.00	3.00	169.30	1056.93	-8.39	11.45 S	23.31 E
1068.00	2.60	166.80	1066.92	-8.12	11.92 S	23.41 E
1077.00	2.00	160.40	1075.91	-7.95	12.27 S	23.51 E
1087.00	1.60	144.50	1085.91	-7.85	12.55 S	23.65 E
1097.00	1.20	128.50	1095.91	-7.84	12.73 S	23.81 E
1106.00	1.20	115.70	1104.90	-7.88	12.83 S	23.97 E
1116.00	1.10	106.10	1114.90	-7.96	12.90 S	24.16 E
1126.00	1.20	105.30	1124.90	-8.06	12.95 S	24.35 E
1136.00	1.20	114.10	1134.90	-8.15	13.02 S	24.55 E
1146.00	1.20	108.80	1144.90	-8.23	13.10 S	24.74 E
1156.00	1.30	109.60	1154.89	-8.33	13.17 S	24.95 E
1165.00	1.30	101.40	1163.89	-8.43	13.23 S	25.14 E
1175.00	1.60	98.00	1173.89	-8.57	13.27 S	25.39 E
1185.00	1.60	95.40	1183.88	-8.75	13.30 S	25.67 E
1193.00	1.30	97.90	1191.88	-8.87	13.32 S	25.87 E
1203.00	1.20	94.50	1201.88	-9.01	13.35 S	26.09 E
1233.00	1.30	94.10	1231.87	-9.43	13.40 S	26.74 E
1262.00	1.40	107.80	1260.86	-9.81	13.53 S	27.40 E

DEVIATION SURVEY RECORD

Depth (m)	Incl	Azimuth	TVD	Vert Sect	Rectangular Offsets	
1291.00	1.10	112.40	1289.86	-10.08	13.74 S	28.00 E
1310.00	0.40	110.50	1308.86	-10.18	13.84 S	28.23 E
1320.00	1.20	117.10	1318.85	-10.23	13.90 S	28.36 E
1327.00	1.66	125.42	1325.85	-10.26	13.99 S	28.50 E
1329.00	1.80	127.00	1327.85	-10.27	14.02 S	28.55 E
1339.00	2.50	120.40	1337.84	-10.35	14.23 S	28.87 E
1349.00	2.90	115.50	1347.83	-10.49	14.45 S	29.28 E
1358.00	3.10	114.40	1356.82	-10.65	14.65 S	29.71 E
1368.00	3.20	118.40	1366.81	-10.83	14.89 S	30.20 E
1378.00	3.00	123.50	1376.79	-10.96	15.17 S	30.67 E
1388.00	3.20	136.50	1386.78	-11.00	15.51 S	31.08 E
1398.00	3.60	151.50	1396.76	-10.91	15.99 S	31.42 E
1408.00	4.40	169.70	1406.73	-10.60	16.65 S	31.64 E
1417.00	5.20	182.00	1415.70	-10.10	17.39 S	31.68 E
1427.00	6.20	190.40	1425.65	-9.33	18.38 S	31.57 E
1436.00	6.90	197.40	1434.60	-8.45	19.37 S	31.32 E
1446.00	8.00	205.30	1444.51	-7.26	20.57 S	30.84 E
1456.00	9.30	211.40	1454.40	-5.82	21.89 S	30.13 E
1465.00	10.70	214.80	1463.26	-4.29	23.20 S	29.27 E
1474.00	11.60	217.20	1472.09	-2.57	24.61 S	28.25 E
1484.00	12.40	218.80	1481.87	-0.51	26.24 S	26.96 E
1494.00	12.60	219.30	1491.63	1.64	27.93 S	25.60 E
1503.00	12.80	220.00	1500.41	3.61	29.45 S	24.34 E
1513.00	12.90	220.20	1510.16	5.83	31.15 S	22.91 E
1523.00	13.30	219.40	1519.90	8.09	32.89 S	21.46 E
1533.00	13.70	219.60	1529.63	10.41	34.69 S	19.97 E
1543.00	14.50	220.60	1539.33	12.84	36.56 S	18.40 E
1553.00	15.10	221.00	1548.99	15.38	38.49 S	16.73 E
1562.00	15.80	223.20	1557.67	17.78	40.27 S	15.12 E
1572.00	16.70	222.30	1567.27	20.57	42.32 S	13.22 E
1582.00	17.50	222.80	1576.83	23.51	44.49 S	11.24 E
1592.00	17.90	224.70	1586.35	26.55	46.68 S	9.13 E
1602.00	18.10	225.30	1595.86	29.64	48.87 S	6.95 E
1612.00	18.10	225.60	1605.37	32.75	51.05 S	4.73 E
1621.00	18.60	225.00	1613.91	35.58	53.04 S	2.72 E
1631.00	19.70	225.60	1623.36	38.86	55.35 S	0.39 E
1640.00	20.60	226.80	1631.81	41.96	57.49 S	1.85 W
1650.00	21.40	226.00	1641.14	45.54	59.96 S	4.44 W
1659.00	22.70	226.00	1649.49	48.92	62.31 S	6.87 W
1668.00	24.10	225.80	1657.74	52.50	64.80 S	9.44 W
1677.00	25.90	226.70	1665.90	56.30	67.43 S	12.19 W
1687.00	27.60	226.80	1674.83	60.80	70.51 S	15.47 W
1697.00	28.80	226.80	1683.64	65.52	73.75 S	18.91 W
1707.00	29.60	227.20	1692.37	70.40	77.07 S	22.48 W
1717.00	30.50	226.90	1701.03	75.40	80.49 S	26.15 W
1727.00	31.20	226.50	1709.61	80.53	84.00 S	29.88 W

DEVIATION SURVEY RECORD

Depth (m)	Incl	Azimuth	TVD	Vert Sect	Rectangular Offsets	
1736.00	32.50	226.60	1717.26	85.27	87.27 S	33.32 W
1746.00	33.80	226.70	1725.63	90.74	91.02 S	37.30 W
1755.00	35.10	226.20	1733.05	95.83	94.53 S	40.99 W
1764.00	36.10	225.50	1740.37	101.07	98.18 S	44.75 W
1774.00	37.20	224.00	1748.39	107.04	102.42 S	48.95 W
1784.00	38.40	223.50	1756.29	113.16	106.85 S	53.19 W
1793.00	39.60	223.80	1763.29	118.83	110.95 S	57.10 W
1803.00	40.80	225.00	1770.93	125.28	115.56 S	61.61 W
1813.00	41.60	223.90	1778.45	131.87	120.26 S	66.23 W
1826.00	43.10	224.50	1788.06	140.62	126.54 S	72.33 W
1836.00	43.40	224.20	1795.34	147.47	131.44 S	77.12 W
1847.00	43.40	225.40	1803.33	155.03	136.80 S	82.45 W
1857.00	43.70	224.70	1810.58	161.92	141.67 S	87.32 W
1866.00	44.60	225.90	1817.04	168.19	146.08 S	91.78 W
1876.00	44.90	225.60	1824.14	175.23	150.99 S	96.82 W
1885.00	45.70	226.40	1830.47	181.62	155.43 S	101.42 W
1895.00	46.20	228.20	1837.42	188.81	160.30 S	106.71 W
1904.00	46.50	228.80	1843.64	195.31	164.62 S	111.58 W
1914.00	46.80	228.50	1850.50	202.56	169.42 S	117.04 W
1923.00	47.10	229.40	1856.65	209.12	173.74 S	122.00 W
1933.00	47.50	231.30	1863.43	216.44	178.43 S	127.66 W
1942.00	48.40	231.40	1869.46	223.08	182.61 S	132.88 W
1952.00	48.50	231.20	1876.09	230.52	187.28 S	138.72 W
1962.00	48.60	231.20	1882.71	237.97	191.98 S	144.56 W
1971.00	49.00	231.60	1888.64	244.70	196.21 S	149.85 W
1981.00	48.50	231.70	1895.23	252.17	200.87 S	155.75 W
1990.00	47.90	231.70	1901.23	258.83	205.03 S	161.02 W
2000.00	48.00	232.60	1907.93	266.20	209.58 S	166.88 W
2010.00	48.30	232.40	1914.60	273.59	214.12 S	172.79 W
2019.00	47.80	232.30	1920.61	280.22	218.21 S	178.09 W
2028.00	47.40	231.30	1926.68	286.82	222.32 S	183.31 W
2038.00	47.70	231.30	1933.43	294.16	226.93 S	189.07 W
2048.00	47.90	230.50	1940.15	301.53	231.60 S	194.82 W
2065.00	47.40	229.60	1951.60	314.04	239.67 S	204.45 W
2075.00	46.50	229.30	1958.43	321.33	244.42 S	210.00 W
2084.00	45.90	228.50	1964.66	327.81	248.69 S	214.90 W
2094.00	46.70	229.80	1971.57	335.02	253.42 S	220.37 W
2104.00	47.50	230.20	1978.37	342.31	258.13 S	225.98 W
2113.00	47.40	231.40	1984.46	348.91	262.32 S	231.12 W
2123.00	47.20	230.50	1991.24	356.22	266.95 S	236.82 W
2133.00	47.20	230.80	1998.04	363.52	271.60 S	242.50 W
2142.00	47.60	231.50	2004.13	370.11	275.76 S	247.66 W
2152.00	47.80	232.60	2010.86	377.45	280.30 S	253.49 W
2162.00	46.90	232.70	2017.63	384.74	284.77 S	259.34 W
2171.00	45.90	232.90	2023.84	391.19	288.71 S	264.53 W
2181.00	46.00	233.00	2030.79	398.31	293.04 S	270.26 W

DEVIATION SURVEY RECORD

Depth (m)	Incl	Azimuth	TVD	Vert Sect	Rectangular Offsets	
2191.00	46.40	233.90	2037.71	405.45	297.34 S	276.06 W
2201.00	46.60	232.90	2044.60	412.63	301.66 S	281.88 W
2211.00	46.20	233.00	2051.49	419.80	306.02 S	287.66 W
2221.00	45.60	232.10	2058.45	426.92	310.39 S	293.37 W
2231.00	45.00	231.60	2065.49	433.98	314.78 S	298.95 W
2240.00	44.40	231.80	2071.88	440.26	318.70 S	303.92 W
2249.00	43.90	230.20	2078.34	446.50	322.65 S	308.79 W
2259.00	43.60	228.70	2085.57	453.39	327.14 S	314.05 W
2269.00	43.90	227.90	2092.79	460.29	331.74 S	319.21 W
2278.00	44.90	226.60	2099.22	466.59	336.02 S	323.83 W
2288.00	46.10	226.00	2106.23	473.72	340.95 S	328.99 W
2298.00	47.40	225.40	2113.08	481.00	346.03 S	334.20 W
2307.00	48.00	225.70	2119.14	487.66	350.69 S	338.96 W
2317.00	48.00	225.50	2125.83	495.09	355.89 S	344.27 W
2327.00	47.70	226.00	2132.54	502.50	361.07 S	349.58 W
2336.00	47.60	226.70	2138.60	509.15	365.66 S	354.39 W
2346.00	47.10	227.50	2145.38	516.50	370.67 S	359.78 W
2356.00	46.60	227.80	2152.22	523.79	375.58 S	365.17 W
2365.00	46.10	228.60	2158.43	530.29	379.92 S	370.02 W
2375.00	45.70	227.40	2165.39	537.46	384.73 S	375.36 W
2384.00	45.20	226.70	2171.70	543.87	389.10 S	380.05 W
2393.00	45.30	226.30	2178.04	550.26	393.50 S	384.69 W
2403.00	45.70	224.50	2185.05	557.39	398.50 S	389.77 W
2403.00	45.70	224.50	2185.05		398.50 S	389.77 W
2419.00	46.30	224.10	2196.16		406.74 S	397.81 W
2429.00	46.80	223.50	2203.04		411.98 S	402.83 W
2439.00	46.80	224.10	2209.89		417.24 S	407.88 W
2448.00	46.30	224.10	2216.07		421.93 S	412.42 W
2457.00	46.00	225.50	2222.31		426.54 S	417.00 W
2467.00	45.70	225.90	2229.28		431.55 S	422.13 W
2477.00	45.40	226.80	2236.28		436.48 S	427.30 W
2487.00	45.50	228.20	2243.29		441.29 S	432.55 W
2496.00	45.50	228.20	2249.60		445.57 S	437.34 W
2506.00	45.40	228.10	2256.62		450.33 S	442.64 W
2516.00	45.60	229.70	2263.63		455.01 S	448.02 W
2525.00	45.60	229.40	2269.92		459.19 S	452.91 W
2535.00	45.50	229.00	2276.93		463.85 S	458.32 W
2544.00	45.30	230.30	2283.25		468.00 S	463.20 W
2555.00	45.20	230.30	2290.99		472.99 S	469.21 W
2564.00	44.80	230.20	2297.35		477.06 S	474.10 W
2574.00	44.80	229.00	2304.45		481.62 S	479.47 W
2583.00	45.30	228.10	2310.81		485.84 S	484.24 W
2593.00	45.90	227.10	2317.80		490.66 S	489.52 W
2603.00	46.70	225.50	2324.71	700.32	495.74 S	494.74 W
2612.00	46.70	224.10	2330.89	706.87	500.30 S	499.36 W
2622.00	46.50	223.50	2337.76	714.13	505.55 S	504.39 W

DEVIATION SURVEY RECORD

Depth (m)	Incl	Azimuth	TVD	Vert Sect	Rectangular Offsets	
2632.00	46.60	224.10	2344.63	721.39	510.79 S	509.41 W
2641.00	46.30	224.50	2350.84	727.91	515.45 S	513.97 W
2651.00	45.70	223.80	2357.78	735.10	520.61 S	518.98 W
2660.00	44.90	223.40	2364.11	741.50	525.25 S	523.39 W
2670.00	44.30	223.30	2371.23	748.52	530.35 S	528.21 W
2680.00	44.30	224.70	2378.39	755.50	535.38 S	533.06 W
2689.00	44.30	224.70	2384.83	761.79	539.84 S	537.48 W
2699.00	44.50	225.30	2391.98	768.78	544.79 S	542.43 W
2709.00	44.60	225.80	2399.10	775.80	549.70 S	547.44 W
2718.00	44.70	225.40	2405.50	782.12	554.13 S	551.96 W
2728.00	44.80	226.60	2412.61	789.16	559.02 S	557.02 W
2738.00	45.10	227.60	2419.68	796.22	563.83 S	562.20 W
2747.00	45.40	228.00	2426.02	802.60	568.12 S	566.93 W
2756.00	45.40	229.30	2432.34	809.00	572.36 S	571.74 W
2766.00	44.80	230.00	2439.40	816.06	576.94 S	577.14 W
2776.00	43.80	229.30	2446.56	823.02	581.46 S	582.46 W
2785.00	43.00	229.80	2453.09	829.18	585.48 S	587.17 W
2795.00	42.50	227.90	2460.44	835.96	589.94 S	592.28 W
2804.00	42.20	228.20	2467.09		593.99 S	596.79 W
2814.00	42.20	227.00	2474.50		598.52 S	601.75 W
2827.00	42.40	226.80	2484.11		604.50 S	608.14 W
2836.00	43.20	227.60	2490.72		608.66 S	612.62 W
2845.00	43.40	226.90	2497.27		612.85 S	617.16 W
2855.00	43.30	226.50	2504.54		617.55 S	622.15 W
2864.00	43.10	226.10	2511.10		621.81 S	626.61 W
2874.00	43.30	226.50	2518.39		626.54 S	631.56 W
2883.00	43.40	226.40	2524.93		630.80 S	636.03 W
2893.00	43.30	225.80	2532.20		635.56 S	640.98 W
2903.00	43.70	224.80	2539.46		640.40 S	645.87 W
2913.00	44.00	224.10	2546.67		645.34 S	650.72 W
2921.00	44.80	222.40	2552.39		649.42 S	654.56 W
2931.00	45.30	222.20	2559.45		654.66 S	659.32 W
2940.00	45.80	223.80	2565.75		659.35 S	663.70 W
2950.00	46.10	222.50	2572.71		664.60 S	668.62 W
2959.00	46.40	222.10	2578.93		669.41 S	672.99 W
2969.00	46.30	220.90	2585.83		674.82 S	677.79 W
2978.00	45.40	220.60	2592.10		679.72 S	682.00 W
2988.00	44.80	220.00	2599.16		685.12 S	686.58 W
2998.00	44.80	220.10	2606.26		690.51 S	691.12 W
3013.00	45.20	220.40	2616.86		698.61 S	697.97 W
3023.00	45.20	220.60	2623.91		704.00 S	702.58 W
3032.00	44.90	219.70	2630.27		708.87 S	706.69 W
3036.00	44.80	219.70	2633.10		711.04 S	708.49 W
3045.00	44.90	219.60	2639.48		715.93 S	712.54 W
3054.00	44.60	219.50	2645.88		720.81 S	716.57 W

DEVIATION SURVEY RECORD

Depth (m)	Incl	Azimuth	TVD	Vert Sect	Rectangular Offsets	
3064.00	44.50	219.20	2653.00		726.24 S	721.02 W
3073.00	44.30	219.40	2659.43		731.11 S	725.01 W
3085.00	44.30	219.60	2668.02		737.58 S	730.34 W
3095.00	43.90	219.80	2675.20		742.93 S	734.79 W
3122.00	40.40	214.70	2695.22		757.33 S	745.77 W
3138.00	36.90	208.80	2707.72		765.81 S	751.03 W
3157.00	37.00	208.70	2722.90		775.82 S	756.53 W
3185.00	37.80	209.50	2745.15		790.68 S	764.80 W
3195.00	38.10	209.90	2753.03		796.02 S	767.85 W
3204.00	38.10	207.60	2760.12		800.89 S	770.52 W
3214.00	38.40	207.70	2767.97		806.37 S	773.39 W
3224.00	38.50	208.10	2775.80		811.87 S	776.30 W
3253.00	34.70	206.30	2799.08		827.24 S	784.21 W
3282.00	33.40	202.80	2823.11		842.00 S	790.96 W
3311.00	34.60	204.90	2847.15		856.82 S	797.52 W
3340.00	35.30	204.80	2870.92		871.90 S	804.51 W
3369.00	35.40	205.00	2894.57		887.12 S	811.57 W
3397.00	35.60	205.30	2917.37		901.84 S	818.48 W
3416.00	35.60	204.80	2932.82		911.86 S	823.16 W
3426.00	35.50	203.90	2940.95		917.15 S	825.56 W
3436.00	35.50	204.50	2949.09		922.45 S	827.94 W
3445.00	35.70	205.70	2956.41		927.19 S	830.16 W
3455.00	36.00	204.50	2964.52		932.50 S	832.65 W
3465.00	36.30	204.30	2972.59		937.87 S	835.08 W
3474.00	36.60	205.20	2979.83		942.72 S	837.32 W
3482.00	36.80	204.70	2986.25		947.06 S	839.34 W
3500.00	37.26	203.59	3000.62		956.95 S	843.77 W

