APPENDIX 1

DRILLING RIG SPECIFICATIONS
1. DRAW-WORKS

Walker Neer. Single Drum draw-works, 450 H.P. driven through Allison 750 series power shift transmission.

- Drill Line - 1", 4 line string up
- 10" (254mm) wide x 42" (1067mm) double brakes with 2,350 sq.ins. (15161 sq.cm.) braking surface area with water spash cooling system.

2. POWER SYSTEM

1 Caterpillar V8 3408-DITA Turbo-charged Diesel engine giving 460 H.P. @ 2000 rpm.

- Exhaust system fitted with spark arrestors
- Exhaust water spray
- Air starter motor
- Flame proof alternators

3. TRANSMISSION

Allison Series 750 Automatic, 5 speed with Torque convertor, remote mounted.

4. HYDRAULICS

- Primary pump, variable volume that delivers power to the top head drive hydraulic motor
- Secondary pumps, fixed volume supplying power to levelling jacks, auxiliary winch, pipe boom mast raise cylinders, tork chief (hydraulically actuated make up/breakout wrenches)

5. TOP HEAD DRIVE - 2 SPEED

- Low Range - 10,700 ft/lbs maximum torque, infinitely variable speeds 0 -130 rpm.
- High Range - 3100 ft/lbs maximum torque, infinitely variable speeds 0 - 450 rpm.
- Drive is through a two-speed gearbox, powered by Axial piston hydraulic motor. Motor controlled and driven by a variable volume hydraulic pump.
- Dynamic drilling load capacity 170,000lbs (77,111kg) indicated string weight @ 80 rpm.
- Quick change, side loading mud 3000 PSI swivel assembly. Gooseneck is equipped with Halliburton 2" plug at centreline of drill string to facilitate running wireline coring and logging tools, and also drill stem tests, under pressure.
- 6 1/8" O.D. Quill with 41/2" A.P.I. pin down. Quill equipped with wrench flats and locking means to prevent rotation when drilling with down hole motor.
6. MAST
   - Made to meet or exceed A.P.I. 4E standard.
   - Height top of slips to bottom of crown beam, 18.6 metres.
   - Max Dynamic (drilling) load per weight indicator 146,550lb (66,470kg).
   - Seven sheave crown, 5 sheaves grooved for 1" drilling line, two sheaves for catline.
   - Ladder to crown, complete with safely climbing device.
   - Capacity to handle range 3 tubulars to 14.4m long.

7. HYDRAULIC CATLINE WINCH (AUXILIARY)
   - 8,000lb (3630kg) lifting capacity.
   - Control valve mounted on drillers console.
   - 8,000lb (3630kg) capacity, swinging jib boom mounted approx. 20' below crown with 3 ft. swing radius.

8. PIPE HANDLING BOOM
   - Hydraulic powered and controlled, transfers all tubulars from pipe racks, trailers, etc., to drill string centre line and vise-versa.
   - Boom accommodates 2 3/8" through 9 5/8" O.D. tubing including all drill pipe, collars, tubing.
   - Hydraulically actuated jaws hold pipe during transfer and while making up with top-head drive.
   - Hand adjustable relief valve and pressure gauge installed to prevent crushing of thin well casing.
   - Lifting capacity 3500lb (1590kg).

9. WEIGHT INDICATOR
   - Remote gauge to capacity of Rig near drillers position.

10. HYDRAULIC LEVELLING JACKS
    - Four extra heavy duty hydraulic jacks with 12" stroke mounted at front and rear of trailer.

11. MUD SYSTEM - 3000 PSI W.P.
    - 3" (76mm) standpipe installed in mast.
    - 3" (76mm) flex-hose connects standpipe to 3" (76mm) mud-line on deck.
    - Deckline complete with pressure gauge, valve, and half union for connecting mud line to pump discharge.
    - 3 x 2" (51mm) threaded openings in deck line for wash hose, drill stem test valve, etc.
12. **APACHE-TORKCHIEF MODEL 50-30 HYDRAULIC MAKE-UP/BREAKDOWN WRENCHES**

- Adjustable make-up torque 0 - 30,000ft/lb.
- Adjustable breakout torque 0 - 50,000ft/lb.
- Complete with gauge for torque readout.
- Accommodated tubulars 3½" to 7½" O.D.
- Mounted to bottom of mast and can be raised and lowered 6".
- Can be moved back into mast to clear drill string area.

13. **MUD PUMPS**

One (1) Oilwell triplex A314 St 150 HP each - 3000 PSI WP with 3" plungers driven by Detroit 6V53 and road ranger gearbox comes complete with flameproofed lubrication pumps etc. Rates .365 GPS @ 3000 PSI.

One (1) Triplex piston pump, make OPI, Model 350 DG rated 350 HP, skid mounted and driven by a Detroit 8V71. Pump is dressed to 6" liners for 2.94 GPS @ 1500 PSI or 4½" liners for 1.65 GPS @ 2600 PSI.

14. **MUD SYSTEMS**

(a) Mud system consisting of mainly the following items:

- **Settling Tank**
  - Overall dimensions 4.8m long 2.00m wide 0.90m high. Mounted on oilfield type skid 6m long. Capacity 8600 litres (2275 gals - 54 BBLS).
  - Equipped with: Geosource shale shaker capacity 300/500 GPM size 4" x 5" double screen driven by an hydraulic motor 10HP.
  - Pickup pump centrifugal 500 GPM hydraulic motor.
  - Desilter 200 GPM model economaster S2-E4 medearis.
  - Mud agitator 45 degree flat blade turbine driven by hydraulic low speed 60 RPM high torque motor.
  - Pump type mission 3 x 4 x 13 centrifugal belt driven from engine.
  - Prime mover W/Power takeoff type Deutz 4 cyl. FL412.

Hydraulic System: Gear pump tandem type suitable to operate pick-up, shale shaker, 2 mud agitators, centrifugal pump 2 x 2½ x 12 (No. 1 Agitator and 2 centrifugal pumps are fitted on the other tank).

- Mud gun
- Degasser
(b) Mixing/storage tank - two compartments
Overall dimensions 4.8m long 2.00 wide 1.20m high mounted on oilfield type skid 6m capacity 11,500 litres (3042 gals - 72.4 BBLS).

Centrifugal pump - Kelly - Lewis 2 x 2½ x 13 driven by an hydraulic motor 18 HP.

2 mud agitotor w/impeller 26" hydraulic driven
2 mud gun
Hopper for mixing mud

(c) Cementing/Killing unit mounted skid 6m long 22m wide w/two tanks around 1000 gals. capacity each.