BIT RECORD

#	Type	Size (mm)	In	Out	Total (m)	Hrs drilled	FOB (daN)	RPM	Cond. T B G
RR28C	EHP51H	311	1243	1327	84	16.00	10/16	60/70	
29C	EPH43H	311	1327	1475	148	71.25	09/16	18/160	2-7-IN KICK OFF
30C	FIPC	311	1375	1541	66	49.25	15/25	20/100	4-2-IN
31C	ERA13	311	1541	1613	72	56.75	15/21	20/130	4-7-IN
32C	FDGH	311	1613	1668	55	33.00	15/21	20/130	3-4-IN
33C	HP13G	311	1668	1801	133	68.50	15/25	20/100	4-2-IN
34C	FDGH	311	1801		0				
35C	GT-1	311	1801	1837	36	23.00	16/25	20/90	3-2-IN
36C	HP43H	311	1837	1863	11	10.50	19/27	20/90	2-2-IN
37C	FM2844	311	1863	2070	207	70.25	12/17	20/90	1-IN
RR37C	FM2844	311	2070	2086	16	14.75	12/15	20/90	3-IN
38C	GT18	311	2086	2156	70	61.00	23/35	20/90	8-7-5mm
39C	GS83F	311	2156	2203	47	41.00	22/34	20/90	6-6-3mm
40C	F2	311	2203	2269	66	71.75	20/30	25/90	7-4-1mm
41C	HP13G	311	2269	2357	88	56.00	15/30	25/90	5-7-1mm
42C	HP13G	311	2357	2434	77	48.00	15/30	150	6-5-1mm
43C	FM2943	311	2434	2567	133	95.75	08/22	20/90	2-1/16mm
44C	EHP41H	311	2567	2597	30	43.50	20/30	20/32	6-4-1/16
45C	JG4	311	2597	2646	49	58.50	20/32	30/90	5-8-IN
46C	MSDGH	311	2646	2697	51	52.00	20/33	35/90	3-8-IN
47C	FM2944	311	2697	2827	130	84.50	06/19	31/150	8-4-1/16
48C	HP13G	311	2827	2833	6	6.00	20	31/150	7-2-4
49C	S83F	311	2833	2851	18	22.25	20/32	31/150	6-2-1/16
50C	GT18	311	2851	2902	51	40.25	32/90	20/90	8-8-IN
51C	GT20	311	2902	2936	34	26.75	32/90	20/90	6-3-IN
52C	F3P	311	2936	2977	41	55.00	28/38	20/90	3-4-1/16
53C	GT18	311	2977	3017	40	30.25	20/18	30/90	7-4-1/4
54C	F2	311	3017	3053	36	42.25	20/24	30/90	6-7-1/4
55C	F27	311	3053	3072	19	30.00	24	30/90	2-4-1/8
56C	HP61A	311	3072	3084	10				
57C		311	3084	3098	14				
58C		311	3098	3115	17				
RR59		311	3115	3115	0				
60C		311	3115	3115	0				
CASING									

BIT RECORD

#	Type	Size (mm)	In	Out	Total (m)	Hrs drilled	FOB (daN)	RPM	Cond. T B G
61	S44G	216	3115	3128	13	5.25	13/15	80	3-2-IN
62	F2	216	3128	3177	49	10.25	14/15	85	
RR61	S44G	216	3071	3116	45	2.5	13/15	65	4-4-IN
63	D12ST	216	3116	3140	26	29.25	13/14	350	
64	EPH51a	216	3140	3246	106	28.50	13/14	120	4-4-IN
65	SS86F	216	3246	3500	254	67.25	13/15	125	
RR61	S44G	216		3500					

BIT CONDITION

SCALE

Tooth Wear (T) 0 - 8
Bearing Wear (B) 0 - 8
Gauge (G) in or (mm) under

New Bit T=0 B=0 G=in

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling (hrs)	Rig activity 00:00 - 24:00
97-07-09	3121	0	--	Inspect BHA; Lay out and replace 3 cracked drill collars; Pick up pipe and run in hole open ended to 1700m; Slip and cut line, run in with rig service and BIOP drills; Finish in to bottom; No fill; Circulate with one pump at 98 strokes; Back ground gas -75 units; Trip gas 119 units; No mud lost.
97-07-10	3121	0	--	Circulate and wait on orders; Hoist into casing; Repair oil leak on the top drive; Wait on orders; Run in hole; Moved 2 400 bbl storage tanks from river to the airstrip and stored 60000 liters of diesel in them; Hole drag down 10/15000 dan; Hole drag up 15/25000 dan; Torque on bottom - 1050/1130 p.s.i.; Back ground gas -102 units; Mud lost last 24 Hr5s -0m3.
97-07-11	3121	0	--	Run in hole and wash 3m to bottom; Circulate and work pipe, rig service and function BOP; Hole drag down 10/15 dan; Hole drag up -15/25 dan; Torque on bottom -950/1050 p.s.i.; Background gas -57 units; Trip gas -468 units; Mud lost last 24 Hrs -1.0m3; Total water hauled to end of June -7125m3 or 498 loads; Total mud cost to condition present mud system and drill from 1400m to 2800m, no allowance for a mud cleaner or diesel, to build volume -\$280,360.00.
97-07-12	Plug back depth 1765m		--	Wait on orders; Hoist to 2825m, circulate, and rig to run abandonment plugs; Plug #1 2825m -2750m ran with 30% excess; Plug down at 15:15 Hrs; Hoist and circulate; W.O.C.; Run in and felt plug at 2734m; Hoist to 1840m and run plug #2 1840m - 1765m ran with 30% excess; Plug down at 00:15 Hrts 07/12/97; Hoist and circulate; W.O.C.

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling (hrs)	Rig activity 00:00 - 24:00
97-07-13	Plug back depth			Run in to 1787m; Did not feel any cement; Hoist to 1757m and circulate; W.O.C.; Circulate and W.O.C.; Felt plug at 1784m; Circulate; Rig to and top up plug 1784m - 1765m; Hoist 10 stands to 1497m; Circulate and rig to run plug #3 1500m -1375m; Ran with 26.9m3 G with 1% d65 + 0.6% D800; Slurry weight 2100kg/m3; Plug down at 13:30Hrs; Hoist 6 stands and circulate; W.O.C.; Run in and felt plug at 1410m; Circulate and rig to top up plug; Top up with 18m3 "G" + 0.5% D800; Slurry weight 2100kg/m3; Plug down at 02:30Hrs July 13; Hoist 5 stands and circulate pipe and hole clean; Back ground gas -56 units; Trip gas -56 units.
97-07-14	1325	0	14.5	Hoist openended pipe; Lay out 25 joints of E pipe; Work on pipe stripper; Make up and run BHA; check caliper and strap in to 1243.5m; Tagged good cement and drill out cement; Strap tally 0.26m difference; Condition mud while running plugs and drilling cement ; Reduce mud weight to 1280 kg/m3 with centrifuge and increase weight back to 1360kg/m3. Hole drg 5 dan; Hole drag up - 10 dan; Torque on bottom - 1040 psi.; Background gas -20 units; Trip gas - 20 units.
97-07-15	1339	12	8	Drill cement to 1327m; Circulate and hoist directional tools; Work tight hole at 1300m; Circulate and clean shale; Hoist to casing shoe, pump trip pill and hoist; Change out hydraulic mud valve on top drive; Pick up and make up Halliburton directional tools; Low speed motor set at 1.5 degrees; Repair hydraulic hose for torque ram; Run in hole to 1075m, test MWD; Finish in and wash to bottom; Survey and orient motor; Drill ahead with survey; Slide 1327m-1334m, 1337m-1339m; Rotate 1334m-1337m; Hole drag down 5 dan; Hole

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling (hrs)	Rig activity 00:00 - 24:00
97-07-20	1511	28	22.50	Drill 311mm hole with rig service and surveys; Slide 1480-1488, 1492-1497, 1503-1508m; Rotate 1488-1492, 1497-1503, 1508-1511m; Hole drag down 5/10dan; Hole drag up 5/10 dan; Torque on bottom 900/950 psi.; Background gas 15 units; Mud lost last 24 Hrs 4m3.
97-07-21	1541	30	22.25	Drill directional 311mm hole with Trudrill slow speed 1.5 degrees motor with rig service and MWD surveys from 1511m -1541m; Slide 12m; Rotate 18m; etc. etc
97-07-22	1552	11	10.00	Trip for bit and mud motor; Pump out 6 stands; Pump pill; Trip out; Change mud motor and bit, service MWD; Trip in BHA; Slip and cut drilling line; Trip in test MWD at 1100m and 1495m; Wash and ream to bottom 1495m-1541m; 10m fill; Work pipe, survey, and orient tool; Directional drill 311mm hole with 197mm 1.83 degrees Halliburton mud motor and survey with MWD 1541m-1552m; Slide 7.0m; Rotate 4.0m; Hole drag down 8/10; Hole drag up 7/10 dan; Torque on bottom 930/1050 psi.; Background gas 14 units; Trip gas 104 units; Mud lost last 24 Hrs 2.0m3.
97-07-23	1582	30	21.50	Directional drill 311mm hole with 197mm 1.83 degrees Halliburton mud motor and survey with MWD 1552m-1582m; Repair air union rubber on #1 pump suction; Sipped out 171mm Halliburton directional tools; 2 197mm mud motors for repair; DBS core barrels and accessories; 171mm Faster jars and shock tool; 2 228mm jars for repair; Dowell division 200 mud pallets; Slide 25m; Rotate 5m; Hole drag down 5/7dan; Hole drag up 5/8dan; Torque on bottom 930/970 p.s.i.; Background gas 18 units; Mud lost last 24 Hrs 5.0m3.

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling (hrs)	Rig activity 00:00 - 24:00
97-07-24	1611	29	22.00	Directional drill 311mm hole with 197mm 1.83 degrees Halliburton mud motor and survey with MWD 1582m-1611m; Change suction valve on #2 pump; Slide 26m; Rotate 3.0m; Hole drag down 5/7dan; Hole drag up 5/10dan; Torque on bottom 930/970psi.; Back ground gas 25 units; Mud lost last 24 Hrs 2.4m3.
97-07-25	1627	16	10.50	Directional drill 311mm hole with 197mm 1.83 degrees Halliburton mud motor and survey with MWD 1611m-1613m; Trip for bit, pump out 2 stands; Pump pill trip out; Change bit and service MWD; Trip in to 987m; Change seals and saver sub on Tesco top drive; Trip in test MWD at 1125m; Wash and ream to bottom 1554m-1613m 4.0m fill; Orient tool; Directional drill 311mm hole with 197mm 1.83 degrees Halliburton mud motor and survey with MWD 1613m-1627m; Slide 15.0m; Rotate 1.0m; Hole drag down 5/7dan; Hole drag up 5/10dan; Torque on bottom 930/970 psi.; Background gas 18 units; Trip gas 259 units; Mud lost last 24 Hrs 3.5m3.
97-07-26	1667	40	22.25	Drill directional 311mm hole with 197mm 1.83 degrees Halliburton mud motor and survey with MWD 1627m-1667m; Slide 39.0m; Rotate 1.0m; Hole drag down 3/6dan; Hole drag up 5/10dan; Torque on bottom 975/1000 psi.; Background gas 20 units; Mud lost in last 24 Hrs 1.0m3.

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling Rig activity (hrs) 00:00 - 24:00
97-07-27	1681	14	10.50 Directional drill 311mm hole with 197mm 1.83 degrees Halliburton mud motor and survey with MWD 1167m-1668m; Mud motor stalling stator rubber failed; Circulate out 2 stands; Pump pill; Trip out to change mud motor and bit, service MWD; Trip in to 1003m; Repair #2 pump and service Tesco top drive; Trip in and test MWD at 1125m; Wash and ream 1648m-1668m; 3m fill; Directional drill 311mm hole with 197mm 2.12 degrees Vector mud motor and survey with MWD 1668m-1681m; Slide 11.0m; Rotate 2.0m; Hole drag down 5/7dan; Hole drag up 8/15dan; Torque on bottom 980/1050 psi.; Background gas 15 units; Trip gas 111 units; Mud lost last 24 Hrs 1.0m3.
97-07-28	1723	42	21.25 Directional drill 311mm hole with 197mm 2.12 degrees Vector mud motor and survey with MWD 1681m-1723m; Pulsar failed on MWD; Prepare to trip out; Slide 16.0m; Rotate 26.0m; Hole drag down 5/10dan; Hole drag up 10/15dan; Torque on bottom 1100/1125 p.s.i.; Background gas 11 units; Mud lost last 24 Hrs 1.5m3.
97-07-29	1746	23	11.00 Directional drill 311mm hole with 197mm 2.12 degree Vector mud motor and survey with MWD 1723m-1724m; Circulate out 2 stands; Pump pill; Trip out; Tight hole 1665m; Set mud motor to 1.83 degrees, change out MWD and jars; Trip in BHA; Repair Tesco top drive; Trip in test MWD at 1126m; Trip to 1640m;; Wash and ream 1640m-1724m; Survey at 1697m and 1706m; Orient tool; Directional drill 311mm hole with 197mm 1.83 degrees Vector mud motor and survey MWD 1724m-1746m; Change valve and seat on #2 pump; Slide 16.0m; Rotate 7.0m; Hole drag down 5/10 dan; Hole drag up 10/18dan; Torque on bottom 1080/1110 psi.; Background gas 10; Trip gas 41; Mud lost last 24 Hrs 3.5m3.

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling Rig activity (hrs) 00:00 - 24:00
97-07-30	1790	44	22.0
Directional drill 311mm hole w/ 197mm 1.83 Vector mud motor and survey w/ MWD 1746m-1790m; change suction on #1 pump; sample quality poor to fair;			
97-07-31	1801	16	5.75
Directional drill 311mm hole with 197mm Vector mud motor and survey with MWD 1790-1801m; pump out 13 stds -pump pill - trip out -change out mud motor and bit, service MWD -trip in BHA slip and cut line -trip in to 1126m - test MWD -trip in to 1449m -work tight hole 1445-1432m - wash and ream 1432m-1520m - hole sloughing.			
97-08-01	1801	0m	0
Wash and ream 1510-1512m - pump out to 1404m - pump pill trip out - lay down directional tools -trip in with bit -wash and ream 1426-1801m -hole sloughing 1510-1523m - circ and condition hole and mud -circ out 13 stds - pump pill -trip out to csg shoe -repair Tesco top drive and #2 pump.			
97-08-02	1801	0m	0
Repair Tesco top drive - trip in to 1393m - wash 1393m-1605m - wash and ream 1605m - 1801m -hard reaming 1770 -1801m -Circ and work pipe -pump out 1801m-1604m -pump pill - trip ot and make up directional tools -trip in - shallow test MWD at 1086m -trip in to 1485m -wash 1485m-1634m			
97-08-03	1833	32	20.25
Wash and ream 1634-1801m - 8m fill - directional drill w/ 196mm low speed 1.83 deg Trudrill mud motor and survey with MWD 1801m-1833m - repair pop valve and #2 pump suction			
97-08-04	1837	04	2.75
Repair pump #2 - directional drill 311mm hole with 196mm 1.83 deg Trudrill mud motor and survey with MWD 1833m-1837m -pump pill - pump out 6 stds -trip out lay down 3 dc's and mud motor -pull wear bushings -pressure test BOP's -pick up directional tools and BHA -Trip in to 1144m and shallow test MWD -trip in hole			

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling Rig activity (hrs) 00:00 - 24:00
97-08-05	1848	11	10.5 Wash and ream 1147-1611m- circ hole clean - hole unloading - wash 1611 - 1731m - ream 1731-1738m, 1796m-1837m; directional drill 311mm hole and survey with MWD 1837m-1848m - repair #2 pump suction
97-08-06	1863	15	20.25 Drill ahead 311mm hole with directional tools - work on pumps and check screens for pump pressure increase. Hoist 5 stds with pump on, flow check and pump trip pill - POH
97-08-07	1884	21	7 Hoist with bit - service tools and change out motor -RIH with new PDC bit to casing shoe, slip and cut line -Service tesco top drive -RIH to 1048m -break circulation and clean bridge -Check MWD. Clean bridge at 1420m -RIH to 1670m -Wash to bottom -ream 1796-1831m and 1856 -1863m -drill ahead 311mm hole with directional tools 1863m-1884m
97-08-08	1970	86	21.75 Work on #1 Pump - Directional drill 311mm hole 1884-1970m and survey with MWD.
97-08-09	2019	86m	18.25 Drill with directional tools 1970-1998m - Work on pumps - Wiper trip to 1690m -repair top drive - Hole pulled tight at 1864m - Directional drill ahead 311mm hole 1998m-2109m
97-08-10	2068	49m	21.75 Directional drill 311mm hole 2019m-2068m with vector low speed mud motor and survey w/ MWD. Hole condition good and sample quality is fair.

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling Rig activity (hrs) 00:00 - 24:00
97-08-11	2070	2m	1.75 Drill 311mm hole with directional tools and survey w/ MWD 2068-2070m; pump pressure increased. Circ, mix trip pill and hoist 5 stds w/ one pump on the well. Pump trip pill and hoist into casing. BOP drill. Finish out. Change out jars and motor. Pick up new jars, motor and gamma tools. Rerun PDC. Strap in BHA, replace seals on top drive actuator valve. Finish in to 1850m Break circ and check MWD and GR tool. Log in to 1968m.
97-08-12	2086	16	
97-08-13	2100	14	7.75 Circulate sample and mix trip pill; Lay out one single and circulate out 5 stands; Pump trip pill and hoist with required flow checks; Change out motors and bit; Service MWD tools and run in to 1311m, break circulation and test MWD; Change out suction valve on #1 pump; Run in (stage motor every 10 stands); Wash to bottom from 1925m; Check survey and drill ahead; Slide 2086m-2100m; Rotate 2090m-2100m; Hole drag down 10/12dan; Hole drag up 7-100 dan; Torque on bottom 1050-1200 psi.; Background gas 125 units; Mud lost last 24 Hrs 4m3.
97-08-14	2126	26	22.75 Drill 311mm hole with rig service and surveys; Slide 2113m-2118m and 2122m-2126m; Rotate 2100m-2118m and 2118m-2122m; Hole drag down 7/10 dan; Hole drag up 10/13 dan; Torque on bottom 100/1300 p.s.i.; Background gas 140 units; Mud lost last 24 Hrs 5.2m3.
97-08-15	2147	21	20.75 Drill 311mm hole with rig service and surveys; Slide 13m; Rotate 8m; Background gas 100, and 45 over last four meters.

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling (hrs)	Rig activity 00:00 - 24:00
97-08-16	2156	9	9.25	Drill 311mm hole with rig service and surveys from 2147m - 2156m; Change graber dies on top drive; Circulate out 5 stands; Mix and pump trip pill; Hoist with required flow checks; Change out motor, MWD, and bit; Run in, check MWD at 1150m; Stage motor in hole; Slide 2152m-2156m; Rotate 2147m-2152m; Hole drag up 10/15000 dan; Hole drag down 10/15000 dan; Torque on bottom Background gas 100 units; Mud lost last 24 Hrs 5.0m3.
97-08-17	2160	4	2.00	Run in, check MWD; Stage motor in hole; Wash from 2117m-2143m; Ream from 2143m-2155m; Drill 311mm hole with rig service and MWD survey; MWD tools failed; Circulate out 5 stands; Mix and pump trip pill; Hoist with required flow checks; Change out MWD tool; Run in, check MWD; Stage motor in hole; Slide 0m; Rotate 4m;
97-08-18	2183	23	18.75	Finish staging motor in to 2024m; Wash to bottom; Log to 2160m; Drill 311mm hole; Replace suction valve and seat on #2 pump; Drill with rig service and surveys to 2183m; Slide 2161m-2167m, 2174m-2177m, 2181m-2183m; Rotate 2167m-2181m; Hole drag up 210/12dan; Hole drag down 10/20 dan; Torque on bottom 1100/1300 psi.; Background gas 25 units; Mud lost last 24 Hrs 2.1m3.
97-08-19	2203	20	20.00	Drill 311mm hole; Change discharge valve and seat on pump #1; Drill ahead with rig service and surveys to 2203m; Pump trip pill and hoist for bit; Slide 2183m-2186m, 2-90m-2196m, 2200m-2203m; Rotate 2186m-2190m, 2196m-2200m; Hole drag up 10/15000 dan; Hole drag down 10/13 dan; Torque on bottom 1100/1350 p.s.i.; Background gas 5 units; Mud lost last 24 Hrs 2.2m3.

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling Rig activity (hrs) 00:00 - 24:00
97-08-20	2003	0	0.00 Hoist for bit with required flow checks, rig service: Inspect B.H.A.; Repair break in torque line; Work on top drive; Handle directional tools; Change out bit; Run in; Finish staging motor in to 2082m; Break circulation; Wash to bottom.
97-08-21	2222	19	22.00 Directional drill 311mm hole with low speed 1.83 degrees Trudrill mud motor and survey MWD, log GR 2203m-2222m; Held BOP drills with both crews; Slide 13m; Rotate 9m; Hole drag up 10/15 dan; Hole drag down 10/20 dan; Torque on bottom 1100/1350psi; Background gas 10 units; Mud lost last 24 Hrs 1.5m3.
97-08-22	2243	21	22.00 Directional drill 311mm hole with low speed 1.83 degrees Trudrill mud motor, MWD, rig service and Gamma ray log from 2222m -2243m; Slide 13m; Rotate 8m;
97-08-23	2265	22	22.00 Drill directional 311mm hole with low speed 1.83 degrees Trudrill mud motor, MWD surveys, Gamma ray log, and rig service from 2243m-2265m.
97-08-24	2276	11	9.00 Directional drill 311mm hole with low speed 1.83 degrees Trudrill mud motor, MWD surveys and Gamma ray log, and rig service from 2265m-2270m: Service top drive at 2268m; Trip for motor and bit; Pump out stands; Mix and pump trip pill: Hoist for bit with required flow checks; Change out motor and bit; Add junk basket; Run in hole; Finish staging motor at 1863m; Break circulation; Wash to bottom: Directional drill 311mm hole with low speed 1.83 degrees mud motor, MWD surveys, Gamma ray log, and rig service from 2270m-2276m; Slide 6m; Rotate 5m.

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling (hrs)	Rig activity 00:00 - 24:00
97-08-25	2310	34	19.50	Directional drill 311mm hole with MWD log with GR 2276m-2310m; Repair pump #1 pony rod, head, and liner; Slide 2279m-2284m, 2289m-2302m, 2308m-2310m; Rotate 2284m-2289m; 2302m-2308m; Hole drag up 10/18 dan; Hole drag down 10/15 dan; Torque on bottom 1180/1350 psi; Mud lost last 24 Hrs 1.9m3.
97-08-26	2343	33	22.50	Directional drill 311mm hole with 196mm Vector low speed mud motor, MWD surveys, Gamma ray log, and rig service from 2310m-2343m. Slide 16m; Rotate 17m;
97-08-27	2357	14	10.25	Directional drill 311mm hole with 196mm low speed 1.83 deg mud motor and survey with MWD/GR 2343-2357m; repair #1 main electrical to pump traction motors; circ out 6 stds - pump pill -trip out -change out mud motor and bit service MWD -trip in and shallow test MWD -trip in
97-08-28	2390	33	17.25	Trip in - ream bridge @ 2154-2160 - Trip in - ream bridge at 2241m - wash and ream 2241-2357m -Directional drill with low speed mud motor and survey with MWD/GR 2357-2390m
97-08-29	2424	34	22.5	Directional drill 311mm hole 2390-2424m and survey with MWD/GR; sample quality fair-good with the addition of oil wetting agent to mud system; scattered cavings throughout.
97-08-30	2434	10	8.5	Directional drill 311mm hole 2424-2434m; Pump out 10 stds; pump pill POH; Change out BHA; Pressure test BOP's and pick up directional tools.

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling Rig activity (hrs) 00:00 - 24:00
97-08-31	2451	17	10.25 Pick up directional tols - lay down 2 dc's - pick up 10 127mm HWDP - slip and cut line - trip in to 1128mm shallow test MWD - trip in to 2080m -wash and ream 2080-2434m - directional drill 311mm hole with 197mm 1.83 deg vector mud motor and survey with MWD log with GR 2434-2451m.
97-09-01	2484	33	21.25 drill 311mm hole with low speed mud motor and survey with MWD/GR 2451-2484m.
97-09-02	2520	36	21.0 drill 311mm hole with Vector low speed mud motor and survey with MWD/GR 2484-2520m.
97-09-03	2547	27	21.75 drill ahead 311mm hole with vector low speed mud motor and survey with MWD/GR 2521-2547m.
97-09-04	2565	18	20.0 Drill 311mm hole with 197mm 1.83deg vector mud motor and survey with MWD/GR; work on #1 pump, chnage discharge valve; work on #2 pump change out valves and pony rod.
97-09-05	2567	2	2.75 Drill 311mm directional hole and survey with MWD/GR 2565-2567m; Hoist for bit at 2567m.Hole pulled tight from 2407-2123m. Finish out. Lay down tools. Service top drive, change grabber dies, saver sub and hoses. Picked up new Trudrill 7/8 Lobe 1.83 deg motor and MWD. RIH. Repair hydraulic hoses, check MWD. Finish in to 2284m. Wash and ream from 2284m to 2459m.
97-09-06	2586	18	22.0 Ream and wash 2459-2567m; Drill 311mm hole with trudrill 1.83deg mud motor and survey w/ MWD/GR.
97-09-07	2595	9	15.75 Drill to 2592m with 1.83deg motor and survey with MWD/GR. Work tight hole and wiper trip to 2250m. Circulate out and back in to clean low side of well. Drill ahead 2592 - 2595m.

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling Rig activity (hrs) 00:00 - 24:00
97-09-08	2597	2	5.0 Drill 311mm directional hole to 2597m. Trip for motor. Circulate out to 2425. Lay down washed drill pipe. Finish out, repair pipe spinner. Change out drilling jars and lay down directional tools. Make up bit and junk sub. Run in to 2250m. Circulate from 2250m to bottom, work junk sub to clean up broken inserts.
97-09-09	2604	7	6.75 Work junk sub and drill 1m new hole. Hoist. Circulate 5 stds out. Pump trip pill and finish out with junk sub. Clean and inspect junk sub. Pick up directional tools. Run in BHA. Slip and cut line. Service top drive. Run in hole and check MWD at 1167m. Stage motor in hole to 2450m. Circulate to bottom. Work junk sub. Drill 311mm hole with truddrill 203mm 7/8lobe 1.83deg motor and survey with MWD/GR to 2604m.
97-09-10	2621	17	22.25 Drill 311mm hole with Tru Drill 1.83 degrees motor, MWD, Gamma ray log from 2604m-2621m. Rig service and surveys. Work on #2 mud pump (valve). Slide 9m; Rotate 8m; Hole drag up 20/25000 dan; Hole drag down 15/20 dan; Torque on bottom 1100/1400 psi; Background gas 22 units; Mud lost last 24 Hrs 4.5 m3.
97-09-11	2638	17	20.50 Drill 311mm hole with Tru Drill 1.8 degrees motor with MWD and Gamma ray logging; Rig service and surveys. Work on #2 mud pump (valves); Work pipe to clean up hole after survey. Slide 5m; Rotate 12m; Hole drag up 10/20 dan; Hole drag down 8/16 dan; Torque on bottom 100/1450 psi; Background gas 26 units; Mud lost last 24 Hrs 5.6m3

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling Rig activity (hrs) 00:00 - 24:00
97-09-12	2646	8	10.00 Drill 311mm hole with Tru Drill 1.8 degfreees mud motor, MWD surveys, Gamma ray logging and rig service from 2638m-2646m; Circulate and work hole; Hoist for bit; Circulate clean hole to 2339m; Work on top drive (kelly cock); Circulate and clean hole to 2340m; Finish out; Check monel seals; Lay out tools and motor; Slide 2m; Rotate 6m; Dowell cementer and 20 tonne of G on location. Empty fuel truck stuck on road (towed with Hayes) Hole drag up 10/20 dan; Hole drag down 8/14 dan; Torque on bottom 1250/1550 p.s.i.; Mud lost last 24 Hrs 5.6m3; BOP drill and meeting with crew; Sent 1 tire for repair and 1 to be replaced with a new tire for the Ranger truck; Returned 1 Security DBS PDC FM2943 for rebuild to DBS Nisku.
97-09-13	2655	9	9.50 Lay out motor and MWD; Change out monel collars; Pick up tools and run in hole to casing shoe; Service and repair Tesco to drive (wiring for kelly cock valve. Tesco man replaced switch seemed to have put wires back the wrong way; he needed blue print from office to get wire scheme and repair); Check MWD finish in hole; Wash and clean from 2377m; Work junk sub and drill with a Tru Drill 1.8 degrees motor from 2646m-2655m; Survey, run Gamma ray log and rig service; Slide 4m; Rotate 5m; Hole drag up 15/20 dan; Hole drag down 10/17 dan; Torque on bottom 1200/1450 psi; Background gas 16 units; Mud lost last 24 Hrs 3.8m3; Lost 2.0m3 while tripping.
97-09-14	2675	20	21.75 Drill 311mm hole with Tru Drill 1.83 degrees mud motor with rig service, gamma ray logging and surveys. Work on #1 mud pump (suction valve); Repair leak on #1 pump suction; Slide 6m; Rotate 14m; Hole drag up 15/20 dan; Hole drag down 10/13 dan; Torque on bottom 1250/1500 psi; Background gas 12 units; Mud lost last 24 Hrs 2.5m3.

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling Rig activity (hrs) 00:00 - 24:00
97-09-15	2697	22	20.25 Drill 311mm hole with Tru Drill 1.8 degrees motor; Rig service, gamma ray and surveys; Work on mud pumps (valves and suction); Slide 4m; Rotate 18m; Hole drag up 15/20 dan; Hole drag down 12/17 dan; Torque on bottom 1200/1450 psi; Background gas 15 units; Mud lost last 24 Hrs 4.2 m3.
97-09-16	2702	5	2.75 Drill 311mm hole to 2697.4m. Circulate and work pipe; Mix trip pill and circulate out 12 stands; Pump pill and hoist; Handle directional tools; Run in BHA and service Tesco top drive: Run in to 1150m and check MWD, run in to 1177m and ream bridge; Run in and ream bridge at 1426m; Finish in to 2350m and wash and clean to bottom; Drill 311mm Halliburton tandem motor set at 1.75 degrees; Rotate 5m; Hole drag up 15/20 dan; Hole drag down 15/30 dan; Torque on bottom 100/1650 psi; Background gas 25 units; Mud lost last 24 Hrs 2m3.
97-09-17	2748	46	19.00 Directional drill 311mm hole with 197mm 1.83 degrees tandem Halliburton mud motor and survey with MWD, log Gamma ray from 2702m-2748m. Change head s on #2 pump. Work pipe every 5m hole not cleaning properly. Slide 5m. Rotate 46m.
97-09-18	2771	23	14.50 Directional drill 311mm hole with 197mm 1.83 degrees tandem Halliburton mud motor and survey with MWD, log Gamma ray from 2748m-2751m. Wiper trip 20 stands, circulate out 10 stands. Tight hole at 2628m-2635m. Wash and ream in 2640m-2751m, 1.0m fill. Directional drill 311mm hole with 197mm 1.83 degrees tandem Halliburton mud motor with MWD surveys, and log Gamma ray from 2751m-2771m. Changed 3 heads and liners, valves and seats on #1 and #2 mud pumps. Slide 5m. Rotate 18m.

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling Rig activity (hrs) 00:00 - 24:00
97-09-19	2794	23	20.00 Directional drill 311mm hole with 197mm 1.83 degrees tandem Halliburton mud motor with MWD surveys and log Gamma ray from 2771m-2794m. Slide 14m. Rotate 9m.
97-09-20	2822	28	21.50 Directional drill 311mm holke with 197mm 1.83 degrees Halliburton mud motor, MWD surveys and log Gamma ray from 2794m-2822m. Slide 10m. Rotate 18m.
97-09-21	2828	6	7.50 Directional drill 311mm hole with 197mm 1.83 degrees mud motor, MWD surveys, and Gamma ray from 2822m-2828m. Stator rubber over shale shaker. Drilling slowed down. Trip for motor and PDC bit. Bit worn. Buttons missing. Slide 2m. Rotate 4m.
97-09-22	2833	5	6.50 Run in hole without junk basket (missing buttons?) and with MWD check. Bridge at 1940m. Directional drill 311mm hole with mud motor, rig service, MWD, and log Gamma ray from 2828m-2833m. MWD tool failed. Drilling slowed down to 2 hours per meter. Trip for MWD tool, bit. Slide 0m. Rotate 5m.
97-09-23	2848	15	18.50 Change bit, broken teeth. Change BHA, add junk basket. Run in with MWD check and rig sevice. Work on pump and wash and clean to bottom. Directional drill 311mm hole with 197mm 1.75 degrees Halliburton mud motor, with MWD surveys, and Gamma ray logging from 2833m-2848m. Slide 8m. Rotate 7m.
97-09-24	2851	3	4.5 Drill 311mm directional hole 2848-2851m (3m), work junk sub and circ out 6 stds, pump pill and trip out to change mud motor and bit -service MWD -trip in BHA -shallow test MWD at 1162m -wash and ream to bottom 2734 - 2851m.

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling Rig activity (hrs) 00:00 - 24:00
97-09-25	2882	31	21.5 Directional drill 311mm hole with 197mm 1.83deg Vector mud motor and survey with MWD/GR 2851-2882m -work tight hole 2858m - 2852m.
97-09-26	2902	20	18.75 Drill 311mm directional hole with 197mm 1.83deg mud motor and survey with MWD/GR 2882-2892m, pump pill and POH.
97-09-27	2902	0	0 Work on top drive - pump pill - trip out and lay down directional tools - pull wear bushings -Pressure test BOP's -Install wear bushing - Make up directional tools and bit Trip in and test MWD shallow at 1165m.
97-09-28	2927	25	18.25 Trip in to 2846m - wash and ream 2846m-2897m ream undergauge hole 2897m- 2902m no fill - Survey - directional drill 311mm hole with 197mm 1.83deg Vector mud motor and survey with MWD/GR 2902m-2927m - change head on pump 2
97-09-29	2936	9	8.8 Directional drill 311mm hole with 197mm 1.83deg vector mud motor and survey with MWD/GR 2927-2936m -work junk sub -circ out 6stds -pump pill - trip out -change mud motor and bit -service MWD -make up BHA - slip and cut drilling line -trip in with bit 54 and truddrill mud motor.
97-09-30	2948	12	16 Trip in with bit - wash to bottom 2919-2936m no fill -drill ahead 311mm directional hole with 197mm 1.83deg truddrill mud motor and survey with MWD/GR 2936-2938m -flow check - circulate out trip gas 3656 units - directional drill 311mm hole 2938-2948m bit torque and rough drilling 2947.7-2948m

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling (hrs)	Rig activity 00:00 - 24:00
97-10-01	2960	12	21.5	Directional drill 311mm hole with truddrill 1.83deg mud motor and survey with MWD/GR 2948-2960m. Note: fracture at 2937m (3656unit gas show) is probable fault with last survey over this interval showing almost 2 deg right turn (4deg DL). Fracture with small rapidly depleting gas show (783 / 147) at 2948m.
97-10-02	2976	16	19.25	circ out gas cut mud at 2975m Max gas 2730m from fracture at 2973.6m. mix barite and circ out gas. drill ahead to 2976
97-10-03	2984	8	4.75	Drill to 2977m Circulate sample and work junk sub. Circulate 6 stds out and pull 6 stds. BOP drill. Pump trip pill and hoist. Hole was good. Lay down junksub and motor. Service MWD and pick up Dynadrill and set to 1.83deg. RIH, Check MWD and stage motor in hole. Wash to bottom from 2935m. Drill ahead 311mm directional hole , circulate out trip gas 3300 units. drill ahead 311mm directional hole 2977-2984m
97-10-04	3012	28	20	Drill 311mm hole with rig service and survey with MWD/GR to 2999.77m. repair steel ring gasket on discharge tee #2 pump. Drill ahead 311mm directional hole to 3012m.
97-10-05	3017	5	6	Drill 311mm hole with rig service and survey with MWD/GR to 3017m Pressure and torque spikes. Circ bottoms up sample. Circulate and hoist to 2742m. Flow check and pump trip pill. Hoist and lay down 25 joints of XHE drill pipe. Change out motors, check MWD. Pick up new vector mud motor and bit. RIH with BHA. Pick up 25 jts of good hard band XHE pipe nad RIH.
97-10-06	3032	15	14.25	Finish in hole. Wash and ream 2 stds to bottom. Work Junk sub. Drill 311mm directional hole with vector low speed mud motor and survey with MWD/GR to 3032.5m. Circulate sample

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling Rig activity (hrs) 00:00 - 24:00
97-10-07	3048	16	21.75 Drill ahead 311mm directional hole with low speed vector mud motor and survey with MWD/GR 3032-3048m.
97-10-08	3053	5	6.25 Drill 311mm hole to 3053m. Circulate sample. Drill to 2053m and circulate sample. Bit torqued up. Mix pill and circulate out 6 stands. Pump pill and hoist. Lay out singles with worn hard band. Clean junk sub, and lay out motor. Check MWD. Pick up new motor and bit. Hole was good on trip out. Rotate 5m. Hole drag up 20/30 dan. Hole drag down 10/15 dan. Background gas 700 units. Mud lost last 24 Hrs 4.2m3.
97-10-09	3055	2	3.25 Run in hole. Pick up singles with good hard banding. Slip and cut line. Run in. Two screens down. Work on panels. Blown fuses and RLI relays. Finish in with MWD check and staging motor to 3020m. Ream to bntom and work junk sub. Circulate out trip gas maximum 4050 units. Work on #2 pump. Drill 311mm hole. Survey. Circulate 3055m sample. Rotate 2m. Hole drag up 15/30 dan. Hole drag down 15/20dan. Torque on bottom 1350/1650 psi. Background gas 156 units. Mud lost last 24 hrs 2.7m3.
97-10-10	3068	13	21.00 Circulate 3055m sample. Drill 311mm hole with rig service and surv ey. Work on both pumps. Rotate 13m. Hole drag up 35/45 dan. Hole drag down 20/25 dan. Torque on bottom 1350/1600 psi. Background gas 120 units. Mud lost last 24hr 3m3.