Prime mover lister diesel engine HR6 103HP
Power take-off twin disc dry type
Gear Box flexible coupling
Oilwell pump model D-323 type Triplex max. bore x stroke 2½" x 3" rated HP 60 rated press. 4000 PSI rated PM 500.
Agitators 6HP capacity 60RMP hydraulic driven one on each tank
Centrifugal pump type Kelly - Lewis K-70 2" x 2½" x 9" hydraulic driven
Hydraulic system including tandem gear pump driven from front of engine
Cameron gate valve 2" 3000 PSI
Cameron pressure gauge 3000 PSI
Shear relief valve 3000 PSI

15. WELLHEAD EQUIPMENT

No. 1 BOP hydri 6" - 3000 PSI WP. type GK bottom flanged 6" - 3000 PSI bore size 7 1/6"

No. 1 BPO shaffer 6" x 3000 PSI WP. Type B double unit top and bottom studded bore size 7 1/6"

No. 1 Breda National Wellhead 5000 PSI to suit 7", 5", casing plus all accessories

No. 1 Reduction spool 6" - 5000 PSI to 6" - 3000 PSI

No. 1 Drilling spacer spool 3000 PSI WP bottom and top flanged 6" - 3000 PSI two outlets - 1st flanged 2" - 3000 PSI, 2nd 3" - 3000 PSI bore size 7 1/6"

No. 2 National valve 2" - 3000 PSI WP flanged for kill line
No. 1 National valve 3" - 3000 PSI WP flanged for choke line
No. 1 National valve flo-tork model 3" - 3000 PSI WP with hydraulic actuator
No. 1 Cameron check valve type R2" - 3000 PSI WP
No. 1 Kill line 2" - 3000 PSI WP
No. 1 Choke line 3" - 3000 PSI WP
No. 1 Hydri automatic pump accumulator unit type HP - 17 - K80
16. MISCELLANEOUS

One (1) fuel tank of suitable capacity to supply fuel to engines
One (1) fluorescent explosion proof lighting and fixture system as per standard oil and gas practice
Voltage: 220/240 volts AC single phase
Frequency: 50 Hz
One (1) Mono pump driven by diesel engine
One (1) dog house
One (1) sand line 5/16"
One (1) set of floor tools
One (1) set of bit breakers
One (1) workshop barrack with spares

17. CONTROL EQUIPMENT

Pump pressure gauge
SPM pump indicator
Rotary torque indicator
Geolograph drilling recorder with the following functions: - Rate of penetration
- Hook load
- Pump pressure
One (1) TIW upper kelly cock 5000 PSI WP
One (1) Gray inside BOP (float valve) 5000 PSI WP
Cup tester for 7" 5" casing

18. TUBULAR EQUIPMENT

800m x 3\(\frac{1}{2}\)" Drill Pipe 13.3 lb/ft
70m drill collars 6 1/8 OD x 2 ¼" ID box pin 4\(\frac{1}{2}\)" IF
120m drill collars 4\(\frac{1}{2}\)" OD x 2 5/16" box pin 3\(\frac{1}{2}\) IF
Set of adequate cross over subs
200 x 6 Metre CHD 101 heavyduty Longyear drill pipe OD 3.875" ID
3.125" 14 lb/ft 1035 heat treated UTS midbody material
18 x 6m Length CHD 101 Heavyweight Drill Pipe
19. HANDLING EQUIPMENT

Casing handling equipment 9 5/8" - 7" - 5"
Casing slips for 9 5/8" - 7" - 5"
One (1) set of pipe tongs
One (1) Safety clamp

20. UTILITY UNIT AND FUEL SYSTEM

One generator Deutz driven 140 KVA
Electricity distribution board

21. VEHICLES & FORKLIFT

2 x Toyota Landcruiser 4 x 4
1 x 6 x 6 Leader winch truck
1 x Forklift

22. CAMP EQUIPMENT

One (1) High Capacity Kitchen, Caravan equipped with electric stove, freezers, refrigeration, utensils and assorted kitchen equipment - Air Conditioned Fibre Glass Water Tank for Kitchen.

One (1) Dining Tent equipped with bench seats and tressel tables.

One (1) Ablution Caravan equipped with Electric HWS, Two Toilets, Two Showers, Washing Machine, Hand Basins.

Three (3) Heavy Duty Arrow Airconditioned (8) berth sleeping trailers.

One (1) Operations Office Trailer with adjoining (2) berth Air conditioned accommodation.

One (1) Operations Twin Office with (2) berth Airconditioned accommodation in each.

One (1) 20 ft Airconditioned recreation room.

One (1) Toolpushers Office (Airconditioned).

One (1) 2 bunk Accommodation unit (Airconditioned).
APPENDIX 2

DRILLING FLUIDS REPORT

(MILPARK DRILLING FLUIDS)
DRILLING FLUIDS REPORT
PACIFIC OIL AND GAS PTY LIMITED
SHORTLAND #1
MCARTHUR BASIN N.T.

PREPARED BY
J. AOUF
L. ARNDT
DECEMBER 1992
CONTENTS

1. WELL SUMMARY

2. SUMMARY OF OPERATIONS

3. CONCLUSIONS AND RECOMMENDATIONS

4. COST ANALYSIS

5. GRAPHS

6. BIT RECORD

7. MUD VOLUME ANALYSIS

8. FLUID PROPERTIES SUMMARY

9. INVENTORY REPORT

10 DAILY DRILLING FLUID REPORTS
# 1. WELL SUMMARY

<table>
<thead>
<tr>
<th>OPERATOR</th>
<th>PACIFIC OIL &amp; GAS</th>
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<tr>
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<td>ROCKDRIL #23</td>
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<td>MILPARK ENGINEERS</td>
<td>JAMIL AOUF</td>
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<td>553</td>
<td>0</td>
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<td>To</td>
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<td>Days</td>
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<td>7&quot;</td>
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<td>Set @ (m)</td>
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<td>$/bbl</td>
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**NOTE:** 6" Hole was initially drilled with air T.D. 773m, then, from 773m to T.D. with Newdrill mud.
2. SUMMARY OF OPERATIONS

Shortland #1 was spudded on 12 November 1992. 13-3/8" conductor pipe was set at 9m.

12-1/4" Hole from 0 to 59m (No Mud Engineers on Site)

The 12-1/4" hole was drilled to 59m, using a Rapidgel Mud. The 9-5/8" casing was run and cemented at the depth of 59m.

8-1/2" Hole from 59m to 553m (No Mud Engineers on Site)

The 8-1/2" hole was drilled to 553.55m using an air/stiff foam fluid. The Milpark Engineer arrived on site on 20th November 1992. After reaching the 7" casing point, the hole was conditioned for logging. After several wiper trips and a lot of reaming the logging tools were unable to pass through. Only the velocity survey was completed successfully. The 7" casing was run and cemented at the depth of 532m.

6" Hole from 553 - 1020m (T.D.)

After nipping up and testing BOPs, the cement, float collar, and shoe were drilled out using water and high viscosity sweeps. 1 metre of formation was drilled and a leak-off-test was performed to an E.M.W. of 12.7 ppg. Drilling 6" hole resumed using air. The hole was displaced with mud at the depth of 773.14m. The NEWVIS/NEWDRILL mud was prepared according to the mud program using 2 lb/bbl NEWVIS and 1 lb/bbl NEWDRILL concentrations. Same difficulty experienced in shearing the Newdrill. Several circulations and dilutions were required to bring the fluid to specification.

Drilling was discontinued when the bit drilled through the sand at first target, the (Hayfield lower sandstone). The drill string was pulled out at 836m and the interval from 818m to 836m was tested.

Drilling continued from 836m to 1020m, in the Jamison Sandstone, where T.D. was declared. The hole was conditioned at the T.D. and logging operations proceeded.

The Milpark Engineer was released on Tuesday, 1st December 1992.
3. CONCLUSIONS AND RECOMMENDATIONS

Shortland #1 was spudded on the 12th November 1992. Rockdrill Rig 23 was used to drill this project. A Rapidgel spud mud was used to drill 12-1/4" hole. Air/stiff foam was used to drill 8-1/2" section and a part of 6" section. Drilling of the 6" hole section was completed using NEWVIS/NEWDRILL fluid from 773m to T.D..

The 8-1/2" hole section, drilled with air/stiff foam, required a lot of reaming and conditioning. Therefore, we recommend using a high viscosity pill before a wiper trip for logging and running casing.