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling Rig activity (hrs) 00:00 - 24:00
97-10-11	3072	4	5.75 Drill 311mm hole with Vector 1.83 degrees slow speed mud motor. Rig service, MWD surveys, and Gamma ray logging. Circulate 3072m sample. Work on junk sub and hoist for bit. Circulate 6 stands out, pump trip pill and hoist to 2010m. Check Elmago, outside bearing was worn. Pull into casing. Circulate hole and work Elmago brake. Wait on bearing. Rotate 4m. Hole drag up 25/35 dan. Hole drag down 10/15 dan. Torque on bottom 1350/1500 psi. Back ground gas 125 units. Mud lost last 24 hrs 2.6m3.
97-10-12	3072	0	0 Wait on mechanic and repairs for Elmago (inertia hydromatic) brake. Change bearings. Finish out of hole. Lay down motor and junk sub. Pick up a new Tru drill motor set at 1.832 degrees. Run in hole. Shallow test MWD at 1124m. Stage in motor. Background gas 0 units. No mud lost last 24 hrs.
97-10-13	3084	12	18.75 Finish in hole with new bit. Wash and ream from 3014m. Drill 311mm hole with Tru Drill 1.83 degrees motor. Rig service and survey. Rotate 12m. Hole drag up 20/30 dan. Hole drag down 15/20 dan. Torque on bottom 1300/1500 p.s.i. Background gas 50. Mud lost last 24 hrs 3m3.
97-10-14	3095	11	21.50 Drill 311mm hole with Tru Drill 1.83 degrees slow speed motor. Rig service and MWD survey. Repair mud pumps. Rotate 11m. Hole drag up 20/30 dan. Hole drag down 10/15 dan. Torque on bottom 1400/1550 psi. Back ground gas 80 units. Mud lost last 24 hrs 1.5m3.

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling (hrs)	Rig activity 00:00 - 24:00
97-10-15	3098	3	7.25	Directional drill 311mm hole with Tru Drill 1.83 degrees motor, MWD survey, and Gamma ray logging from 3095m to 3098.68m. Trip for bit and/or motor. Hoist, mix pill and pump trip pill, trip with flow check and rig service. Handle directional tools. Run in hole with MWD check at 1128m.
97-10-16	3115	17	13.50	Run in hole, circulate, and ream. Finish staging motor, and tagged bottom at 3101m. This is 2.32m lower than measured at beginning of this trip. Directional drill 311mm hole with Dyna Drill 1.83 degrees mud motor, MWD surveys, Gamma ray logging, rig service, and circulating bottom samples from 3101m-3115m.
97-10-17	3115	0	0	Circulate 3115 m sample. Circulate. Mix trip pill. Hoist several stands. Pump pill. Handle and lay down directional tools. Change bit. Run in Slide 0m. Rotate 8m. Hole drag up 25/30dan. Hole drag down 15/20dan. Torque on bottom 1300/1550 p.s.i. Back ground gas 80 units. Trip gas 1080 units. Mud lost last 24 hrs 2.8m3.
97-10-18	3115	0	0	Circulate hole for logging. Circulate out 6 stands. Pump pill trip out. Rig to log with Computalog. Run in with XY-GR-DAR-STI tools. Tools failed except XY calipers at 2800m. Check tools and bridle on surface. Run log tools to 3000m. Tools failed, pull tools. Geologist changed logging program. Run in with STI -GR and wait on new DAR tool. Hole bridged at 1900m. Pull log tools out. Wire line damaged, birds nest at 700m, due repeated efforts to get tool through bridge. Rig down loggers. Hole drag up 25/30dan, Hole drag down 15/20dan. Torque on bottom 1325/1430 p.s.i. Background gas 80 units. Trip gas 1980 units (Was much higher estimated at 3200 units. This was not recorded because the high gas reading unit in Minipac 2100 failed.) Mud lost last

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling Rig activity (hrs) 00:00 - 24:00
			24 hrs 4.2m3. Geologist proposed to rig out loggers and proposed changed logging program to collect needed data before jeopardizing hole.
97-10-19	3115	0	0 Rig out loggers. Trip with RR #59 bit. No hole problems to 3105m. Wash and ream 3105m-3115m. 1.5m fill. Drill on rubber bull nose loggers lost in hole. Work tight hole. Drill up rubber bull nose. Circulate condition hole. Circulate out 6 stands. Pump pill trip out. Rig to log and log with Computalog. Hole drag up 25/30 dan. Hole drag down 15/20dan. Torque on bottom 1325/1430 psi. Background gas 120 units. Trip gas 3240 units. Mud lost last 24 hrs 1.0m3.
97-10-20	3115	0	0 Log well with Computalog STI-BCS-GR 3116.4m-1006.4m. Tight hole at 1490m-1478m. Loggers pulled 400 psi. over normal weight to loosen tool. Geologist stopped logging operations. Wait on orders. Senior V.P. Ranger ordered rig out loggers, to condition hole for setting casing. Trip in with bit # 60 to 1250m. Circulate and work pipe, Hole condition good. Pump pill trip out. Pick up 3pt reamer. Trip in BHA. Slip and cut drill lie. Repair mud manifold valves. Trip in to 1326m. Strap hole. Wash and ream 1326m -1565m. Hole drag up 2/5000dan. Hole drag down 1/2dan. Torque on bottom 920/1270 psi. Background gas 20. Mud lost last 24 hrs 3.5m3.

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling Rig activity (hrs) 00:00 - 24:00
97-10-21	3115	0	0 Pull up to 1485m. Circulate change to 84 mesh shaker screens. Ream with bit and 3 point reamer 1485m-1584m. Hole unloading shale 1485m-1548m. Work pipe circulate hole clean. Ream with bit and 3 point reamer 1548m-3115m. 2.5m fill on bottom. Circulate and work pipe condition for casing. Hole drag down 5/15dan. Hole drag up 2/8 dan. Torque on bottom 1450/1740 psi. Background gas 85 units. Trip gas 950 units. Mud lost last 24 hrs 4.5m3.
97-10-22	3115	0	0 Circulate condition hole for casing. Wiper trip out to 1300m. Hole tight 1468m-1395m. Wash and ream 1325m-1500m. Circulate and work pipe, hole unloading 1/8" -3/4" in size. Circulate out to 1293m. Wash and ream 1310m-1530m. Hole cleaned up. Trip in with bit and 3point reamer to bridge at 1675m. Wash and ream 1675m-1756m. Hole drag up 5/15dan. Hole drag down 1/5dan. Torque on bottom 1450/1740 psi. Background gas 25 units. Mud lost last 24 hrs 1.5m3.
97-10-23	3115	0	0 Wash and ream 1756m-1786m. Trip out. Tight hole at 1438m-1430m. Lay down 3 ppoint reamer. Trip in BHA. Slip and cut drill line. Trip in with RR #60 bit. Wash and ream bridges 1440m-1462m, 1662m-1842m, 1936m-1952m. Repair top drive. Trip in. Clean fill 3104m-3115m. Circulate condition hole and mud. Hole drag up 10/25dan. Hole drag down 2/5dan. Torque on bottom 1450/1740 psi. Background gas 180 units. Trip gas 3240 units. Mud lost last 24 hrs 2.1m3.

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling Rig activity (hrs) 00:00 - 24:00
97-10-24	3115	0	0
			Circulate condition hole and mud. Circulate out 1 stand. Trip out tight hole at 2518m-2522m & 1438m-1444m. Trip out to 1000m. Trip in. Wash and ream 3098m-3115m. 1.0m fill. Circulate condition hole for casing. Circulate out 1 stand. Pump pill trip out to run casing. Hole drag up 10/15 dan. Hole drag down 5dan. Torque off (??) bottom 1400/1650 p.s.i. Back ground gas 185 units. Trip gas 2220 units. Mud lost last 24 hrs 1.8m3
97-10-25	3115	0	0
			Trip out. Lay down 228mm DCS. Pull wear bushing. Change top pipe rams to 244.5mm and test gate seals to 1400 kpa and 15 kpa. Rig up to run 244.5mm casing. Safety meeting. Run 244.5 mm casing. Changed to 350 ton slips and elevators at casing shoe. Mud lost last 24 hrs 0.8m3.
97-10-26	3115	0	0
			Run 51 joints 244.5mm 662.42m 79.62kg/m L-80 Butress - 180 joints 244.5mm 2460.04m 69.94 kg/m L-80 Butress Landed @ 3114.80m. Weatherford stage cementer landed @ 1300.40m. Circulate condition hole for cement. Unable to reciprocate casing. Drill line on dead line anchor slipped at 260 dan. Safety meeting. Rig to cement. Pump 3m3 Diesel -3m3 CW8 preflush. Pressure test lines to 21000 kpa. Cement with 17 tonnes "G" + 35% D66 + 1.25% D160 + 0.5% D65 + 0.5% D-28 displaced with 67.93m3 water, 3.0m3 Diesel, 46.97m3 Invert mud. Plug down at 06:45 hrs. Over displaced 0.5m3 with out bumping plug. Floats held. Drop dart opened stage cementer with 900kpa. Circulate W.O.C. Hole drag up with casing unknown. Hole drag down 32 dan. Back ground gas 84 units. Trip gas 1348 units.

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling Rig activity (hrs) 00:00 - 24:00
97-10-27	3115	0	0 Circulate through stage cementer. Load plug in head. Safety meeting. Pump 3m3 Diesel, 3m3 CW8 preflush. Cement with 68 tonnes "G" + 0.3% B71 + 0.5% D65 displace with Weatherford plug and 49.97m3 water. Bump plug with 19000kpa closed stage cementer. Plug down at 16:00 hrs. Rig out Dowell. Rig down BOP to set slips. Centrifuge mud. 160m3 in mud tanks. 204m3 in tank farm.
97-10-28	3115	0	0 Rig down BOP. Set casing slips. Rig up BOP. Centrifuge mud and clean suction tank.
97-10-29	3115	0	0 Rig up BOP. Change top pipe rams to 127mm. Pressure test upper and lower pipe rams, blind rams, HCRs and BOP valves, manifold valves and lines, stabbing valve, kelly valves to 1400kpa low and 3400 kpa high for 10 minutes each. Pressure test annular BOP to 1400 kpa and 10500 kpa. Mud line manifold failed test. repair valves. Centrifuge invert mud. Strip down #2 mud pump for repair. Weld on suction tank and mixing system.
97-10-30	3115	0	0 Repair mud line manifold and stand-pipe valves. Pressure test mud lines and valves to 1500 kpa and 21000 kpa. Test annular BOP to 1500 kpa and 17500 kpa. Clean mud tanks and level same. Repair #2 mud pump. Function test accumulator start pressure 20500 kpa, open HCR, close annular BOP upper and lower rams, open lower pipe rams pressure remaining 11600 kpa. Recharge time 1 minute and 31 seconds. Recharge pressure 7500 kpa.
97-10-31	3115	0	0 Clean mud tanks. Make up BHA. Repair #2 mud pumps.

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling Rig activity (hrs) 00:00 - 24:00
97-11-01	3115	0	0 Strap in to 1280m. Drill out cement, plug and stage cementer. Stage cementer at 1300.4m. Circulate bottoms up. Pressure test casing to 27000 kpa. Strap in tag cement at 3070m. Float collar at 3101m. Drill out float and cement. Change swivel packing. Circulate mix mud and chemicals. Repair #2 mud pump.
97-11-02	3115	0	0 Mix and condition mud. Wait on #2 pump repairs.
97-11-03	3115	0	0 Mix and condition mud. Wait on #2 pump repairs.
97-11-04	3128	13	7.50 Mix and condition mud. Wait on #2 pump repairs. Drill out cement and shoe. Work on pumps. Work on the top drive. Circulate samples 3120m and 3125m. Work on pumps. Survey. Mix and pump pill. Trip out.
97-11-05	3128	0	0 Mix and condition mu. Repair #2 mud pump. Drill out cement and shoe. Work on pumps. Work on top drive. Drill 216mm hole 3115m-3120m. Circulate up sample. Poor sample. Drill 216mm hole 3120m-3125m. Circulate sample. Poor sample. Drill 216mm hole 3125m-3128m. Circulate and survey. Mix and pump pill. Trip out to pick up stabilization. Repair drawworks low chain. Circulate sample.
97-11-06	3128m	0	0 Tripped out, changed out BHA, pick up extra pipe. Run in hole.
97-11-07	3128m	0	0 Wash and ream to bottom. Drill 216mm hole 3128m-3177m. Work on pipe every 9m. Stuck on bottom. Circulate and jar. Mix ID Free and Diesel 5.4m3. Spot pill 3177m -3140m. Pump 10 strokes every 1/2 hour. Jar pipe no movement. Max pull 23 dan.

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling (hrs)	Rig activity 00:00 - 24:00
97-11-08	3128m	0	0	Jar stuck pipe unable to circulate. Jar stuck pipe wit on wire line personel and tools. Rig to and run free-point with Computalog. Free-point tool hanging up at 2960m. Pull out free-point tool. Rig to run sinker bars and driving tool. Damaged wire-line and rope-socket while picking up the tools. Wait on wire line tools from 19:40 hrs.

NO GEOLOGIST ON LOCATION TILL 23 JANUARY 1998

98-01-23	3098m	0	0	0000-0015 rig service 0015-0400 pooh laydown & change BHA 0400-0800 run in hole 0800-0815 BOP function 0815-0845 RIH break circ. 0845-1115 drill cmt from 3098-3144 (top fish) 1115-1230 circ. 1230-1600 pooh 1600-1615 rig service 1615-1915 pooh 1915-2045 make up BHA, run in hole 2045-2130 slip & cut line 2130-2400 run in hole
98-01-24	3144	46	0	0000-0015 rig service 0015-0245 circ. 0245-0445 rig up cementers, plug back 0445-0600 pull out of plug 0600-0715 circ. 0715-0800 hoist out 0800-0815 bop drill 0815-1600 pick up bha & rih 1600-1615 rig service 1615-2130 break circ. 2130-2230 rih to 3048 2230-2400 circ.

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling Rig activity (hrs) 00:00 - 24:00
98-01-25	3116	0	0 0000-0015 rig service 0015-0700 circ. 0700-0800 tag cement @ 3069.52 to 3078 0800-0815 rig service 0815-1000 drill cement 3078 to 3116 1000-1130 circ. 1130-1600 poor & flow @ 1350 1600-1615 rig service 1615-1800 pooh 1800-2100 pick up dir. drill tools 2100-2115 break circ. 2115-2400 rih
98-01-26	3116	0	0 0000-0015 rig service 0015-0300 rih break circ. every twelve stands 0300-0500 rih unable to break circ. 0500-0800 pooh 0800-0815 rig service 0815-1345 pooh 1345-1600 handle dir tools 1600-1615 rig service 1615-1815 handle dir drill tools test mwd 1815-1845 rih 1845-1930 slip & cut line 1930-2300 rih to 2459 2300-2400 circ. & wash to bottom
98-01-27	3128	12	22 3/4 0000-0015 rig service 0015-0800 drill 0800-0815 rig service 0815-2400 drill and slide
98-01-28	3140	6	6 1/2 0000-1600 rig service, drill slide pooh 1600-1845 lay down mud motor pick up slow speed 1845-1915 shallow test mwd tool 1915-2400 rih
98-01-29	3176	36	14 1/4 0000-0015 rig service 0015-0115 break circ. wash to bottom 0115-0230 work on no.2 pump 0230-2400 drill, rotate, survey, work pipe

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling (hrs)	Rig activity 00:00 - 24:00
98-01-30	3224	48	13 3/4	0000-0015 rig service 0015-2115 drill, rotate, survey, work pipe 2115-2400 pump 5 std, pump pill, pooh
98-01-31	3251	27	8	0000-0015 rig service 0015-0145 pooh 0145-0215 held safety meeting 0215-0545 pooh 0545-0745 handle dir tools 0745-0800 rih 0800-0815 rig service 0815-0830 run in bha 0830-0900 shallow test mwd tool 0900-0945 slip and cut line 0945-1345 rih 1345-1430 wash to bottom 1430-2400 drill,survey,rotate
98-02-01	3321	70	17 3/4	0000-0015 rig service 0015-0815 drill,rotate,survey,work pipe 0815-0830 pump lost circ.material 0830-1115 wiper trip 1115-2400 drill,rotate,survey,work pipe
98-02-02	3377	56	17 1/2	0000-0015 rig service 0015-2400 drill,rotate,survey,work pipe
98-02-03	3464	87	20	0000-0015 rig service 0015-2400 drill,rotate,survey,work pipe
98-02-04	3500	36	3 1/2	0000-0015 rig service 0015-0415 drill,rotate,survey,work pipe 0415-0530 circ. sample 0530-0700 pump out 14 stands 0700-0715 flow check & pump pill 0715-1415 pooh, lay bown dir drill tools 1415-2200 rih,break circ. every 12 stands 2200-2345 wash to bottom 2345-2400 circ.

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling Rig activity (hrs)	00:00 - 24:00
98-02-05	3500	0	0	0000-0015 rig service 0015-0245 circ. 0245-0545 wiper trip 15 stands 0545-0800 circ. 0800-0815 rig service 0815-1015 pump out 14 stds 1015-1030 flow & pump pill 1030-1600 pooh 1600-1615 rig service 1615-1630 rig up loggers 1630-1830 run log no.1 1830-1930 pull out log no. 1 can't reach bottom 1930-2030 rig out loggers 2030-2145 run in hole 2145-2400 slip & cut line & rih
98-02-06	3500	0	0	0000-0015 rig service 0015-0215 rih break circ, 1800m & every 12 stds 0215-0445 wash to bottom from 3107 0445-0800 circ. 0800-1630 circ. & wiper trip 1630-2130 pooh 2130-2300 rih to bot of csg. 2300-2330 circ. 2330-2400 shut in well Read & record

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling (hrs)	Rig activity 00:00 - 24:00
98-02-07	3500	0	0	0000-0015 rig service 0015-0030 circ. kick 0030-0045 shut well 0045-0230 circ. kick no mud returns 0230-0800 shut in well , mix mud 0800-0815 rig service 0815-1100 well shut in , mix mud 1100-1330 circ. gas 1330-1345 shut in well 1345-1530 open well & circ., flow check 1530-1545 flow check 1545-1600 circ. 1600-1615 rig service 1615-1700 run in to 3280 1700-2030 circ. through chock 2030-2300 circ. open well 2300-2330 run in 4 stnds 2330-2400 circ. @ 55 strokes/min
98-02-08	3500	0	0	0000-0015 rig service 0015-0200 circ 55 stroks/min till bottom up 0200-0330 circ 85 stroks/min till bottom up 0330-0430 rih tag bottom 0430-0715 circ 55 stroks/min till bottom up 0715-0800 circ 85 stroks/min till bottom up 0800-0815 rig service 0815-1245 circ. 85 stroks/min 1245 1415 wiper trip to csg 15 stds 1415-1445 flow check 1445-1600 rih to bottom 1600-1615 rig service 1615-2030 circ 2030-2045 pump pill 2045-2400 pooh to log

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling (hrs)	Rig activity 00:00 - 24:00
98-02-09	3500	0	0	0000-0015 rig service 0015-0345 pooh 0345-0415 rig up loggers 0415-0515 run in log no. 1 0515-0800 pull out log no.1 STI & SONIC 0800-0815 rig service 0815-0845 pooh change tools 0845-0945 run in log no.2 0945-1300 pooh & log density 1300-1345 run in to log no.3 1345-1600 pooh and log no.3 1600-1615 rig service 1615-1800 log no.3 1800-1945 run in log no.4 1945-2200 pooh with log no.4 2200-2230 lay down logging tools 2230-2400 rih break circ. at 1200m & 2000m
98-02-10	3500	0	0	0000-0015 rig service 0015-0445 rih break circ at 1200 & 2000 0445-0615 break circ at 3100 & circ bottom up 0615-0800 wash to bottom 0800-0815 rig service 0815-1600 circ cond mud 1600-1615 rig service & function chock 1615-1815 circ. mix pill, pump pill 1845-2100 slip & cut line, break circ. 2100-2400 circ. & cond mud

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling (hrs)	Rig activity 00:00 - 24:00
98-02-11	3500	0	0	0000-0015 rig service 0015-0030 circ 0030-0130 run in hole break circ at 3270 0130-0315 circ & monitor gas 0315-0800 circ & cond mud 0800-0815 rig service 0815-1015 circ & cond mud 1015-1145 pump pill pooh 1145-1230 hole gained 47m3 rih wash to 1230-1600 circ bottom up, circ cond mud 1600-1615 rig service 1615-1845 pump pill pooh 1845-1945 rih break circ wash to bottom 1945-2400 circ & cond mud
98-02-12	3500	0	0	0000-0015 rig service 0015-0045 circ. 0045-0800 pooh 0800-0815 rig service 0815-0900 rig up tong hand 0900-0915 held safety meeting 0915-1315 run in csg 1315-1600 run in pipe(strap in) 1600-1615 rig service 1615 2400 run in csg (strap in)
98-02-13	3500	0	0	0000-0015 rig service 0015-0515 run in csg. 0515-

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

1325 - 1355	SHALE - medium - dark gray, subfissile, blocky, trace slickensides in part, slightly dolomitic, trace calcite micro fracture fill;
1355 - 1385	SHALE - dark gray, medium gray in part, fissile, platy in part, blocky in part, trace slickensides, in part trace thin interbedded dark gray microcrystalline argillaceous LIMESTONE, <u>no visual show</u> , <u>no visible porosity</u> , thin interbedded medium gray CLAYSTONE, slightly calcareous in small part, slightly dolomitic, trace calcite sparry micro fracture fill, trace pyrite disseminated;
1385 - 1410	SHALE - medium gray - dark gray, fissile, platy, blocky in part, rare slickensides, slightly silty, rare dolomitic, rare pyrite;
1410 - 1435	SHALE - medium gray - dark gray, fissile, blocky in part, thin interbedded CLAYSTONE, SHALE medium gray - dark gray, platy, blocky, rare slickensides, slightly calcareous, abundant calcite micro fracture fill, scattered pyrite in part, minor micromicaceous, slightly silty in part;
1435 - 1460	SHALE - medium gray - dark gray, fissile, blocky in part, thin interbedded CLAYSTONE, SHALE medium gray - dark gray, platy, blocky, rare slickensides, slightly calcareous, abundant calcite micro fracture fill, scattered pyrite in part, minor micromicaceous, slightly silty in part;
1460 - 1469	SHALE - medium gray - dark gray, fissile, blocky in part, thin interbedded CLAYSTONE, SHALE medium gray - dark gray, platy, blocky, rare slickensides, slightly calcareous, abundant calcite micro fracture fill, scattered pyrite in part, minor micromicaceous, slightly silty in part;
1469 - 1484	SHALE - medium gray - dark gray, fissile, blocky in part, thin interbedded CLAYSTONE, SHALE medium gray - dark gray, platy, blocky, rare slickensides, slightly calcareous, abundant calcite micro fracture fill, scattered pyrite in part, minor micromicaceous, slightly silty in part, rare quartz micro fracture fill, euhedral crystals;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

1484 - 1500	SHALE - medium gray - dark gray, fissile, blocky in part, thin interbedded CLAYSTONE, SHALE medium gray - dark gray, platy, blocky, rare slickensides, slightly calcareous, common calcite micro fracture fill, scattered pyrite in part, minor micromicaceous, slightly silty in part, rare quartz micro fracture fill, euhedral crystals, abundant calcite micro fracture fill;
1500 - 1512	SHALE - medium gray - dark gray, fissile, blocky in part, thin interbedded CLAYSTONE, SHALE medium gray - dark gray, platy, blocky, rare slickensides, slightly calcareous, common calcite micro fracture fill, scattered pyrite in part, minor micromicaceous, slightly silty in part, rare quartz micro fracture fill, euhedral crystals, abundant calcite micro fracture fill;
1512 - 1525	SHALE - medium gray - dark gray, fissile, blocky in part, thin interbedded light gray brown CLAYSTONE, SHALE medium gray - dark gray, platy, blocky, rare slickensides, moderately calcareous, common calcite micro fracture fill, scattered pyrite in part, minor micromicaceous, slightly silty in part, rare quartz micro fracture fill, euhedral crystals, abundant calcite micro fracture fill, multiple zoning;
1525 - 1535	SHALE - medium gray - dark gray, fissile, blocky in part, thin interbedded light gray brown CLAYSTONE, SHALE medium gray - dark gray, platy, blocky, rare slickensides, moderately calcareous, common calcite micro fracture fill, scattered pyrite in part, minor micromicaceous, slightly silty in part, rare quartz micro fracture fill, euhedral crystals, abundant calcite micro fracture fill, multiple zoning;
1535 - 1552	SHALE - medium gray - dark gray, fissile, blocky in part, thin interbedded light gray brown CLAYSTONE, SHALE medium gray - dark gray, platy, blocky, rare slickensides, moderately calcareous, common calcite micro fracture fill, scattered pyrite in part, minor micromicaceous, slightly silty in part, rare quartz micro fracture fill, euhedral crystals, abundant calcite micro fracture fill, multiple zoning;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

- 1552 - 1570 SHALE - medium gray - dark gray, fissile, blocky in part, thin interbedded light gray brown CLAYSTONE, SHALE medium gray - dark gray, platy, blocky, rare slickensides, moderately calcareous, common calcite micro fracture fill, scattered pyrite in part, minor micromicaceous, slightly silty in part, rare quartz micro fracture fill, euhedral crystals, abundant calcite micro fracture fill, multiple zoning; SHALE - dark gray - black, irregular blocky, medium hard - hard, slickensides, wavy, lustre, mixed with parallel micro calcite lenses, slightly silty, rare pyrite, disseminated, rare fragments;
- 1570 - 1580 SHALE - medium gray - dark gray, fissile, blocky in part, thin interbedded light gray brown CLAYSTONE, SHALE medium gray - dark gray, platy, blocky, rare slickensides, moderately calcareous, common calcite micro fracture fill, scattered pyrite in part, minor micromicaceous, slightly silty in part, rare quartz micro fracture fill, euhedral crystals, abundant calcite micro fracture fill, multiple zoning; SHALE - dark gray - black, irregular blocky, medium hard - hard, slickensides, wavy, lustre, mixed with parallel micro calcite lenses, slightly silty, rare pyrite, disseminated, rare fragments;
- 1580 - 1598 SHALE - medium gray - dark gray, fissile, blocky in part, thin interbedded light gray brown CLAYSTONE, SHALE medium gray - dark gray, platy, blocky, rare slickensides, moderately calcareous, common calcite micro fracture fill, scattered pyrite in part, minor micromicaceous, slightly silty in part, rare quartz micro fracture fill, euhedral crystals, abundant calcite micro fracture fill, multiple zoning; SHALE - dark gray - black, irregular blocky, medium hard - hard, slickensides, wavy, lustre, mixed with parallel micro calcite lenses, slightly silty, rare pyrite, disseminated, rare fragments;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

1598 - 1610	SHALE - medium gray - dark gray, fissile, blocky in part, thin interbedded light gray brown CLAYSTONE, SHALE medium gray - dark gray, platy, blocky, rare slickensides, moderately calcareous, common calcite micro fracture fill, scattered pyrite in part, minor micromicaceous, slightly silty in part, rare quartz micro fracture fill, euhedral crystals, abundant calcite micro fracture fill, multiple zoning; SHALE - dark gray - black, irregular blocky, medium hard - hard, slickensides, wavy, lustre, slightly silty, rare pyrite, disseminated, rare fragments;
1610 - 1620	SHALE - medium gray - dark gray, fissile, blocky in part, thin interbedded light gray brown CLAYSTONE, SHALE medium gray - dark gray, platy, blocky, rare slickensides, moderately calcareous, common calcite micro fracture fill, scattered pyrite in part, minor micromicaceous, slightly silty in part, rare quartz micro fracture fill, euhedral crystals, abundant calcite micro fracture fill, multiple zoning; SHALE - dark gray - black, irregular blocky, medium hard - hard, slickensides, wavy, lustre, slightly silty, rare pyrite, disseminated, rare fragments;
1620 - 1645	SHALE - medium gray - dark gray, fissile, blocky in part, thin interbedded light gray brown CLAYSTONE, SHALE medium gray - dark gray, platy, blocky, rare slickensides, moderately calcareous, common calcite micro fracture fill, scattered pyrite in part, minor micromicaceous, slightly silty in part, rare quartz micro fracture fill, euhedral crystals, abundant calcite micro fracture fill, multiple zoning; SHALE - dark gray - black, irregular blocky, medium hard - hard, slickensides, wavy, lustre, slightly silty, rare pyrite, disseminated, rare fragments;
1645 - 1665	SHALE - medium gray - dark gray, fissile, blocky in part, thin interbedded light gray brown CLAYSTONE, SHALE medium gray - dark gray, platy, blocky, rare slickensides, moderately calcareous, common calcite micro fracture fill, scattered pyrite in part, minor micromicaceous, slightly silty in part, rare quartz micro fracture fill, euhedral crystals, abundant calcite micro fracture fill, multiple zoning; SHALE - dark gray - black, irregular blocky, medium hard - hard, slickensides, wavy, lustre, slightly silty, rare pyrite, disseminated, rare fragments;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

1665 - 1680	SHALE - medium gray - dark gray, fissile, blocky in part, thin interbedded light gray brown CLAYSTONE, SHALE medium gray - dark gray, platy, blocky, rare slickensides, moderately calcareous, common calcite micro fracture fill, scattered pyrite in part, minor micromicaceous, slightly silty in part, rare quartz micro fracture fill, euhedral crystals, abundant calcite micro fracture fill, multiple zoning; SHALE - dark gray - black, irregular blocky, medium hard - hard, slickensides, wavy, lustre, slightly silty, rare pyrite, disseminated, rare fragments;
1680 - 1690	SHALE - dark gray - black, irregular blocky, medium hard - hard, rare slickensides, wavy, lustre, slightly silty, minor calcite micro fracture fill, multiple zoned;
1690 - 1695	SHALE - dark gray - black, irregular blocky, medium hard - hard, rare slickensides, wavy, lustre, slightly silty, minor calcite micro fractures fill, multiple zoned;
1695 - 1700	SHALE - medium gray - dark gray, subfissile, blocky, medium hard, moderately calcareous, trace slickensides in part, rare dolomitic, moderately calcite micro fractures fill; SHALE - dark gray - black, irregular blocky, medium hard - hard, rare slickensides, slightly silty, minor calcite micro fracture fill, multiple zoned, rare pyrite thin beds and thin streaks of disseminated micro crystals, and in calcite micro fractures fill;
1700 - 1705	SHALE - dark gray - black, irregular blocky, medium hard - hard, rare slickensides, slightly silty, minor calcite micro fracture fill, multiple zoned, rare pyrite thin beds and thin streaks of disseminated micro crystals, and in calcite micro fractures fill;
1705 - 1710	SHALE - medium gray - dark gray, subfissile, blocky, medium hard, moderately calcareous, trace slickensides in part, rare dolomitic, moderately calcite micro fractures fill;
1710 - 1715	SHALE - dark gray - black, irregular blocky, medium hard - hard, rare slickensides, slightly silty, minor calcite micro fracture fill, multiple zoned, rare pyrite thin beds and thin streaks of disseminated micro crystals, and in calcite micro fractures fill;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

1715 - 1720	SHALE - dark gray - black, irregular blocky, medium hard - hard, rare slickensides, slightly silty, minor calcite micro fracture fill, multiple zoned, rare pyrite thin beds and thin streaks of disseminated micro crystals, and in calcite micro fractures fill;
1725 - 1735	SHALE - medium gray - dark gray, subfissile, blocky, medium hard, moderately calcareous, trace slickensides in part, rare dolomitic, moderately calcite micro fractures fill;
1735 - 1740	SHALE - medium gray - dark gray, subfissile, blocky, medium hard, moderately calcareous, trace slickensides in part, rare dolomitic, moderately calcite micro fractures fill;
1740 - 1760	SHALE - medium gray - dark gray, subfissile, blocky, medium hard, moderately calcareous, trace slickensides in part, rare dolomitic, moderately calcite micro fractures fill;
1760 - 1780	SHALE - medium gray - dark gray, subfissile, blocky, medium hard, moderately calcareous, trace slickensides in part, rare dolomitic, moderately calcite micro fractures fill; SHALE - dark gray - black, platy, irregular blocky, medium hard, slightly silty, some calcite micro fracture fill;
1780 - 1795	SHALE - medium gray - dark gray, subfissile, blocky in part, medium hard, slightly calcareous, trace slickensides in part, rare dolomitic streaks in part, scattered calcite micro fracture fill;
1795 - 1800	No sample - sample not circ'd;
1800 - 1815	SHALE - medium gray - dark gray, subfissile, blocky in part, medium hard, slightly calcareous, trace slickensides in part, rare dolomitic streaks in part, trace calcite micro fracture fill;
1815 - 1825	SHALE - medium gray - dark gray, subfissile, blocky in part, medium hard, slightly calcareous, trace slickensides in part, rare dolomitic streaks in part, trace calcite micro fracture fill;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

1825 - 1837	SHALE - medium gray - dark gray, subfissile, blocky in part, medium hard, slightly calcareous, trace slickensides in part, rare dolomitic streaks in part, trace calcite micro fracture fill;
1837 - 1840	No sample - sample not circ'd;
1840 - 1855	SHALE - medium gray - dark gray, subfissile, blocky in part, medium consolidated, trace slickensides in part, slightly dolomitic, trace calcite micro fracture fill in small part;
1855 - 1865	SHALE - medium gray - dark gray, subfissile, blocky in part, medium consolidated, trace slickensides in part, slightly dolomitic, trace calcite micro fracture fill in small part; SHALE - dark gray - black, medium gray in part, subfissile, medium hard, trace micromicaceous;
1865 - 1880	SHALE - dark gray - black, medium gray in part, subfissile, medium hard, trace micromicaceous;
1880 - 1900	SHALE - dark gray - black, medium gray in part, subfissile, soft, trace micromicaceous, trace carbonaceous in part;
1900 - 1920	SHALE - dark gray - black, medium gray in part, subfissile, soft, trace micromicaceous, trace carbonaceous in part;
1920 - 1940	SHALE - dark gray - black, medium gray in part, subfissile, soft, trace micromicaceous, trace carbonaceous in part;
1940 - 1960	SHALE - dark gray - black, medium gray in part, subfissile, soft, trace siliceous micro fracture fill, trace carbonaceous in part;
1960 - 1980	SHALE - dark gray - black, medium gray in part, subfissile, soft, trace siliceous micro fracture fill, trace carbonaceous in part, trace pyrite in part;
1980 - 2000	SHALE - dark gray - black, medium gray in part, subfissile, soft, trace siliceous micro fracture fill, trace carbonaceous in part, trace pyrite in part;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

2000 - 2020	SHALE - dark gray - black, becoming brown in part, subfissile, soft, trace pyrite in small part, slightly dolomitic in part;
2020 - 2040	SHALE - dark gray - black, becoming brown in part, subfissile, soft, trace pyrite in small part, slightly dolomitic in part;
2040 - 2050	SHALE - dark gray - black, becoming brown in part, subfissile, soft, trace pyrite in small part, slightly dolomitic in part;
2050 - 2068	SHALE - dark gray - black, becoming brown in part, subfissile, soft, trace pyrite in small part, slightly dolomitic in part;
2068 - 2080	SHALE - dark gray - black, becoming brown in part, subfissile, soft, trace pyrite in small part, slightly dolomitic in part;
2080 - 2101	SHALE - dark gray - black, becoming brown in part, subfissile, soft, trace pyrite in small part, slightly dolomitic in part;
2101 - 2118	SHALE - medium gray - dark gray, subfissile, blocky in part, medium consolidated, trace slickensides in part, slightly dolomitic, trace calcite micro fracture fill in small part; SHALE - dark gray - black, becoming brown in part, subfissile, soft, trace pyrite in small part, slightly dolomitic in part;
2118 - 2125	SHALE - dark gray - black, becoming brown in part, subfissile, soft, trace pyrite in small part, slightly dolomitic in part;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

2125 - 2140

SHALE - medium gray - dark gray, subfissile, blocky in part, medium consolidated, trace slickensides in part, slightly dolomitic, trace calcite micro fracture fill in small part; SHALE - dark gray - black, becoming brown in part, subfissile, soft, trace pyrite in small part, slightly dolomitic in part; Note: There is an increasing percentage of 1) SHALE - dark gray, medium hard, irregularly blocky, rare opaque calcite micro fracture fill, occasional clear quartz micro fracture fill with common clear euhedral quartz crystals, occasional pyrite fragments, common disseminated pyrite, slightly micromicaceous, minor slickensides in part, and of 2) SILTSTONE - black, hard to very hard, irregularly blocky, common micromicaceous, common disseminated pyrite, common quartz micro fracture fill with common euhedral quartz crystals.