The 6" section was drilled with few problems and the same procedures are recommended for future wells in this area.
4. **COST ANALYSIS**

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<th>Unit</th>
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<th>Unit</th>
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<th>Unit</th>
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5. **GRAPHs**

5.1 Depth Vs Days

5.2 Depth Vs Rotating Hours

5.3 Depth Vs Mud Cost

5.4 Depth Vs Mud Weight

5.5 Depth Vs Fluid Loss

5.6 Depth Vs Rheology
DEPTH VS ROTATING HOURS

DEPTH (METER)

30  60  90  120  150  180

ROTATING HOURS
DEPTH VS FLUID LOSS

DEPTH (METER)

6  8  10  12

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Remarks
7. MUD VOLUME ANALYSIS
## MUD VOLUME ANALYSIS

**HARTLAND 1**

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<th>DATE</th>
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<th>H2O ADDED</th>
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<th>DUMPED</th>
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## FLUID PROPERTIES SUMMARY

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9. INVENTORY REPORT
## Inventory Report

**Operator:** PACIFIC OIL & GAS  
**Well:** SHORT LAND - 1  
**Week Ending:** 27/11/92

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10. DAILY DRILLING FLUID REPORTS
DRILLING MUD REPORT No. 9

API Well No. 1234
State County Well S/T

Operator PACIFIC OIL & GAS
Well Name and No. SHORTLAND # 1

Contractor ROYAL DRILL
Report For CARY BARLOW

Date 20 Nov 1992 Depth 535.55 m
Spud Date 12 Nov '92 Present Activity REAMING
Rig. No. 23
Section Township Range BUNNIGAN 18

Drilling Assembly

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<th>Weight</th>
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Mud Volume (BBL)

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Circulation Data

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Mud Properties

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Mud Property Specifications

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Remarks:

- DRILL 8 1/2" HOLE TO 535.55 m W/ AIR - STIFF FORM -
- 000 ft. PLUGGED ZHA - R.I.H. - REAM 1108' T/249.32'
- 000 ft. - REAM 1/205.72' - 000 ft. TO 108'
- R.I.H REAM 1108' - 119' - MILPARK ENGINEER

Location, 20 Nov 92

Phone Engine Daily Cost

Cost 23.56.64

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**DRILLING MUD REPORT No. 10**

**Date:** 21 Nov. 1992  **Depth:** 563.55 ft

**Spud Date:** 12 Nov. '92  **Present Activity:** WIPER TRIP

**Operator:** PACIFIC OIL & GAS  **Contractor:** RODDRL

**Rig:** 23  **Report For:** CARY BARGER  **Section Township Range:** DUNMAR

**Well Name and No.:** SHORTLAND # 1  **Field or Block No.:** EP 18  **County, Parish or Offshore Area:** MEARTHUR BASIN  **State:** N.T.

**Bit Size:** 2 7/8"  **Casing:**

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**Total Circulating Volume:**

- **Pump:** No Value
- **Motor:** No Value
- **AssumedEFR:** No Value
- **Circulation Pressure:** No Value
- **In Storage:** No Value
- **Rig Min.:** No Value
- **Rig Max:** No Value
- **Rig Total:** No Value

**Mud Volume (BBL):**

- **Hole:** No Value
- **Pump Size:** No Value
- **In:** No Value
- **Annual Vel. (Feet/Min):** No Value
- **DC:** No Value

**Mud Properties**

<table>
<thead>
<tr>
<th>Sample From</th>
<th>DFL Ph</th>
<th>DFL Ph</th>
<th>DFL Ph</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Weight**

- **TIME:** No Value
- **% Lugs:** No Value
- **% BAR:** No Value
- **% PBP BAR:** No Value
- **% PPB:** No Value
- **% BENT:** No Value
- **% Na:** No Value
- **% Vc:** No Value
- **% PBP:** No Value
- **% OC:** No Value

**Viscosity**

- **AV Resp:** No Value
- **WATER DP:** No Value

**Additional Data**

<table>
<thead>
<tr>
<th>SAMPLE TAKEN</th>
<th>TIME</th>
<th>TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Time Sample Taken**

- **Flow Temperature:** No Value
- **Depth (ft):** TVD
- **MD:** No Value
- **Weight:** No Value
- **SpG:** No Value
- **Funnel Viscosity:** No Value
- **Plastic Viscosity:** No Value
- **Ferry Point (lb/100 ft):** No Value
- **Gel Strength (lb/100 ft):** No Value
- **Filtrate API (cpm/30 min.):** No Value
- **API HTHP Filtrate (cpm/30 min.):** No Value
- **Soda Content (% by Vol):** No Value
- **Soda Content (ppm):** No Value
- **Metheny Blue Capacity:** No Value
- **% Strt:** No Value
- **Meter B:** No Value
- **% Acetone:** No Value
- **% Aqueous Mud (pm):** No Value
- **% Filtrate (pm):** No Value
- **% Calcium:** No Value

**Liquid Content (% by Vol):** No Value

**Sand Content (% by Vol):** No Value

**Mud Properties Specifications**

<table>
<thead>
<tr>
<th>Weight</th>
<th>Viscosity</th>
<th>Filtrate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Mud Type:** AIR/STIFF CEMENT

**Fluid Type:** W/F

**Bit Information**

<table>
<thead>
<tr>
<th>Size</th>
<th>W.O.B.</th>
<th>R.O.</th>
<th>Number</th>
<th>R.P.M.</th>
<th>Depth-in</th>
<th>Noz./Area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**BIT INFORMATION**

- **Size:** 2 7/8"  **R.O.:** No Value
- **Number:** 3  **R.P.M.:** No Value
- **Depth-in:** No Value  **Noz./Area:** No Value

**R.I.H.:** REAM 120-155 M., 242-270 M., 490-450 M., 525-550 M.

**C.B.R.** IS SBS FROM THE BBL WATER, POOH, SLOWLY, TIGHT HOLE 1/3

**TISM.** IN R.I.H. CUBED DR., LOC (U.S.) - DRU BHA +

**R.I.H. FOR WIPER TRIP BEFORE RUN 2**

**Jamil Aouf**

(919) 382-7366/FAX 381-3493  For Msd. Cat.

**DAILY COST**  **CUMULATIVE COST**

209.34  249.43

**PRODUCT INVENTORY**

<table>
<thead>
<tr>
<th>Product</th>
<th>Inventory</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**STARTING INVENTORY**

- **20**

**RECEIVED**

- **20**

**USED LAST 14 DYS**

- **20**

**CUMULATIVE COST**

- **209.43**

**WHITE — MILPARK COPY: BLUE — OPERATOR'S COPY: YELLOW — CONTRACTOR'S COPY: WHITE — SPARE: GREEN — BOOK COPY**
**DRILLING MUD REPORT No. 11**

**Operator:** PACIFIC OIL & GAS  
**Contractor:** ROCKDRIL  
**Report For:** GARY BARLOW  
**Well Name and No.:** SHORTLAND 1  
**Field or Block No.:** EP 18  
**County, Parish or Offshore Area:** MACARTHUR BASIN  
**Date:** 22 Nov. 1992  
**Depth:** 553.55 m  
**Present Activity:** CHF JOB  
**Spud Date:** 12 Nov. '92  
**Well Location:**  

### Drilling Assembly

<table>
<thead>
<tr>
<th>Size</th>
<th>Type</th>
<th>Casing</th>
<th>Length</th>
<th>Mud Volume (BBL)</th>
<th>Circulation Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 1/2</td>
<td>1F</td>
<td>Steel</td>
<td>110.64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 1/2</td>
<td>1F</td>
<td>Steel</td>
<td>110.64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 1/2</td>
<td>1F</td>
<td>Steel</td>
<td>110.64</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Mud Properties

<table>
<thead>
<tr>
<th>Sample From</th>
<th>O.F. P.I.</th>
<th>O.F. P.I.</th>
<th>O.F. P.I.</th>
<th>Weight (lbm)</th>
<th>Viscosity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Additional Data

<table>
<thead>
<tr>
<th>Time Sample Taken</th>
<th>Flowline Temperature °F</th>
<th>Weight Lbs.</th>
<th>Funnel Viscosity sec/ct. API °F</th>
<th>Plastic Viscosity cp °F</th>
<th>Yield Point (lb/100 ft)</th>
<th>GrSt # (lb/100 ft) 10 sec/15 min.</th>
<th>Circulation Pressure (PSI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Mud Property Specifications

<table>
<thead>
<tr>
<th>Solids Content</th>
<th>Liquid Content</th>
<th>Sand Content</th>
<th>Methylene Blue Capacity</th>
<th>pH</th>
<th>Strip</th>
<th>Meter</th>
<th>Acidity of Mud (PAM) cm2/N/30 Acid</th>
<th>Silt Filtrate (P/M) cm2/N/30 Acid</th>
<th>Chloride (mg/L)</th>
<th>Total Hardness as Calcium (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Bit Information

<table>
<thead>
<tr>
<th>Size</th>
<th>W.O.B.</th>
<th>Rot. Hours</th>
<th>Depth.</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 1/2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Bit Information

<table>
<thead>
<tr>
<th>Size</th>
<th>W.O.B.</th>
<th>Rot. Hours</th>
<th>Depth.</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 1/2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Remarks

R.I.H. WIPER CHIP Rem 110 - 140 m, 233 - 280 m, 38 - 34 m, 402 - 410 m - CIRC: PUMP 20 BBLs FORM - 20 BBLs WATER, 300 gpd WPD - R.I.H & RUN CSG (7") - Rem Down w/CAM, CEMENT JOB - SET 7" CSG'S SHOE @ 532.20 m - 209.74

### Product Inventory

<table>
<thead>
<tr>
<th>Product</th>
<th>Inventory</th>
<th>Received</th>
<th>Used Last 24 hr</th>
<th>Cost Last 24 hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>생산</td>
<td>20 113 10 19 40 11 20 20 4</td>
<td>19 10 6</td>
<td>20 113 10 19 40 11 20 4</td>
<td>19 9 6</td>
</tr>
</tbody>
</table>

**WHITE — MILPARK COPY: BLUE — OPERATOR'S COPY: YELLOW — CONTRACTOR'S COPY: WHITE — SPARE: GREEN — BOOK COPY**
**Drilling Mud Report No. 12**

**Date:** 23 Nov. 1992  
**Depth:** 553.55 m

**Operator:** PACIFIC OIL & GAS  
**Contractor:** ROCKDRILL

**Report For:** HENRY FLICK  
**Report No.:** GARY BARLOW

**Well Name and No.:** SHERLAND 1  
**Field or Block No.:** EP 18  
**County, Parish or Offshore Area:** MARATHON BASIN  
**State:** N.T.

### Casing
- **Bit Size:** 6"  
- **Jet Size:** 8 m  
- **Hole:** Pits

### Mud Volume (BBL)
- **Pump Size:** 4 8 m  
- **Mud Volume:** 6 BBL  
- **Circulation Data:**  
  - **Pump Make/Model:** SF TR, 300  
  - **Assumed Circulation:** 0.2 BBL  
  - **Pressure (PSI):**  
    - **Bonneau:** 1030  
    - **Gas:**  
    - **Assumed:**  
    - **Total Circ:** 920

### Mud Properties
- **Sample From:** F.P.  
- **Sample Taken:** F.P.  
- **Flowline Temperature:**  
  - **Depth:** 100 ft  
  - **Weight:** 16.5 FG  
  - **Funnel Viscosity:**  
    - **API:** 88  
  - **Plastic Viscosity:**  
    - **API:** 88  
  - **Yield Point:** 10 bbl/100 ft  
  - **Get Strength:** 10 sec/10 min.

### Additional Data
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Time</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (ppg)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Lgrs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Bar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Baar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Ds.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Bent.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Bento</td>
<td></td>
<td></td>
</tr>
<tr>
<td>API (-30 min)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Bento</td>
<td></td>
<td></td>
</tr>
<tr>
<td>API HTHP Filterate (-30 min)</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>API HTHP Filterate (-30 min)</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>Calcium Content (% by Vol.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid Content (% by Vol.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sand Content (% by Vol.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methylene Blue Capacity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alkaline Mud (PAM) (mg/L)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alkaline Filterate (PAM) cm</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Chloride (mg/L)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Hardness as Calcium (mg/L)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### BIT INFORMATION
- **Last Bit No.:** 0  
- **Engine:** 2 x 4

### Remarks
- **Well Name:** NIPPLE UP  
- **Casing:** TEST Casing  
- **Engine:** 2 x 4

**Engineer:** J. A. F.  
**Phone:** (972) 381-1366  
**Fax:** 314-439

---

**Product inventory**

<table>
<thead>
<tr>
<th>Item</th>
<th>Received</th>
<th>Used Last 24 Hours</th>
<th>Cost Last 24 Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>113</td>
<td>10 19 40 11 23</td>
<td>4 6 19 9 6</td>
</tr>
</tbody>
</table>

**DAILY COST:** 314.61  
**CUMULATIVE COST:** 314.61

---

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# DRILLING MUD REPORT No. 14

**Date**: 25 Nov. 1992  
**Spud Date**: 12 Nov. 1992  
**Present Activity**: DRIL

**Operator**: PACIFIC OIL & GAS  
**Contractor**: ROCKDRIL  
**Rig No.**: 23  
**Field or Block No.**: EP 16  
**County Parish or Offshore Area**: McArthur Basin, N.T.

## Mud Properties

<table>
<thead>
<tr>
<th>Sample From</th>
<th>Casing</th>
<th>Circulation Data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1576</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.3</td>
<td></td>
</tr>
</tbody>
</table>

| ATJS 22  | 1376 | 9.4 | 5.9 |
| 3 1/2    |      |     |     |
| 1 5/6    |      |     |     |
| 1 7/8    |      |     |     |
| 0.35     |      |     |     |

## Mud Volume (BBL)

<table>
<thead>
<tr>
<th>Sample From</th>
<th>Casing</th>
<th>Circulation Data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>79</td>
<td></td>
</tr>
<tr>
<td></td>
<td>80</td>
<td></td>
</tr>
<tr>
<td></td>
<td>47/8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>268</td>
<td></td>
</tr>
</tbody>
</table>

| 79   | 80 | 47/8 | 8 | 268 |

## Sample Taken

| 233 |

## Flowline Temperature °F

| 800 |

## Additional Data

| N | Pumped 57 |

## Mud Properties Specifications

| Weight | 8.4 - 8.6 |

## Viscosity

| 40 - 55 |

## Filter

| 4 - 7 |

## Remarks

**Drill To 593.11m - Circ. Sample - Drill 6” Hole To 773.2m**

**Circ. & Displace Hole w/ New Drill Mud - Repair Pump - Circ. & Shear-Down Mud - Drill From 773.11m to 883 With**

---

**Jamil A. Araf**

**Phone**: (04) 3821766/3814907  
**For Mud Call**

**Cumulative Cost**: 2.498.55

---

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## DRILLING MUD REPORT No. 15