2140 - 2145

SHALE - dark gray - black, medium hard, irregularly blocky, medium slickensides in part, rare calcite opaque micro fracture fill, occasional quartz micro fracture fill with common clear euhedral crystals, occasional pyrite fragments, common pyrite disseminated, slightly micromicaceous; SILTSTONE - black, hard - very hard, irregular blocky, common micromicaceous, common pyrite disseminated, common quartz micro fracture fill with common euhedral clear quartz crystals;

2145 - 2155

SHALE - dark gray - black, medium hard, irregularly blocky, medium slickensides in part, rare calcite opaque micro fracture fill, occasional quartz micro fracture fill with common clear euhedral crystals, occasional pyrite fragments, common pyrite disseminated, slightly micromicaceous; SILTSTONE - black, hard - very hard, irregularly blocky, common micromicaceous, common pyrite disseminated, common quartz micro fracture fill with common euhedral clear quartz crystals; siliceous in part.

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
2155 - 2160	SHALE - dark gray - black, medium hard, irregularly blocky, medium slickensides in part, rare calcite opaque micro fracture fill, occasional quartz micro fracture fill with common clear euhedral crystals, occasional pyrite fragments, common pyrite disseminated, slightly micromicaceous; SILTSTONE - black, hard - very hard, irregularly blocky, common micromicaceous, common pyrite disseminated, common quartz micro fracture fill with common euhedral clear quartz crystals;
2160 - 2170	SHALE - dark gray - black in part, medium hard, blocky, rare slickensides in part, occasional quartz micro fracture fill with rare clear euhedral crystals, rare pyrite disseminated, slightly micromicaceous; SILTSTONE - black, hard - very hard, irregular blocky, siliceous, common micromicaceous, occasional pyrite disseminated, common quartz micro fracture fill with rare euhedral clear quartz crystals;
2170 - 2180	SHALE - dark gray - black in part, medium hard, blocky, rare slickensides in part, occasional quartz micro fracture fill with rare clear euhedral crystals, rare pyrite disseminated, slightly micromicaceous; SILTSTONE - black, hard - very hard, irregular blocky, siliceous, common micromicaceous, occasional pyrite disseminated, common quartz micro fracture fill with rare euhedral clear quartz crystals;
2180 - 2185	SHALE - dark gray - black in part, medium hard, blocky, rare slickensides in part, occasional quartz micro fracture fill with rare clear euhedral crystals, rare pyrite disseminated, slightly micromicaceous; SILTSTONE - black, hard - very hard, irregular blocky, siliceous, common micromicaceous, occasional pyrite disseminated, common quartz micro fracture fill with rare euhedral clear quartz crystals;
2185 - 2190	SHALE - dark gray - black in part, medium hard, blocky, rare slickensides in part, rare quartz micro fracture fill with rare clear euhedral crystals, rare pyrite disseminated slightly micromicaceous; SILTSTONE - black, hard -very hard, irregular blocky, siliceous, common micromicaceous, occasional pyrite disseminated, sparse quartz micro fracture fill with rare euhedral clear quartz crystals;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

2185 - 2190	SHALE - dark gray - black in part, medium hard, blocky, rare slickensides in part, rare quartz micro fracture fill with rare clear euhedral crystals, slightly micromicaceous, rare pyrite disseminated; SILTSTONE - black, hard - very hard, irregular blocky, common micromicaceous, trace pyrite disseminated, some quartz micro fracture fill with clear euhedral crystals, common siliceous;
2190 - 2195	SHALE - dark gray - black in part, medium hard, blocky, rare slickensides in part, rare quartz micro fracture fill with rare clear euhedral crystals, slightly micromicaceous, rare pyrite disseminated; SILTSTONE - black, hard - very hard, irregular blocky, common micromicaceous, trace pyrite disseminated, some quartz micro fracture fill with clear euhedral crystals, common siliceous;
2195 - 2200	SHALE - dark gray - black in part, medium hard, blocky, rare slickensides in part, rare quartz micro fracture fill with rare clear euhedral crystals, slightly micromicaceous, rare pyrite disseminated; SILTSTONE - black, hard - very hard, irregular blocky, common micromicaceous, trace pyrite disseminated, some quartz micro fracture fill with clear euhedral crystals, common siliceous;
2200 - 2205	SHALE - dark gray - black in part, medium hard, blocky, rare slickensides in part, rare quartz micro fracture fill with rare clear euhedral crystals, slightly micromicaceous, rare pyrite disseminated; SILTSTONE - black, hard - very hard, irregular blocky, common micromicaceous, trace pyrite disseminated, some quartz micro fracture fill with clear euhedral crystals, common siliceous;
2205 - 2210	SHALE - dark gray - black in part, medium hard, blocky, rare slickensides in part, rare quartz micro fracture fill with rare clear euhedral crystals, slightly micromicaceous, rare pyrite disseminated; SILTSTONE - black, hard - very hard, irregular blocky, common micromicaceous, trace pyrite disseminated, some quartz micro fracture fill with clear euhedral crystals, common siliceous;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

- 2210 - 2215 SHALE - dark gray - black in part, medium hard, blocky, rare slickensides in part, rare quartz micro fracture fill with rare clear euhedral crystals, slightly micromicaceous, rare pyrite disseminated; SILTSTONE - black, hard - very hard, irregular blocky, common micromicaceous, trace pyrite disseminated, some quartz micro fracture fill with clear euhedral crystals, common siliceous;
- 2215 - 2220 SHALE - dark gray - black in part, soft - medium hard, platy - blocky, rare slickensides in part, rare quartz micro fracture fill with rare clear euhedral crystals, slightly micromicaceous, abundant pyrite disseminated; SILTSTONE - black, hard - very hard, irregular blocky, common micromicaceous, trace pyrite fragments and disseminated, rare quartz micro fracture fill, some siliceous , common in part;
- 2220 - 2225 SHALE - dark gray - black in part, medium hard, blocky, rare slickensides in part, slightly micromicaceous, rare pyrite disseminated, rare quartz micro fracture fill; SILTSTONE - black, hard - very hard, irregular blocky, some micromicaceous, rare quartz micro fracture fill, common siliceous, some pyrite disseminated; SILTSTONE - black, medium hard - hard, irregular blocky, rare quartz micro fracture fill, some siliceous in part, abundant pyrite disseminated, slightly micromicaceous;
- 2225 - 2230 SHALE - dark gray - black in part, medium hard, blocky, rare slickensides in part, slightly micromicaceous, rare pyrite disseminated, rare quartz micro fracture fill; SILTSTONE - black, hard - very hard, irregular blocky, some micromicaceous, rare quartz micro fracture fill, common siliceous, some pyrite disseminated;
- 2230 - 2235 SHALE - dark gray - black in part, medium hard, blocky, rare slickensides in part, slightly micromicaceous, rare pyrite disseminated, rare quartz micro fracture fill; SILTSTONE - black, hard - very hard, irregular blocky, some micromicaceous, rare quartz micro fracture fill, common siliceous, some pyrite disseminated; SILTSTONE - black, medium hard - hard, irregular blocky, rare quartz micro fracture fill, some siliceous in part, abundant pyrite disseminated, slightly micromicaceous;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

2235 - 2240	SHALE - dark gray - black in part, medium hard, blocky, rare slickensides in part, slightly micromicaceous, rare pyrite disseminated, rare quartz micro fracture fill; SILTSTONE - black, medium hard - hard, irregular blocky, rare quartz micro fracture fill, some siliceous in part, abundant pyrite disseminated, slightly micromicaceous;
2240 - 2255	SHALE - dark gray - black in part, medium hard, blocky, rare slickensides in part, slightly micromicaceous, rare pyrite disseminated, rare quartz micro fracture fill; SILTSTONE - black, hard - very hard, irregular blocky, some micromicaceous, rare quartz micro fracture fill, common siliceous, some pyrite disseminated; SILTSTONE - black, medium hard - hard, irregular blocky, rare quartz micro fracture fill, some siliceous in part, abundant pyrite disseminated, slightly micromicaceous;
2255 - 2265	SHALE - dark gray - black in part, medium hard, blocky, rare slickensides in part, slightly micromicaceous, rare pyrite disseminated, rare quartz micro fracture fill; SILTSTONE - black, medium hard - hard, irregular blocky, rare quartz micro fracture fill, some siliceous in part, abundant pyrite disseminated, slightly micromicaceous;
2265 - 2270	SHALE - dark gray - black in part, medium hard, blocky, rare slickensides in part, slightly micromicaceous, rare pyrite disseminated, rare quartz micro fracture fill; SILTSTONE - black, medium hard - hard, irregular blocky, rare quartz micro fracture fill, some siliceous in part, abundant pyrite disseminated, slightly micromicaceous;
2270 - 2275	SHALE - dark gray - black in part, medium hard, blocky, rare slickensides in part, slightly micromicaceous, rare pyrite disseminated, rare quartz micro fracture fill; SILTSTONE - black, medium hard - hard, irregular blocky, rare quartz micro fracture fill, some siliceous in part, abundant pyrite disseminated, slightly micromicaceous;
2275 - 2285	SHALE - medium gray - dark gray, platy, soft, rare slickensides, slightly calcareous, trace dolomitic, trace silty, moderately micromicaceous, rare pyrite disseminated;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

2285 - 2295	SILTSTONE - black, medium hard - hard, irregular blocky, slightly micromicaceous to common micromicaceous in part, some siliceous in part, common pyrite disseminated, rare pyrite fragments; SHALE - medium gray - dark gray, platy, soft, rare slickensides, slightly calcareous, trace dolomitic, trace silty, moderately micromicaceous, rare pyrite disseminated;
2295 - 2310	SILTSTONE - black, medium hard - hard, irregular blocky, slightly micromicaceous to common micromicaceous in part, some siliceous in part, common pyrite disseminated, rare pyrite fragments; SHALE - medium gray - dark gray, platy, soft, rare slickensides, slightly calcareous, trace dolomitic, trace silty, moderately micromicaceous, rare pyrite disseminated;
2310 - 2315	SHALE - medium gray - dark gray, platy, soft, rare slickensides, slightly calcareous, trace dolomitic, trace silty, moderately micromicaceous, rare pyrite disseminated;
2315 - 2340	SHALE - medium gray - dark gray, platy, soft, rare slickensides, slightly calcareous, trace dolomitic, trace silty, moderately micromicaceous, rare pyrite disseminated;
2340 - 2360	SHALE - medium gray, dark gray in part, platy, soft, becoming slightly calcareous in part, trace micromicaceous, trace pyrite in part;
2360 - 2380	SHALE - medium gray, dark gray in part, platy, soft, becoming black in part, becoming slightly calcareous in part, trace micromicaceous, rare pyrite in part;
2380 - 2395	SHALE - medium gray, dark gray in part, platy, soft, becoming black in part, becoming slightly dolomitic in part, slightly micromicaceous, trace calcareous streaks in part;
2395 - 2410	SHALE - medium gray, dark gray in part, platy, soft, becoming black in part, slightly micromicaceous, slightly dolomitic, rare pyrite;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

2410 - 2415	SHALE - medium gray, dark gray in part, platy, soft, becoming black in part, occasionally slightly calcareous in part, moderately consolidated in part, slightly micromicaceous, slightly dolomitic, rare pyrite;
2415 - 2425	SHALE - medium gray, dark gray in part, platy, soft, becoming black in part, occasionally slightly calcareous in part, moderately consolidated in part, slightly micromicaceous, slightly dolomitic, rare pyrite;
2425 - 2430	SHALE - medium gray, dark gray in part, platy, soft, becoming black in part, occasionally slightly calcareous in part, moderately consolidated in part, slightly micromicaceous, slightly dolomitic, trace pyrite;
2430 - 2440	SHALE - medium gray, dark gray in part, platy, soft, becoming black in part, occasionally slightly calcareous in part, moderately consolidated in part, slightly micromicaceous, slightly dolomitic, trace pyrite;
2440 - 2450	SHALE - medium gray, dark gray in part, platy, soft, becoming black in part, occasionally slightly calcareous in part, moderately consolidated in part, slightly micromicaceous, slightly dolomitic, trace pyrite;
2450 - 2470	SHALE - medium gray, dark gray in part, platy, soft, becoming black in part, occasionally slightly calcareous in part, moderately consolidated in part, slightly micromicaceous, slightly dolomitic, trace pyrite;
2430 - 2440	SHALE - medium gray, dark gray in part, platy, soft, becoming black in part, occasionally slightly calcareous in part, moderately consolidated in part, slightly micromicaceous, slightly dolomitic, trace pyrite;
2470 - 2495	SHALE - medium gray, dark gray in part, platy, soft, becoming black in part, occasionally slightly calcareous in part, moderately consolidated in part, slightly dolomitic;
2495 - 2510	SHALE - medium gray, dark gray in part, platy, soft, becoming black in part, occasionally slightly calcareous in part, moderately consolidated in part, slightly dolomitic;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
2510 - 2535	SHALE - medium gray, subfissile, becoming dark gray in part, soft, slightly dolomitic, trace micromicaceous in part;
2535 - 2560	SHALE - medium gray, subfissile, becoming dark gray in part, soft, slightly dolomitic, trace micromicaceous in part;
2560 - 2575	SHALE - medium gray, subfissile, becoming dark gray in part, soft, slightly dolomitic, trace micromicaceous in part;
2575 - 2590	SHALE - medium gray, dark gray in part, soft, subfissile, samples poor quality - heavy contamination by mud products, slightly dolomitic in part;
2590 - 2595	SHALE - medium gray, dark gray in part, subfissile, soft to moderately consolidated, sample quality poor - heavy contamination by unassimilated mud products, slightly dolomitic;
2595 - 2600	SHALE - medium gray, dark gray in part, subfissile, soft to moderately consolidated, sample quality poor, slightly dolomitic;
2600 - 2620	SHALE - medium gray, dark gray in part, subfissile, soft to moderately consolidated, sample quality poor, slightly dolomitic;
2620 - 2635	SHALE - medium gray, dark gray in part, subfissile, soft to moderately consolidated, sample quality poor, slightly dolomitic;
2635 - 2640	SHALE - medium gray, dark gray in part, subfissile, soft to moderately consolidated, sample quality poor, slightly dolomitic, abundant pyrite, fragments;
2640 - 2645	SHALE - medium gray, dark gray in part, subfissile, soft to moderately consolidated, sample quality poor, slightly dolomitic;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

2645 - 2650	SHALE - medium gray, dark gray in part, subfissile, soft to moderately consolidated, sample quality poor, slightly dolomitic, occasional pyrite fragments and disseminated;
2650 - 2660	SHALE - medium gray, dark gray in part, subfissile, soft to moderately consolidated, sample quality poor, slightly dolomitic, occasional pyrite fragments and disseminated; SILTSTONE - black, blocky, occasional pyrite disseminated and fragments, common siliceous, some calcite micro fracture fills;
2660 - 2675	SHALE - medium gray, dark gray in part, subfissile, soft to moderately consolidated, sample quality poor, slightly dolomitic, occasional pyrite fragments and disseminated; SILTSTONE - black, blocky, occasional pyrite disseminated and fragments, common siliceous, some calcite micro fracture fills;
2675 - 2690	SHALE - medium gray, dark gray in part, subfissile, soft to moderately consolidated, sample quality poor, slightly dolomitic, some pyrite fragments and disseminated; SILTSTONE - black, blocky, occasional pyrite disseminated and fragments, common siliceous, some calcite micro fracture fills, rare quartz micro fracture fill;
2690 - 2695	SHALE - medium gray, dark gray in part, subfissile, soft to moderately consolidated, sample quality poor, slightly dolomitic, some pyrite fragments and disseminated; minor SILTSTONE - black, hard to very hard, blocky with sharp ribs, rare pyrite disseminated and fragments, some quartz micro fracture fill.
2695 - 2700	SHALE - medium gray, dark gray in part, subfissile, soft to moderately consolidated, sample quality poor, slightly dolomitic, some pyrite fragments and disseminated; rare calcite micro fracture fill, rare clear calcite crystals; minor SILTSTONE - black, hard - very hard, blocky with sharp ribs, rare quartz micro fracture fill.
2700 - 2710	SHALE - medium gray, dark gray in part, subfissile, soft to moderately consolidated, sample quality poor, slightly dolomitic, some pyrite fragments and disseminated;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

2710 - 2715	SHALE - medium gray, dark gray in part, subfissile, soft to moderately consolidated, sample quality poor, slightly dolomitic, some pyrite fragments and disseminated; SILTSTONE - black, blocky, occasional pyrite disseminated and fragments, common siliceous, some calcite micro fracture fills, rare quartz micro fracture fill;
2715 - 2720	SHALE - medium gray, dark gray in part, subfissile, soft to moderately consolidated, rare calcite micro fracture fill, rare pyrite disseminated and fragments;
2720 - 2730	SHALE - medium gray, dark gray in part, subfissile, soft to moderately consolidated, rare calcite micro fracture fill, rare pyrite disseminated and fragments; SILTSTONE - black, hard - very hard, blocky, rare pyrite disseminated and fragments, common siliceous, some calcite micro fracture fills, rare quartz micro fracture fill;
2730 - 2740	SHALE - medium gray, dark gray in part, subfissile, soft to moderately consolidated, rare calcite micro fracture fill, rare pyrite disseminated and fragments; SILTSTONE - black, hard - very hard, blocky, rare pyrite disseminated and fragments, common siliceous, some calcite micro fracture fills, rare quartz micro fracture fill;
2740 - 2745	SHALE - medium gray, dark gray in part, subfissile, soft to moderately consolidated, rare calcite micro fracture fill, rare pyrite disseminated and fragments;
2745 - 2760	SHALE - medium gray, dark gray in part, subfissile, soft to moderately consolidated, rare calcite micro fracture fill, rare pyrite disseminated and fragments; SILTSTONE - black, hard - very hard, blocky, rare pyrite disseminated and fragments, common siliceous, some calcite micro fracture fills, rare quartz micro fracture fill;
2760 - 2770	SHALE - medium gray, dark gray in part, subfissile, soft to moderately consolidated, rare calcite micro fracture fill, rare pyrite disseminated and fragments; SILTSTONE - black, hard - very hard, blocky, rare pyrite disseminated and fragments, common siliceous, some calcite micro fracture fill fills, rare quartz micro fracture fill;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