**Operator:** PACIFIC OIL & GAS  
**Contractor:** ROCKDRIL  
**Report For:** HENRY FLICK GARY BARLOW  
**Field or Block No.:** SHORTLAND # 1  
**County Parish or Offshore Area:** EP 18  
**Section Township Range:** HEARTH BASIN N.T.  
**Date:** 26 Nov. 1992  
**Depth:** 835.83

### Mud Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>8.4 - 8.6</td>
</tr>
<tr>
<td>Viscosity</td>
<td>40 - 55</td>
</tr>
<tr>
<td>Filterate</td>
<td>5 - 7</td>
</tr>
</tbody>
</table>

**Sample From:** CLIF PHR  
**Depth:** 836  
**Time Sample Taken:** 38

### Additional Data

**Flowing Temperature °C:** 0.30  
**Depth (ft):** 836  
**Weight:** 8.5  
**Funnel Viscosity (sec) API °F:** 42  
**Plastic Viscosity cp:** 11  
**Yield Point (lb/100 ft):** 13  
**Gel Strength (lb/100 ft):** 112  
**API filtrate (ml/30 min):** 66  
**API HTHP filtrate (ml/min):** 1°F  
**Cake Thickness (2nd in API/0.05):** AV Cig.  
**Calculated Lister or report:** 1.3  
**AV Res.:** WATER DP  
**Total: 270 BB  

<table>
<thead>
<tr>
<th>Time</th>
<th>Losses</th>
<th>Bar</th>
<th>Surface</th>
</tr>
</thead>
<tbody>
<tr>
<td>836</td>
<td>0.30</td>
<td>0.20</td>
<td>0.80</td>
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</table>

### Mud Property Specifications

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>混浊度</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td></td>
</tr>
<tr>
<td>电导率</td>
<td></td>
</tr>
<tr>
<td>氯化物 (mg/l)</td>
<td></td>
</tr>
<tr>
<td>总硬度 (mg/l)</td>
<td></td>
</tr>
<tr>
<td>硫酸度 (ppm)</td>
<td></td>
</tr>
</tbody>
</table>

### Drilling Information

**DRILL 6 1/2 IN. HOLE TO 836 WITH G.M.P. (SAMPLE) - FLU CHECK NO M/U DST TOOLS - RIM - TESTING**

### Daily Cost

**Engineer's Signature:** JIM BOLT  
**DAILY COST:** $2,498.55  
**CUMULATIVE COST:** $962.07 + $3,460.62

### Product Inventory

**Starting Inventory:** 2.0  
**Received:** 4  
**Used Last 24 hr:** 2.0  
**Cost Last 24 hr:** 320.34

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**MILPARK™**

### DRILLING MUD REPORT No. 16

**Date:** 27 Nov. 1992  
**Depth:** 835.83 ft

**Operator:** PACIFIC OIL & GAS  
**Contractor:** ROCKDRIL

**Field or Block No.:** EP 18  
**County, Parish or Offshore Area:** MEARTHUR BASIN

<table>
<thead>
<tr>
<th>Bit Size</th>
<th>Casing</th>
<th>Drilling Assembly</th>
<th>Casing</th>
<th>Circulation Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 1/2</td>
<td>Type IF</td>
<td>Length 666.46 ft</td>
<td>Total Circulating Volume 15.8 bbls</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Intermediate 5.32 m</td>
<td>In Storage 5 bbls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 1/2</td>
<td>Type BHA</td>
<td>Length 169.37 ft</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Mud Properties**

<table>
<thead>
<tr>
<th>Weight</th>
<th>Viscosity</th>
<th>Filtrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.4 - 8.6</td>
<td>40 - 55</td>
<td>5 - 7</td>
</tr>
</tbody>
</table>

**Mud Property Specifications**

<table>
<thead>
<tr>
<th>Sample From</th>
<th>OFL PRC</th>
<th>OFL PRC</th>
<th>OFL PRC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time Sample Taken</td>
<td>2400</td>
<td></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Losses BBLs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flowline Temperature (°C)</td>
<td>3.5</td>
</tr>
<tr>
<td>Depth (ft)</td>
<td>836</td>
</tr>
<tr>
<td>Weight (ppg)</td>
<td>8.4</td>
</tr>
<tr>
<td>Funnel Viscosity (sec/ft)</td>
<td>4.0</td>
</tr>
<tr>
<td>Plastic Viscosity @ 8°F</td>
<td>1.2</td>
</tr>
<tr>
<td>Yield Point (lb/100 ft)</td>
<td>1.2</td>
</tr>
<tr>
<td>Gas Strength (lb/100 ft)</td>
<td>1/32</td>
</tr>
<tr>
<td>Filtrate API @ 10 sec/min</td>
<td>1.2</td>
</tr>
<tr>
<td>API HTHP Filtrate @ 30 min</td>
<td>1/32</td>
</tr>
<tr>
<td>Cake Thickness (2nd 1 API@THHP)</td>
<td>1/32</td>
</tr>
<tr>
<td>Solids Content (% by Vol)</td>
<td>1.3</td>
</tr>
<tr>
<td>Liquid Content (% by Vol)</td>
<td>49.3</td>
</tr>
<tr>
<td>Sand Content (% by Vol)</td>
<td>0.2</td>
</tr>
<tr>
<td>Methane Blue Capacity</td>
<td>1.5</td>
</tr>
<tr>
<td>pH</td>
<td>8.0</td>
</tr>
<tr>
<td>Alkalinity (ppm)</td>
<td>145.0</td>
</tr>
<tr>
<td>Chloride (mg/L)</td>
<td>4.0</td>
</tr>
</tbody>
</table>

**SULPHITE PPM**

- **Size:** WOB
- **Type:** Rot. Rpm
- **Number:** Depth-In.
- **Output:** Net Area

**Remarks:**

DST INTERVAL 818 - 836 m - POOR DST TOOLS

MUD BARG & RIS - DUMP & CLEAN SAND TRAP & SETTLE TANK

**Engineer:** Jamil Araf

**Phone:** (248) 3812764/3814407

<table>
<thead>
<tr>
<th>Inventory</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Received</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Used Last 24 Hrs.</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Cost Last 24 Hrs.</td>
<td>$4.50</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL:** 3,460.62

### WHITE - MILPARK COPY: BLUE - OPERATOR'S COPY: YELLOW - CONTRACTOR'S COPY: WHITE - SPARE: GREEN - BOOK COPY
**DRILLING MUD REPORT No. 1**

**Date:** 28 Nov., 1992  
**Depth:** 923.5 ft

**Spud Date:** 12 Nov., 1992  
**Present Activity:** DRILLING

**Operator:** PACIFIC OIL & GAS  
**Contractor:** ROCKDRILL

**Report For:** HENRY FICK  
**Well Name and No.:** SHORTLAND No. 1

**Field or Block No.:** 18  
**County, Parish or Offshore Area:** HEARTTHROBBING BAY

---

### Mud Properties

| Sample From | Mud | **Sample Time Taken** | **Flowline Temperature** °C | **Depth (ft) TVD** | **Weight** g/ft³ | **Funnel Viscosity (sec) API** | **Plastic Viscosity (cp)** | **Yield Point (lb/100 ft)** | **Gas Strength (in/100 ft) 10 sec/10 min.** | **Filtrate API (cp/min.)** | **API HTHP Filtrate (cp/min.)** | **Solids Content (% by Vol.)** | **Liquid Content (% by Vol.) Oil/Water** | **Sand Content (% by Vol.)** | **Methylene Blue Capacity** | **pH** | **Flash** | **API** | **Ah/ft** | **Total Hardness in Calcium (mg/L)** | **Sulphate ppm** | **Depth-In** | **RoI Hours** | **Number** | **Shaker** | **Cleaner** | **Other** | **Inventory Total** |
|-------------|-----|------------------------|-----------------------------|-------------------|-----------------|---------------------------|---------------------------|---------------------------|---------------------------------|-----------------|-----------------|------------------------|--------------------------|-----------------|-----------------|-------|---------|-----------------|----------------|----------------|----------------|-------------|----------|-----------|---------|---------|
| OIL PH | OIL PH | OIL PH | 8.6 | 9.2 | 8.2 | 20 | 24 | 70 | 12 | 14 | 18 | 80 | 0 | 9.0 | 20 | 15 | 22 | 80 | 5 | 86 | 0 | 186 | 2 | 3 | 18 | 18 | 2 |

---

**Remarks:** WASH TO BTM & CIRC - DRILL 6 2" HOLE 71835.87
**RESER SETTLING TANK LEAK (LAST 8 DAYS) REPAIR**  
**MUD PUMP - DRILLING SANDSTONE TO 923.5 ft**

---

**TOTAL DAILY COST:** 1361.10  
**CUMULATIVE COST:** 5640.21

---

**Engineer:**

---

**MILPARK COPY: BLUE - OPERATOR'S COPY: YELLOW - CONTRACTOR'S COPY: WHITE - SPARE: GREEN - BOOK COPY**
**DRILLING MUD REPORT No. 18**

**Date**: 29 Nov. 1992  
**Depth**: 1020 m T.D.

**Operator**: PACIFIC OIL & GAS  
**Contractor**: ROCKDRILL

**Well Name and No.**: SHORTLAND #1  
**Field or Block No.**: ECP #18  
**County, Parish or Offshore Area**: MIRAMAR BAY  
**State**: N.T.

### Drilling Assembly

<table>
<thead>
<tr>
<th>Size</th>
<th>Type</th>
<th>Net Size</th>
<th>Surface</th>
<th>Mud Volume (BBL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6&quot;</td>
<td>HTJ22</td>
<td>3 x 9</td>
<td>13 3/8&quot;</td>
<td>102</td>
</tr>
<tr>
<td>3 1/4&quot;</td>
<td>1F</td>
<td>8.50-6.3</td>
<td>9.64-3.59</td>
<td>184.4</td>
</tr>
<tr>
<td>2 7/8&quot;</td>
<td>2F</td>
<td>7</td>
<td>8.32</td>
<td>9</td>
</tr>
<tr>
<td>4 3/4&quot;</td>
<td>4H</td>
<td>164.37</td>
<td>2.25</td>
<td>7</td>
</tr>
</tbody>
</table>

### Casing

- **Size**: 6 3/4"  
- **Type**: HTJ22  
- **Net Size**: 3 x 9  
- **Surface**: 13 3/8"  
- **Mud Volume**: 102 BBL

### Mud Properties

- **Weight**: 8.4 - 8.6  
- **Viscosity**: 40 - 55  
- **Filterate**: 3 - 7

### Additional Data

- **Plastic Viscosity (api)**: 30  
- **Gas Volume (in scf)**: 10  
- **Gel Strength (psi)**: 184  
- **Filteration (bbls)**: 9

### Mud Property Specifications

- **Specific Gravity**: 2.8  
- **API**: 8.0  
- **API**: 8.0  
- **API**: 8.0  
- **API**: 8.0  
- **API**: 8.0  
- **API**: 8.0

### Bit Information

- **Size**: 6"  
- **W.O.B.**: 18.2  
- **R.P.M.**: 40  
- **R.P.M.**: 40  
- **R.P.M.**: 40

### Remarks

- **Drill**: 6" hole F/923.6 m TO 1020 m T.D. - PUMP
- **Booths**: 45 - 75 SPM - **Spool**: FOR LOGGING, DRILLING, CLEANSTONE/ SAPONITE Slides, NO OIL SPRAY FROM SANDSTONE

---

**Product Inventory**

- **20101 10 11 6 40 9 20 4 5 0 10 6**

**Received**

- **21 3 1 1**

**Used Last 24 hr**

- **2080 7 10 6 40 8 20 4 5 0 9 6**

**Cumulative Cost**

- **110.82**

**DAILY COST**

- **2.51**

**BOOK COPY**

<table>
<thead>
<tr>
<th>Product</th>
<th>Quantity</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPARE</td>
<td><strong>5, 460.21</strong></td>
<td><strong>2.51</strong></td>
</tr>
<tr>
<td>BLUE</td>
<td><strong>5, 411.84</strong></td>
<td><strong>2.51</strong></td>
</tr>
</tbody>
</table>

---

**WHITE** - MILPARK COPY: **BLUE** - OPERATOR'S COPY: **YELLOW** - CONTRACTOR'S COPY: **WHITE** - SPARE: **GREEN** - **BOOK COPY**
**DRILLING MUD REPORT No. 19**

Date: 30 Nov 1992  Depth: 10720 ft T.D.

Spud Date: 12 Nov 1992  Present Activity: LOGGING

Contractor: ROCKDRILL  Rig No.: 23

Report For: GARY BARLOW  Section Township Range: DUNBAR

**Well Name and No.:** SHORTLAND #1  Field or Block No.: 18

**County, Parish, or Offshore Area:** MARTHA BASIN  State: N.A.

---

### Drilling Assembly

<table>
<thead>
<tr>
<th>Size</th>
<th>Casing</th>
<th>Mud Volume (BBL)</th>
<th>Circulation Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>31/4</td>
<td></td>
<td>1023</td>
<td>Pump Size: 4 1/2&quot;</td>
</tr>
<tr>
<td>03/4</td>
<td></td>
<td></td>
<td>Annular Rate (BPM)</td>
</tr>
<tr>
<td>03/4</td>
<td></td>
<td></td>
<td>Differential Pressure (PSI)</td>
</tr>
</tbody>
</table>

### Mud Properties

- **Sample From:**
  - OFLPRO 14 4.5 8.4 9.1

- **Mud Property Specifications:**
  - Weight: 8.4 - 8.6
  - Viscosity: 40 - 55
  - Filter: 5 - 7

### Additional Data

- **Flowline Temperature:**
  - 1018 TVD 1018

- **Density:**
  - 9.000 TIME

- **Viscosity:**
  - 0.300 ECD 0.3

- **Temperature:**
  - 180 T.H. 180

- **Normal:**
  - 13.5 4 8

- **Porous:**
  - 9.4 1 3 4

- **API:**
  - 0 1 3 4

- **API:**
  - 0 1 3 4

- **API:**
  - 0 1 3 4

---

### BIT INFORMATION

- **Measure:**
  - 15.0 Parts - LOGGING

- **RPMs:**
  - 5.13

- **RPMs:**
  - 5.13

- **RPMs:**
  - 5.13

- **RPMs:**
  - 5.13

---

### Remarks

- **POOR FOR LOGGING - UNABLE TO LOG - SCHLUMBERGER**
- **GENERAL BREAKDOWN - W.O. PARTS - LOGGING**
- **DUMP & CLEAN MUD TANKS**

---

**Signature:**

**Date:** 12/1/92

**Cumulative Cost:** 6.411.07

**Daily Cost:** 6.411.07

**Cumulative Cost:** 2.356.64

**Cumulative Cost:** 8.767.71

---

**Product Inventory:**

- **2080**
- **2071**
- **2071**

**Ending Inventory:**

- **3**

**Received:**

- **2071**

**Used Last:**

- **2071**

---

**WHITE — MILPARK COPY: BLUE — OPERATOR’S COPY: YELLOW — CONTRACTOR’S COPY: WHITE — SPARE: GREEN — BOOK COPY**
APPENDIX 3