2770 - 2780	SHALE - medium gray, dark gray in part, subfissile, soft to moderately consolidated;
2780 - 2785	SHALE - medium gray, dark gray in part, subfissile, soft to moderately consolidated, very poor quality sample;
2785 - 2795	SHALE - medium gray, dark gray in part, subfissile, soft to moderately consolidated, very poor quality sample;
2795 - 2805	SHALE - medium gray, dark gray in part, subfissile, soft to moderately consolidated, very poor quality sample;
2805 - 2820	SHALE - medium gray, dark gray in part, subfissile, soft to moderately consolidated, very poor quality sample;
2820 - 2835	SHALE - black, platy, soft - hard, common pyrite disseminated and thin streaks;
2835 - 2848	SHALE - black, platy, soft - hard, common pyrite disseminated and thin streaks;
2848 - 2855	SHALE - black, dark gray in part, fissile, brittle, hard - moderately consolidated, minor trace calcite fracture fill in part, scattered pyrite disseminated and thin streaks, trace siliceous streaks in part;
2855 - 2865	SHALE - black, fissile, brittle, hard - moderately consolidated, minor trace calcite fracture fill in part, scattered pyrite disseminated and thin streaks, trace siliceous streaks in part;
2865 - 2870	SHALE - black, occasionally dark gray in part, fissile, moderately consolidated, minor trace calcite fracture fill in part, scattered pyrite disseminated and thin streaks, trace siliceous streaks in part;
2870 - 2885	SHALE - black, fissile - subfissile, moderately consolidated, trace pyrite disseminated and thin streaks, slightly dolomitic;
2885 - 2895	SHALE - black, fissile - subfissile, moderately consolidated, trace pyrite disseminated and thin streaks, slightly dolomitic;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
2895 - 2915	SHALE - black, fissile, moderately consolidated, trace pyrite disseminated, moderately dolomitic;
2915 - 2927	SHALE - black, fissile, moderately consolidated to hard, trace pyrite disseminated, moderately dolomitic, slightly calcareous in part;
2927 - 2935	SHALE - black, fissile, moderately consolidated, brittle in part, trace pyrite disseminated, slightly dolomitic, moderately calcareous in part;
2935 - 2940	SHALE - black, fissile, moderately consolidated, brittle in part, trace pyrite disseminated, slightly dolomitic, moderately calcareous in part; SHALE - dark gray - black, subfissile, hard, brittle in part, trace fracture fill calcite in small part, trace pyrite, moderately calcareous in part;
2940 - 2945	SHALE - dark gray - black, subfissile, hard, brittle in part, trace fracture fill calcite in small part, trace pyrite, moderately calcareous in part;
2945 - 2950	SHALE - black, dark gray in part, blocky, subfissile in part, hard, trace fracture fill calcite in small part, trace pyrite disseminated, moderately calcareous in part;
2950 - 2960	SHALE - black, dark gray in part, blocky, subfissile in part, hard, trace fracture fill calcite in small part, trace pyrite disseminated, moderately calcareous in part;
2960 - 2970	SHALE - black, fissile, moderately consolidated, brittle in part, trace pyrite disseminated, slightly dolomitic, moderately calcareous in part; SHALE - black, dark gray in part, blocky, subfissile in part, hard, trace fracture fill calcite in small part, trace pyrite disseminated, moderately calcareous in part;
2970 - 2975	SHALE - black, dark gray in part, blocky, subfissile in part, hard, trace fracture fill calcite in small part, trace pyrite disseminated, moderately calcareous in part; SHALE - black, dark gray in part, blocky, subfissile in part, hard, fair fracture porosity, trace pyrite disseminated, moderately calcareous in part, scattered calcite fracture fill;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

2975 - 2980	SHALE - black, dark gray in part, blocky, subfissile in part, hard, trace fracture fill calcite in small part, trace pyrite disseminated, moderately calcareous in part;
2980 - 2995	SHALE - black, dark gray in part, blocky, subfissile in part, hard, trace fracture fill calcite in small part, scattered pyrite disseminated, moderately calcareous in part;
2995 - 3010	SHALE - black, dark gray in part, blocky, subfissile in part, hard, trace fracture fill calcite in small part, trace pyrite disseminated, moderately calcareous in part;
3010 - 3015	SHALE - black, dark gray in part, blocky, subfissile in part, hard, trace fracture fill calcite in small part, trace pyrite disseminated, slightly calcareous in part;
3015 - 3025	SHALE - dark gray, black in part, blocky, moderately consolidated, trace fracture fill calcite in small part, trace pyrite disseminated, moderately calcareous;
3025 - 3030	SHALE - dark gray, black in part, blocky, moderately consolidated, scattered fracture fill calcite in small part, scattered pyrite disseminated, moderately calcareous;
3030 - 3032	SHALE - dark gray, black in part, blocky, moderately consolidated, scattered fracture fill calcite in small part, scattered pyrite disseminated, moderately calcareous;
3032 - 3035	SHALE - dark gray, black in part, blocky, moderately consolidated, trace pyrite disseminated, moderately calcareous, scattered calcite fracture fill in small part;
3035 - 3040	SHALE - dark gray, black in part, blocky, moderately consolidated, trace pyrite disseminated, moderately calcareous, scattered calcite fracture fill in small part;
3040 - 3044	SHALE - dark gray, mottled white calcareous streaks in part, black in part, blocky, moderately consolidated, trace pyrite disseminated, moderately calcareous, scattered calcite fracture fill in small part;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

The interval from 2833m to 3053m contains dark grey to black, blocky to irregular blocky, hard to very hard, siliceous, SHALE, silty in part. This lithology has been described as SILTSTONE by H. Wennekers. The cuttings are multi and irregularly faceted, with some cutting surfaces appearing as shell-like and even amygdaloidal; not uncommon for chert fracturing. Cuttings of this lithology may include cavings, which though seems unlikely with the slightly over gauge, clean, hole, and the high viscosity (117) and heavy (1430kg/m3) drilling mud. Drilling bits wore on this lithology. Drilling bit shanks wore and some of the bits were 1/2" under gauge. This lithology has been mistakenly been described as "chert" from this lowermost interval (the Horn River) of the Besa River in some wells in the region.

- 3044 - 3045 SHALE - dark gray, mottled white calcareous streaks in part, black in part, blocky, moderately consolidated, trace pyrite disseminated, moderately calcareous, scattered calcite fracture fill in small part;
- 3045 - 3055 SHALE - dark gray, mottled white calcareous streaks in part, black in part, blocky, moderately consolidated, trace pyrite disseminated, moderately calcareous, scattered calcite fracture fill in small part; SHALE - dark gray - black, hard - very hard, blocky, abundant siliceous, common calcareous, some calcite white micro fracture fill, rare quartz euhedral crystals, common pyrite disseminated and fragments;
- 3055 - 3065 SHALE - dark gray, mottled white calcareous streaks in part, black in part, blocky, moderately consolidated, trace pyrite disseminated, moderately calcareous, scattered calcite fracture fill in small part; SHALE - dark gray - black, hard - very hard, blocky, abundant siliceous, common calcareous, some calcite white micro fracture fill, common quartz micro fracture fill and euhedral crystals, common pyrite disseminated and fragments;
- 3065 - 3068 SHALE - black, hard - very hard, blocky, abundant siliceous, moderately calcareous, some calcite white micro fracture fill, common pyrite disseminated, streaks, and fragments;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

- 3068 - 3072 SHALE - dark gray - black, hard - very hard, blocky, abundant siliceous, moderately calcareous, some calcite white micro fracture fill, trace quartz micro fracture fill, rare pyrite disseminated;
- 3072 - 3080 SHALE - dark gray, mottled white calcareous streaks in part, black in part, blocky, moderately consolidated, trace pyrite disseminated, moderately calcareous, scattered calcite fracture fill in small part; SHALE - dark gray - black, hard - very hard, blocky, abundant siliceous, moderately calcareous, some calcite white micro fracture fill, trace quartz micro fracture fill, rare pyrite disseminated;
- 3080 - 3090 SHALE - dark gray, mottled white calcareous streaks, black in part, blocky, moderately consolidated, trace pyrite disseminated, moderately calcareous, scattered calcite fracture fill in small part, rare dolomite clear euhedral crystals in calcite micro fracture fill; SHALE - black, hard - very hard, blocky, abundant siliceous, moderately calcareous, some calcite white micro fracture fill, common pyrite disseminated, streaks, and fragments; LIMESTONE - gray brown, platy, mottled, microcrystalline, calcite fossil mould, common argillaceous, some calcite white calcite micro fracture fill;
- 3090 - 3095 SHALE - dark gray, mottled white calcareous streaks in part, black in part, blocky, moderately consolidated, trace pyrite disseminated, moderately calcareous, scattered calcite fracture fill in small part; SHALE - black, hard - very hard, blocky, abundant siliceous, moderately calcareous, some calcite white micro fracture fill, common pyrite disseminated, streaks, and fragments; LIMESTONE - gray brown, platy, mottled, microcrystalline, calcite fossil, small angle top cone Tentaculites, common argillaceous, some calcite white calcite micro fracture fill;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
3095 - 3098	SHALE - black, hard - very hard, blocky, abundant siliceous, moderately calcareous, some calcite white micro fracture fill, common pyrite disseminated, streaks, and fragments; LIMESTONE - gray brown, platy, mottled, microcrystalline, calcite fossil, small angle top cone Tentaculites, common argillaceous, some calcite white calcite micro fracture fill;
3098 - 3099	SHALE - black, hard - very hard, blocky, abundant siliceous, moderately calcareous, some calcite white micro fracture fill, common pyrite disseminated, streaks, and fragments;
3099 - 3102	No sample; A 2.32m discrepancy in bottom hole depth.
3102 - 3105	SHALE - black, hard - very hard, blocky, abundant siliceous, moderately calcareous, some calcite white micro fracture fill, common pyrite disseminated, streaks, and fragments; LIMESTONE - gray brown (whitish-gray to dark gray speckled, platy, mottled, microcrystalline, calcite fossil, small angle top cone Tentaculites, common argillaceous, some calcite white calcite micro fracture fill.
3105 - 3110	SHALE - black, hard - very hard, blocky, abundant siliceous, moderately calcareous, some calcite white micro fracture fill, common pyrite disseminated, streaks, and fragments; LIMESTONE - gray brown (whitish - gray to dark gray speckled), platy, mottled, microcrystalline, calcite fossil, small angle top cone Tentaculites, common argillaceous, some calcite white calcite micro fracture fill;
3110 - 3113	SHALE - black, hard - very hard, blocky, abundant siliceous, moderately calcareous, some calcite white micro fracture fill, common pyrite disseminated, streaks, and fragments; LIMESTONE - gray brown - dark gray, mottled, hard, brittle, platy, microcrystalline, calcite fossil, small angle top cone Tentaculites, common argillaceous, some calcite white calcite micro fracture fill, <u>rare bitumen</u> black, high lustre, amygdaloidal fractures;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

3113 - 3115 LIMESTONE - gray brown - dark gray, mottled, hard, brittle, platy, microcrystalline, dried bitumen in microfracture lined with calcite crystals, calcite fossil, small angle top cone Tentaculites, common argillaceous, some calcite white calcite micro fracture fill, rare bitumen black, high lustre, amygdoidal fractures;

Some notes on the lithology of the rocks drilled in P-66-A between 3080m and 3115m.

The rock encountered from 3080m to 3115m contains what appears two units with limestone separated by shale. This could be a repeat section, or it represents an undisturbed succession. The lowermost sample of this interval from 3112.50m to 3115.00m contains abundant pieces of opaque calcite, common pieces of quartz and small clear quartz crystals, and pieces of opaque to translucent dolomite. Also encountered were small pieces of brittle dried bitumen, black, high luster, with amygdaloidal-like fractures. A few pieces had already been found in sample 3112.50m, but then a decision as to its origin waivered between in-situ and/or a mud additive. This riddle was solved when, in circulated 3115.00m bottom hole sample, a cutting was found that contained limestone and part of a micro fracture almost filled with calcite crystals; not closed, but with space left between the two surfaces of crystal tops, indicating crystal growth was from the fracture walls towards the centre of the fracture. The open space between the two opposite surfaces studded with crystal tops, is filled with black shiny dried bitumen. This was a most wonderful discovery, since similar fractures filled with dried bitumen (Gilsonite) are characteristic of the Nahanni limestone and dolomite in wells drilled in the Pointed Mountain Field and in other wells that were drilled in the region. At this time, it is not known how far the 3115.00m bottom hole depth is from the top of the Nahanni dolomites. It might be concluded that the limestone we have seen in the last 35 meters of the P-66-A hole might include basal Horn River limestones and uppermost limestones of the Nahanni Formation.

The limestones encountered in the 3080m to 3098m interval are not sedimentary limestones. It appears that these Limestones are defined as Limiestones, because of their reaction with 0.1normal HCL acid, leaving some argillaceous residue. In places, the distinction between argillaceous Limestone and calcareous shale is very difficult; if not impossible. In addition, it is more than likely that these limestone are the result of a series of complex diagenitic events.

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

It appears, that a mainly argillaceous black rock, claystone to shale, containing abundant pyrite, went through a silicification cycle, changing the rock into a very hard siliceous claystone-shale, that I have described in many cases as a siltstone; gritty feel and hard. This "siltstone" then was subjected to a calcification process, which diagenetically converted the "siltstone" to varying degrees into a mottled rock, that reacts actively with 0.1 normal HCL acid, suggesting it is a limestone; very little residue is left after acid has removed all calcite. The limestone designation seems logic as the rock contains calcified fossils. Unfortunately, such calcified fossils are also present in siliceous shales/claystones. These fossils include, Tentaculites; three dimensional, suggesting that hardening of this rock, due silification, occurred somewhere prior to advanced induration. Or, as an alternative, local calcification of these fossils occurred early in the induration process.

It is noted here, that the calcification of the "siltstone" occurred as if it followed original very fine bedding in the "siltstone". A bedding that can not be detected when cuttings of non-calcified "siltstone" are examined in detail. Thus, calcification highlights that "bedding". Also, the calcification process, although appearing to follow original bedding, has the appearance, on a cross section surface, not of thin beds, but of a string of flattened beads. With more advanced calcification, the "partially calcified siltstone" is converted into a grayish brown coloured limestone. Following that, it appears that further calcification results in a grayish brown to whitish and dark gray "salt and pepper" microcrystalline limestone. Usually, the description "salt and pepper" is used for sandstone, but that is how it looks. Further calcification results in a microcrystalline whitish-blackish salt and pepper limestone.

Note: The content of the above two pages is based on visual observations on location P-66-A, and not on reviews of literature and other sources.

[An alternate interpretation might envision diagenetically changed original sedimentary argillaceous limestones and possibly calcareous shales of the Nahanni, between 3102m and 3115m?; silicification to varying degrees?]

3115 - 3125

DOLomite - light tan, light brown, microcrystalline, dried brittle black bitumen and soft black bitumen, abundant calcite, pieces of crystals, some blackish due to bitumen;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

Sample descriptions that follow [3115-3500] whipstock no.4 were logged by Fred Richardson January 27/98 to February 4/98

3115 - 3120	Sample is 100% cement;
3120 - 3125	Sample is 100% cement; No sample - teflon beads;
3125 - 3130	Teflon beads; DOLOMITE - dark gray, fine crystalline to medium crystalline and some coarse crystalline; DOLOMITE - white, medium crystalline to coarse crystalline and some fine crystalline, <u>fair intercrystalline porosity</u> , <u>fair vuggy porosity</u> ;
3125 - 3130	DOLOMITE - white, fine crystalline to medium crystalline, no gas show, sample ground very fine, and abundant cement, difficult to access porosity, occasional bitumen; 40-50% of sample is cement;
3130 - 3135	DOLOMITE - white, fine crystalline to medium crystalline, no gas show, sample ground very fine, and abundant cement, difficult to access porosity, occasional bitumen;
3135 - 3140	DOLOMITE - white, coarse crystalline to very coarse crystalline, <u>fair intercrystalline porosity</u> , <u>fair vuggy porosity</u> , <u>gas</u> , some clear quartz crystals, occasionally calcareous; DOLOMITE - dark gray, black, fine crystalline to medium crystalline, <u>trace intercrystalline porosity</u> ;
3140 - 3145	DOLOMITE - white, coarse crystalline to very coarse crystalline, <u>fair intercrystalline porosity</u> , <u>fair vuggy porosity</u> , <u>gas</u> , some clear quartz crystals, occasionally calcareous; DOLOMITE - dark gray, black, fine crystalline to medium crystalline, <u>trace intercrystalline porosity</u> ;
3145 - 3150	DOLOMITE - white, coarse crystalline to very coarse crystalline, <u>fair intercrystalline porosity</u> , <u>fair vuggy porosity</u> , <u>gas</u> , some clear quartz crystals, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to medium crystalline, <u>fair intercrystalline porosity</u> , <u>fair vuggy porosity</u> ;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

- 3150 - 3155 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to medium crystalline, fair intercrystalline porosity, fair vuggy porosity;
- 3155 - 3160 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to medium crystalline, fair intercrystalline porosity, fair vuggy porosity;
- 3160 - 3165 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to medium crystalline, fair intercrystalline porosity, fair vuggy porosity;
- 3165 - 3170 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to medium crystalline, fair intercrystalline porosity, fair vuggy porosity;
- 3170 - 3175 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to medium crystalline, fair intercrystalline porosity, fair vuggy porosity;
- 3175 - 3180 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to medium crystalline, fair intercrystalline porosity, fair vuggy porosity;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

- 3180 - 3185 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to medium crystalline, fair intercrystalline porosity, fair vuggy porosity;
- 3185 - 3190 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, trace of intercrystalline porosity, trace vuggy porosity, trace gas, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to medium crystalline, rare intercrystalline porosity;
- 3190 - 3195 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, trace of intercrystalline porosity, trace of vuggy porosity, trace gas, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to medium crystalline, rare intercrystalline porosity;
- 3195 - 3200 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, trace of intercrystalline porosity, trace of vuggy porosity, trace gas, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to medium crystalline, rare intercrystalline porosity;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

- 3200 - 3205 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, trace of intercrystalline porosity, trace of vuggy porosity, trace gas, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to medium crystalline, rare intercrystalline porosity; DOLOMITE - gray, gray - brown, fine crystalline to microcrystalline, rare intercrystalline porosity;
- 3205 - 3210 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, trace of intercrystalline porosity, trace of vuggy porosity, trace gas, occasionally calcareous; DOLOMITE - gray, gray - brown, fine crystalline to microcrystalline, rare intercrystalline porosity;
- 3210 - 3215 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to medium crystalline, rare intercrystalline porosity; DOLOMITE - as above, fine crystalline to microcrystalline, rare intercrystalline porosity;
- 3215 - 3220 DOLOMITE - white, coarse crystalline to very coarse crystalline, trace of intercrystalline porosity, trace of vuggy porosity, trace gas, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - brown, fine crystalline to cryptocrystalline, trace intercrystalline porosity, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, rare vuggy porosity, occasionally calcareous;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