BIT RECORD
# APPENDIX 3

## BIT RECORD

### SHORTLAND 1

<table>
<thead>
<tr>
<th>BIT NO.</th>
<th>SIZE (inches)</th>
<th>BRAND</th>
<th>TYPE</th>
<th>IADC CODE</th>
<th>SERIAL NO.</th>
<th>JETS</th>
<th>DEPTH OUT</th>
<th>LENGTH DRILLED (metres)</th>
<th>HOURS</th>
<th>ROP m/hr</th>
<th>CUM. HOURS</th>
<th>WOB 1000 lbs</th>
<th>RPM</th>
<th>MUD WT</th>
<th>MUD FV</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12(\frac{3}{4})</td>
<td>HTC</td>
<td>J3</td>
<td>114</td>
<td>122136</td>
<td>-</td>
<td>59</td>
<td>50</td>
<td>11(\frac{1}{2})</td>
<td>5.1</td>
<td>11(\frac{1}{2})</td>
<td>2 - 12</td>
<td>70</td>
<td>8.6</td>
<td>45</td>
</tr>
<tr>
<td>2</td>
<td>8(\frac{1}{2})</td>
<td>HTC</td>
<td>ATJ11</td>
<td>427</td>
<td>V99PK</td>
<td>-</td>
<td>447.9</td>
<td>388.9</td>
<td>67</td>
<td>5.8</td>
<td>78(\frac{1}{2})</td>
<td>15</td>
<td>70</td>
<td>Air Drilling</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>8(\frac{1}{2})</td>
<td>HTC</td>
<td>ATJ22</td>
<td>517</td>
<td>L16EJ</td>
<td>-</td>
<td>553.5</td>
<td>105.6</td>
<td>32(\frac{1}{4})</td>
<td>3.3</td>
<td>110.75</td>
<td>15</td>
<td>70</td>
<td>Air Drilling</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>6</td>
<td>HTC</td>
<td>ATJ22</td>
<td>517</td>
<td>F14ET</td>
<td>-</td>
<td>835.8</td>
<td>282.3</td>
<td>27.0</td>
<td>10.5</td>
<td>137.75</td>
<td>15</td>
<td>80</td>
<td>Air Drilling to 773m</td>
<td></td>
</tr>
<tr>
<td>RR4</td>
<td>6</td>
<td>HTC</td>
<td>ATJ22</td>
<td>517</td>
<td>F14ET</td>
<td>9-9-9</td>
<td>1020</td>
<td>184.2</td>
<td>38.5</td>
<td>4.78</td>
<td>176.25</td>
<td>15</td>
<td>80</td>
<td>8.5</td>
<td>40</td>
</tr>
</tbody>
</table>
PACIFIC OIL & GAS PTY LIMITED
DRILL STEM TEST REPORT SUMMARY

WELL: Shortland 1.

DST: No. 1

DATE: 26th November 1992

LOCATION: McArthur Basin

PERMIT: EP18

INTERVAL TESTED: 817.87 to 836.0m

BOTTOM HOLE DEPTH: 836.0m

FORMATION: Hayfield Mudstone

TEST TYPE: Conventional bottom hole closed chamber with nitrogen cushion

TESTING COMPANY: Australian DST Company Pty Limited
Kevin Perrin (Tester)

LN: COMPANY: Dowell Schlumberger
Mark Denk

OPERATOR'S REPS: Henry Finke (Drilling Supervisor)
Sandy Menpes (Wellsite Geologist)
Shane Hibbird (Wellsite Geologist)
John Torkington (Observer)

RECOVERY: Pulled 3.5m column (approximately 8 litres) of formation water cut rat-hole mud. No liquid sample was recovered from between the hydraulic tool and the shut-in tool indicating the presence of gas.

<table>
<thead>
<tr>
<th>DEPTH</th>
<th>INSIDE GAUGE</th>
<th>OUTSIDE GAUGE</th>
<th>RECOVERY GAUGE</th>
<th>UNITS</th>
<th>FLOW/SHUT-IN TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>INITIAL HYDROSTATIC P</td>
<td>1183.7</td>
<td>1214.9</td>
<td>807.46</td>
<td>metres</td>
<td></td>
</tr>
<tr>
<td>1st FLOW:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- INITIAL P</td>
<td>677.2</td>
<td>708.5</td>
<td>675.8</td>
<td>PsiG</td>
<td></td>
</tr>
<tr>
<td>- FINAL P</td>
<td>673.2</td>
<td>703.3</td>
<td>675.6</td>
<td>PsiG</td>
<td></td>
</tr>
<tr>
<td>- CLOSED P</td>
<td>893.1</td>
<td>923.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd FLOW:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- INITIAL P</td>
<td>676.3</td>
<td>708.0</td>
<td>674.5</td>
<td>PsiG</td>
<td></td>
</tr>
<tr>
<td>- FINAL P</td>
<td>97.5</td>
<td>126.9</td>
<td>85.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- CLOSED P</td>
<td>630.7</td>
<td>660.4</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>FINAL HYDROSTATIC P</td>
<td>1185.8</td>
<td>1187.3</td>
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<tr>
<td>TEMPERATURE</td>
<td>129.9</td>
<td>132.5</td>
<td>128.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TIME DATA:

26/11/92
21:56:50 Tool open
   Pre-flow
22:02:45 Tool closed
   Initial Shut-in

27/11/92
00:04:00 Tool Open
   30 minutes
00:34:15 Commence 1st blowdown
   6.75 minutes
00:41:01 End 1st blowdown
   30 minutes
01:11:05 Commence 2nd blowdown
   (Flare-line partially blocked for initial 3 minutes)
   16.5 minutes
01:27:40 End 2nd blowdown
   60 minutes
02:27:10 Commence 3rd blowdown
   43 minutes
03:10:00 End 3rd blowdown
   51 minutes
04:01:00 Tool closed
   Chamber blowdown to 660 minutes atmosphere pressure
15:01:00 Test ended

REMARKS:

- The annulus remained static after the chamber had been pressured up
  with nitrogen, indicating no leaks in the drill string. The steady decline in
  surface pressure during the initial shut-in period and the beginning of the
  main flow may be a temperature change effect.

- The very slight surface pressure increases during the latter stages of the
  main flow period were thought to be indicative of either a slow liquid influx
  of a very low rate gas flow.

The mud filtrate resistivity measured prior to the test was 1.05Ωm at 79°F
whilst the resistivity of the rat-hole mud recovered was 0.65Ωm at 76°F.
The change in resistivity indicates an influx of saline formation water.

Gas was present between the hydraulic tool and the shut-in tool indicating
a very low rate gas flow.