- 3220 - 3225 DOLOMITE - white, coarse crystalline to very coarse crystalline, trace of intercrystalline porosity, trace of vuggy porosity, trace gas, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to medium crystalline, rare intercrystalline porosity; DOLOMITE - brown, fine crystalline to cryptocrystalline, trace intercrystalline porosity, occasionally calcareous;
- 3225 - 3230 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - brown, fine crystalline to cryptocrystalline, trace intercrystalline porosity, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, rare vuggy porosity, occasionally calcareous;
- 3230 - 3235 DOLOMITE - gray, dark gray, black, fine crystalline to medium crystalline, rare intercrystalline porosity; DOLOMITE - gray, gray - brown, fine crystalline to microcrystalline, rare intercrystalline porosity; DOLOMITE - brown, fine crystalline to cryptocrystalline, trace intercrystalline porosity, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, rare vuggy porosity, occasionally calcareous;
- 3235 - 3240 DOLOMITE - gray, dark gray, black, fine crystalline to medium crystalline, rare intercrystalline porosity; DOLOMITE - gray, gray - brown, fine crystalline to microcrystalline, rare intercrystalline porosity; DOLOMITE - brown, fine crystalline to cryptocrystalline, trace intercrystalline porosity, occasionally calcareous;
- 3240 - 3245 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to medium crystalline, rare intercrystalline porosity;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

- 3245 - 3250 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, trace of intercrystalline porosity, trace of vuggy porosity, trace gas, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, rare vuggy porosity, occasionally calcareous;
- 3250 - 3255 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - brown, fine crystalline to cryptocrystalline, trace intercrystalline porosity, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, rare vuggy porosity, occasionally calcareous;
- 3255 - 3260 DOLOMITE - white, coarse crystalline to very coarse crystalline, trace of intercrystalline porosity, trace of vuggy porosity, trace gas, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, trace of intercrystalline porosity, trace of vuggy porosity, trace gas, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to medium crystalline, rare intercrystalline porosity; DOLOMITE - white, coarse crystalline to very coarse crystalline, rare vuggy porosity, occasionally calcareous;
- 3260 - 3265 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, trace of intercrystalline porosity, trace of vuggy porosity, trace gas, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, rare vuggy porosity, occasionally calcareous;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

3265 - 3270

DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, trace of intercrystalline porosity, trace of vuggy porosity, trace gas, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, rare vuggy porosity, occasionally calcareous;

3270 - 3275

DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, trace of intercrystalline porosity, trace of vuggy porosity, trace gas, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, rare vuggy porosity, occasionally calcareous;

3275 - 3280

DOLOMITE - white, coarse crystalline to very coarse crystalline, trace of intercrystalline porosity, trace of vuggy porosity, trace gas, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, trace of intercrystalline porosity, trace of vuggy porosity, trace gas, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to medium crystalline, rare intercrystalline porosity; DOLOMITE - brown, fine crystalline to cryptocrystalline, trace intercrystalline porosity, occasionally calcareous;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

3280 - 3285

DOLOMITE - white, coarse crystalline to very coarse crystalline, trace of intercrystalline porosity, trace of vuggy porosity, trace gas, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, trace of intercrystalline porosity, trace of vuggy porosity, trace gas, occasionally calcareous;

3285 - 3290

DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, trace of intercrystalline porosity, trace of vuggy porosity, trace gas, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, rare vuggy porosity, occasionally calcareous;

3290 - 3295

DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, trace of intercrystalline porosity, trace of vuggy porosity, trace gas, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, rare vuggy porosity, occasionally calcareous;

3295 - 3300

DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, trace of intercrystalline porosity, trace of vuggy porosity, trace gas, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, rare vuggy porosity, occasionally calcareous;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

- 3300 - 3305 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to medium crystalline, rare intercrystalline porosity; DOLOMITE - brown, fine crystalline to cryptocrystalline, trace intercrystalline porosity, occasionally calcareous;
- 3305 - 3310 DOLOMITE - gray, gray - brown, fine crystalline to microcrystalline, rare intercrystalline porosity; DOLOMITE - white, coarse crystalline to very coarse crystalline, rare vuggy porosity, occasionally calcareous;
- 3310 - 3315 DOLOMITE - white, coarse crystalline to very coarse crystalline, trace of intercrystalline porosity, trace of vuggy porosity, trace gas, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, trace of intercrystalline porosity, trace of vuggy porosity, trace gas, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, rare vuggy porosity, occasionally calcareous;
- 3315 - 3320 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, trace of intercrystalline porosity, trace of vuggy porosity, trace gas, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, rare vuggy porosity, occasionally calcareous;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

- 3320 - 3325 DOLOMITE - white, coarse crystalline to very coarse crystalline, trace of intercrystalline porosity, trace of vuggy porosity, trace gas, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, trace porosity, trace of vuggy porosity, trace gas, occasionally calcareous;
- 3325 - 3330 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair intercrystalline porosity, fair vuggy porosity, gas, some clear quartz crystals, occasionally calcareous;
- 3325 - 3330 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair vuggy porosity, slight trace of calcite, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to very fine crystalline, occasional clear quartz crystals;
- 3330 - 3335 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair vuggy porosity, slight trace of calcite, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, slight trace of calcite, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to very fine crystalline, occasional clear quartz crystals; DOLOMITE - gray, dark gray, black, fine crystalline to very fine crystalline, poor intercrystalline porosity;
- 3335 - 3340 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair vuggy porosity, slight trace of calcite, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to very fine crystalline, occasional clear quartz crystals; DOLOMITE - gray, dark gray, black, fine crystalline to very fine crystalline, poor intercrystalline porosity;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

- 3340 - 3345 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair vuggy porosity, slight trace of calcite, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, slight trace of calcite, occasionally calcareous; DOLOMITE - gray, light gray, fine crystalline to very fine crystalline, trace intercrystalline porosity, some intercrystalline bitumen;
- 3345 - 3350 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair vuggy porosity, slight trace of calcite, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, slight trace of calcite, occasionally calcareous; DOLOMITE - gray, fine crystalline to very fine crystalline, trace intercrystalline porosity, some intercrystalline bitumen;
- 3350 - 3355 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair vuggy porosity, slight trace of calcite, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to very fine crystalline, poor intercrystalline porosity; DOLOMITE - gray, fine crystalline to very fine crystalline, trace intercrystalline porosity, some intercrystalline bitumen;
- 3355 - 3360 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair vuggy porosity, slight trace of calcite, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, slight trace of calcite, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to very fine crystalline, occasional clear quartz crystals; DOLOMITE - gray, fine crystalline to very fine crystalline, trace intercrystalline porosity, some intercrystalline bitumen; DOLOMITE - brown, cryptocrystalline to microcrystalline, tight;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

3360 - 3365

DOLOMITE - white, coarse crystalline to very coarse crystalline, fair vuggy porosity, slight trace of calcite, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, fair vuggy porosity, slight trace of calcite, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, slight trace of calcite, occasionally calcareous; DOLOMITE - gray, fine crystalline to very fine crystalline, trace intercrystalline porosity, some intercrystalline bitumen; DOLOMITE - brown, cryptocrystalline to microcrystalline, tight;

3365 - 3370

DOLOMITE - white, coarse crystalline to very coarse crystalline, fair vuggy porosity, slight trace of calcite, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, slight trace of calcite, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to very fine crystalline, occasional clear quartz crystals; DOLOMITE - gray, fine crystalline to very fine crystalline, trace intercrystalline porosity, some intercrystalline bitumen; DOLOMITE - brown, cryptocrystalline to microcrystalline, tight;

3370 - 3375

DOLOMITE - white, coarse crystalline to very coarse crystalline, fair vuggy porosity, slight trace of calcite, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to very fine crystalline, poor intercrystalline porosity; DOLOMITE - gray, fine crystalline to very fine crystalline, trace intercrystalline porosity, some intercrystalline bitumen; DOLOMITE - brown, cryptocrystalline to microcrystalline, tight;

3375 - 3380

DOLOMITE - white, coarse crystalline to very coarse crystalline, fair vuggy porosity, slight trace of calcite, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to very fine crystalline, poor intercrystalline porosity; DOLOMITE - gray, fine crystalline to very fine crystalline, trace intercrystalline porosity, some intercrystalline bitumen;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

- 3380 - 3385 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair vuggy porosity, slight trace of calcite, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to very fine crystalline, poor intercrystalline porosity; DOLOMITE - gray, fine crystalline to very fine crystalline, trace intercrystalline porosity, some intercrystalline bitumen;
- 3385 - 3390 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair vuggy porosity, slight trace of calcite, occasionally calcareous; DOLOMITE - gray, fine crystalline to very fine crystalline, trace intercrystalline porosity, some intercrystalline bitumen;
- 3390 - 3395 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair vuggy porosity, slight trace of calcite, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, slight trace of calcite, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to very fine crystalline, poor intercrystalline porosity;
- 3395 - 3400 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair vuggy porosity, slight trace of calcite, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to very fine crystalline, poor intercrystalline porosity; DOLOMITE - gray, fine crystalline to very fine crystalline, trace intercrystalline porosity, some intercrystalline bitumen;
- 3395 - 3400 DOLOMITE - gray, dark gray, black, fine crystalline to very fine crystalline, poor intercrystalline porosity; DOLOMITE - brown, cryptocrystalline to microcrystalline, tight; DOLOMITE - white, coarse crystalline to very coarse crystalline, trace vuggy porosity, trace clear quartz crystal, trace calcareous;
- 3400 - 3405 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair vuggy porosity, slight trace of calcite, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to very fine crystalline, poor intercrystalline porosity;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

- 3405 - 3410 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair vuggy porosity, slight trace of calcite, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to very fine crystalline, poor intercrystalline porosity; DOLOMITE - white, coarse crystalline to very coarse crystalline, trace vuggy porosity, trace clear quartz crystal, trace calcareous;
- 3410 - 3415 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair vuggy porosity, slight trace of calcite, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to very fine crystalline, poor intercrystalline porosity; DOLOMITE - white, coarse crystalline to very coarse crystalline, trace vuggy porosity, trace clear quartz crystal, trace calcareous;
- 3415 - 3420 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair vuggy porosity, slight trace of calcite, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to very fine crystalline, poor intercrystalline porosity; DOLOMITE - brown, cryptocrystalline to microcrystalline, tight;
- 3420 - 3425 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair vuggy porosity, slight trace of calcite, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, slight trace of calcite, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, trace vuggy porosity, trace clear quartz crystal, trace calcareous;
- 3425 - 3430 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair vuggy porosity, slight trace of calcite, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to very fine crystalline, poor intercrystalline porosity; DOLOMITE - brown, cryptocrystalline to microcrystalline, tight;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

- 3430 - 3435 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair vuggy porosity, slight trace of calcite, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, slight trace of calcite, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to very fine crystalline, poor intercrystalline porosity; DOLOMITE - brown, cryptocrystalline to microcrystalline, tight;
- 3435 - 3440 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair vuggy porosity, slight trace of calcite, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, slight trace of calcite, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to very fine crystalline, poor intercrystalline porosity; DOLOMITE - brown, cryptocrystalline to microcrystalline, tight;
- 3440 - 3445 DOLOMITE - white, coarse crystalline to very coarse crystalline, fair vuggy porosity, slight trace of calcite, occasionally calcareous; DOLOMITE - white, coarse crystalline to very coarse crystalline, slight trace of calcite, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to very fine crystalline, occasional clear quartz crystals; DOLOMITE - gray, dark gray, black, fine crystalline to very fine crystalline, poor intercrystalline porosity; DOLOMITE - brown, cryptocrystalline to microcrystalline, tight;
- 3445 - 3450 DOLOMITE - white, coarse crystalline to very coarse crystalline, slight trace of calcite, occasionally calcareous; DOLOMITE - gray, dark gray, black, fine crystalline to very fine crystalline, occasional clear quartz crystals; DOLOMITE - gray, fine crystalline to very fine crystalline, trace intercrystalline porosity, some intercrystalline bitumen; DOLOMITE - brown, cryptocrystalline to microcrystalline, tight;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

3450 - 3455	DOLOMITE - white, coarse crystalline to very coarse crystalline, <u>poor vuggy porosity</u> , occasional clear quartz crystal, occasionally calcareous; DOLOMITE - gray, dark gray, very fine crystalline to fine crystalline and some medium crystalline, <u>fair fracture porosity</u> ; DOLOMITE - brown, cryptocrystalline to microcrystalline, tight;
3455 - 3460	DOLOMITE - white, coarse crystalline to very coarse crystalline, <u>poor vuggy porosity</u> , occasional clear quartz crystal, occasionally calcareous; DOLOMITE - brown, cryptocrystalline to microcrystalline, tight; DOLOMITE - gray, dark gray, fine crystalline to medium crystalline;
3460 - 3465	DOLOMITE - white, coarse crystalline to very coarse crystalline, <u>poor vuggy porosity</u> , occasional clear quartz crystal, occasionally calcareous; DOLOMITE - brown, cryptocrystalline to microcrystalline, tight; DOLOMITE - gray, dark gray, fine crystalline to medium crystalline;
3465 - 3470	DOLOMITE - white, coarse crystalline to very coarse crystalline, <u>poor vuggy porosity</u> , occasional clear quartz crystal, occasionally calcareous; DOLOMITE - brown, cryptocrystalline to microcrystalline, tight; DOLOMITE - gray, dark gray, fine crystalline to medium crystalline;
3470 - 3475	DOLOMITE - white, coarse crystalline to very coarse crystalline, <u>poor vuggy porosity</u> , occasional clear quartz crystal, occasionally calcareous; DOLOMITE - brown, cryptocrystalline to microcrystalline, tight; DOLOMITE - gray, dark gray, fine crystalline to medium crystalline;
3475 - 3480	DOLOMITE - white, coarse crystalline to very coarse crystalline, <u>poor vuggy porosity</u> , occasional clear quartz crystal, occasionally calcareous;
3480 - 3485	DOLOMITE - white, coarse crystalline to very coarse crystalline, <u>poor vuggy porosity</u> , occasional clear quartz crystal, occasionally calcareous; DOLOMITE - brown, cryptocrystalline to microcrystalline, tight; DOLOMITE - gray, dark gray, fine crystalline to medium crystalline;

LITHOLOGY

Formation tops
Sample interval
(in meters)

SAMPLE DESCRIPTION

3485 - 3490	DOLOMITE - white, coarse crystalline to very coarse crystalline, <u>poor vuggy porosity</u> , occasional clear quartz crystal, occasionally calcareous; DOLOMITE - brown, cryptocrystalline to microcrystalline, tight; DOLOMITE - gray, dark gray, fine crystalline to medium crystalline;
3490 - 3495	DOLOMITE - white, coarse crystalline to very coarse crystalline, <u>poor vuggy porosity</u> , occasional clear quartz crystal, occasionally calcareous; DOLOMITE - brown, cryptocrystalline to microcrystalline, tight; DOLOMITE - gray, dark gray, fine crystalline to medium crystalline;
3495 - 3500	DOLOMITE - white, coarse crystalline to very coarse crystalline, <u>poor vuggy porosity</u> , occasional clear quartz crystal, occasionally calcareous; DOLOMITE - brown, cryptocrystalline to microcrystalline, tight; DOLOMITE - gray, dark gray, fine crystalline to medium crystalline;

<u>TOTAL DEPTH</u>	<u>3500m</u>
--------------------	--------------

GEOLOGICAL SUMMARY AND CONCLUSIONS

Side track #3, Ranger Fort Liard P66A, kicked off at around 1400m. Directional drilling, building up to a 45 degrees angle was drilled to 3115m when intermediate casing was set. Hole conditions were excellent from around 1950m down to 3115m, but many tight hole intervals, unloading of shale, and large diameter hole caused considerable concern for the integrity of the hole until it was finally cased. The section drilled between 1400m and 1950m contains medium gray to dark gray to light brown to tan, soft, platy, sometimes blocky, shale, micromicaceous in places, calcareous to varying degrees, sometimes slightly dolomitic. This shale unloads easily when mud pressure is lowered or when there is much activity in the hole. While the directional drilling had build up to, and reached, the 45 degrees angle, the production of finely ground up rock so characteristic of drilling that interval, continued even when the harder more stable strata were drilled from 1950m to 3115m. Well cutting samples contained at times almost no cuttings, but were dominated by pieces of mud solids, scraped of the well bore wall and characterized by shiny black surfaces, almost resembling slickensides. In this case, they are recent slickensides; actual friction surfaces. With the high downhole temperatures and pressures, it is increasingly difficult to assess what actually took place at the bit. Not mechanically, but physically and chemically. From time to time the hole dragged and with a mud, containing irregular and sometimes very high percentages of mud solids, the hole drag increased. From time to time, efforts were made to decrease the hole drag and bottom torque. This was done by adding crushed walnut shells to the mud. Interesting to note that the mud company does not carry tables and graphs that show that these walnut shells at 1000 to 5000 psi are compacted to very small pieces indeed. In this hole it was clearly visible that below 1950m the real cuttings of the silicified shale were larger than the compressed crushed walnut pieces. In effect a useless addition to the mud, that tended to pack off the MWD tool and caused problems in the mud pumps. The most important adaptation to the lithologies in this hole was the production of very clean mud that had no problems carrying sloughings and cuttings. That was all that there is to it.

Sidetrack no.4 was required because a fish was left in the hole and had to be cemented off and sidetracked around. Kick off point was 3115m [measured] and directional drilling started on January 27, 1998 and successful drilled past the fish and to TD of 3500m at 04:00 hrs February 4, 1998. Drilling was completed without any major problems.

The lithology consisted primarily of white Dolomite very coarse crystalline with some spotty vuggy porosity to 10 or 12 % . Forty to fifty per cent of the samples are dark grey to black Dolomite, very fine crystalline and tight. One good gas show was encountered at 3166m [2280] units. Smaller gas shows are as follows: 346 units at 3378m and 760 units at 3408m.

Logging operations began February 5, 1998 18:00 to 20:00 and could not reach bottom , Hole was bridged off at 3288m . A clean out trip followed and an

GEOLOGICAL SUMMARY AND CONCLUSIONS (cont.)

obstruction was felt at 3288m . While circulating on bottom at 3106m the well kicked gas in the early morning hours February 7, 1998. The gas kick was controlled, and 25m3 of mud was lost to the formation. After mud volume was rebuilt and all gas circulated out of mud we were ready to log again at 05:15 February 9, 1998. And all logs were completed at 20:00 hrs. Logs run were STI, Sonic, Density, Laterolog, & EMI.

The next ^{day (February} ~~October~~ 10, 1998) we received orders to run 177.8 mm casing.