- The nitrogen cushion was blown down in three stages during the main flow
  period. The nitrogen was vented through a 2" critical flow prover with a
  3/16" orifice plate. Pressure changes with time were measured and
  recorded from a gauge placed immediately upstream of the prover. The
  prover was located at the end of the flare line. The above configuration
  allows the calculation of fluid influx during chamber blow-downs.
<table>
<thead>
<tr>
<th></th>
<th>LENGTH (m)</th>
<th>ID (inch)</th>
<th>RADIUS (cm)</th>
<th>AREA (cm²)</th>
<th>VOLUME (L)</th>
<th>SAMPLE INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wellhead</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.65m</td>
<td>648.74</td>
<td>2.764</td>
<td>3.51</td>
<td>38.70</td>
<td>2946.9L</td>
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<tr>
<td>stick-up</td>
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<td></td>
<td></td>
<td>2510.62</td>
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</tr>
<tr>
<td>69 singles</td>
<td></td>
<td>Drill Pipe</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>647.09</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(9.2m</td>
<td>158.24</td>
<td>2 5/16</td>
<td>2.94</td>
<td>27.15</td>
<td>429.62</td>
<td>Sample 1 from bottom drill Collar</td>
</tr>
<tr>
<td>x17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3 litres 1.1m</td>
</tr>
<tr>
<td>805.33m</td>
<td>0.3048</td>
<td>2 5/16</td>
<td>2.94</td>
<td>27.15</td>
<td>0.83</td>
<td>No sample taken</td>
</tr>
<tr>
<td>Pump-out Sub</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>805.63m</td>
<td>1.8288</td>
<td>2 5/16</td>
<td>2.94</td>
<td>27.15</td>
<td>4.97</td>
<td>Sample 2</td>
</tr>
<tr>
<td>EMP Hanger</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total recovery</td>
</tr>
<tr>
<td>807.46</td>
<td>0.3048</td>
<td>2 5/16</td>
<td>2.94</td>
<td>27.15</td>
<td>0.83</td>
<td>≈ 3.5m</td>
</tr>
<tr>
<td>Cross-over Sub</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>≈ 8 litres water cut mud</td>
</tr>
<tr>
<td>807.77</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Gas in hydraulic Tool</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No mud</td>
</tr>
</tbody>
</table>
COMPANY: Pacific Oil & Gas
STATE: N.T
DATE: 27-11-92

Well Name: Shortland #1
KB Elv. 5.78 48 ft
Well Location: P.O.: H. West Pink Rd., Permit EP-1
GR Elv. 666.2 ft
Interval: 2653.39 to 2461.90 T.D. 2324.79 ft
Net Pay: ft
Gravity: W.S.
Average Porosity

RECODER DATA
Mins. Time: 0.7 0.6 0.5 0.4 0.3 0.2 0.1
PF Rec. # 680 798 #.7854 #.7954 #.8054
SI Range 5 8 lbs 4125 5 4125 5 4125 5 4125
SF Clock 2444 hrs Battery 2444 Battery Battery
FS Depth 1649.15 ft 1677.10 1666.10 1711.30 1726.30
A. Init. Hyd. PSI 183.70 124.90
B. First Flow 607.5 672.20 705.50
B1 Final Flow 607.5 672.00 703.80
C. In. Shut-In 593.10 913.50
D. Init. Flow 674.5 576.50 65.06
E. Final Flow 65.0 94.50 126.90
F. Fl. Shut-in 156.40 166.40
G. Final Hyd. 135.80 118.90
Inside/Outside

TIME DATA
PF Fr. 2157 to 2203 hr
IS Fr. 2108 to 2223 hr
SF Fr. 2006 to 2401 hr
FS Fr. 2406 to 1500 hr
T. STARTED 1520 hr
T. ON BOTM. 1430 hr
T. OPEN 2157 hr
T. PULLED 1500 hr
T. OUT 1900 hr

TOOL DATA
Tool Wt. 12 70000 lbs
Wt. Set on Packer 15 Thousand lbs
Wt. Pulled Loose 30 Thousand lbs
Initial Str. Wt. 60 Thousand lbs
Unseated Str. Wt. 116 70000 lbs
Bot. Choke 1
Hole Size 4 in
D. Col. I.D. 2 7/16 in
D. Pipe I.D. 2 7/16 in
D.C. Leng. 519 - 15 ft
D.P. Leng. 1243.42 ft

MUD DATA
Mud type
Weight 8.5
Vis. 40
W.L. 6.8
F.C. 93.2
Mud Drop 3

GENERAL DATA
Amt. of fill 5 ft
Btm. H. Temp. 127 - 122 °F
Hole Cond. 600
Packer Size 2 7/16 in
No. of Packers 1
Cushion Amt. 1 ft
Cushion Type
Reversed Out NO
Tool Chased Will
Tester Kevin Perrin
Co. Rep. Henry Evans
Contractor Rock Dril
Rig No. 24

GAS RECOVERY MEASURED WITH
Time Mins. Orifice Pressure H₂O Rate
Orifice inches PSI inches mcf/d
1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

SURFACE CHOKES SIZE:

BLOW DESCRIPTION 1st FLOW: Close Clear Exit
SURFACE CHOKE SIZE:

BLOW DESCRIPTION 1st FLOW: Close Choke Ball

BLOW DESCRIPTION 2nd FLOW: Close Chamber

REMARKS: Drop Bar Sub @ 2617.95

TOTAL TOOL TO BOTTOM TOP PACKERS 41.15

INTERVAL TOOL 59.60

TOTAL TOOL 110.75

DRILL COLLAR ANCHOR IN INTERVAL

DRILL COLLARS ABOVE TOOLS Stands 17 Total 519.15

DRILL PIPE ABOVE TOOLS Stands 69 Total 2183.42

TOTAL DRILL COLLARS DRILL PIPE AND TOOLS 3748.32

TOTAL DEPTH 2742.40

TOTAL DRILL PIPE ABOVE K.B. 5.42

REMARKS: All Samples Taken By Customer.

P.O. SUB 0.00
C.O. SUB 0.00

SHUT-IN TOOL 6.53

HMV 5.40

JAWS 4.50

SAFETY JOINT 2.20

PACKER 1.50

DEPT 2683.30

STUBB 3.00

ANCHOR 3.00

BULLNOSE 1.60

TD 2742.40
**Recovery Gauge**

**Company**
PACIFIC OIL & GAS

**Street**
926 WHITEHORSE ROAD

**City**
BOX HILL MELBOURNE

**Country**
AUSTRALIA

**Service Company/Rep**
AUSTRALIAN D.S.T.CO.PTY.LTD. KEVIN PERRIN

**Well Name**
SHORTLAND #1

**Well Location**
Mc ARTHUR BASIN PERMIT EP - 18

**Field / Pool**
WILDCAT

**Status (Oil, Gas, Other)**
OIL & GAS

**Test Type**
CONVENTIONAL BOTTOM HOLE TEST

**Date of Test**
26-11-1992

**Producing Interval**
2603.30 TO 2742.90 ft

**Perf. Type**
0

**Producing Through**
PERF

**Elevation**
(CF to KB): 878.2 ft  
(CF): 866.7 ft  
(KB): 11.5 ft

**Pool Datum (subsea)**

**Mid Point of Prod. Intvl (MPP)**
2712.0 ft

**Datum Depth of Well from (KB)**
2742.9 ft

**Recorder Depth (KB)**
2694.1 ft

**Recorder Position**
TOP RECORDER

---

### McAllister EMP Identification

**EMP Serial Number**
298

**EMP Model Number**
168

**Pressure Range**
5000.0 PSIA

**EMP Battery Usage (Probe)**
26/00/93 11:02:57:48

**Connected**
92/11/29 15:45:00

**Disconnected**
92/11/27 19:42:48

**EMP Calibration I.D.**
373-11311

**EMP Last Calibration**
91/11/07

---

### EMP Setup Parameters

**Probe Set Up Time**
10:32

**Time Delay to First Reading**
00:00:00

**Data Recording Interval**
00:01:00

**Data Recording Format**
3 Pressures/Temperature

**Custom Program I.D.**
Not used. Normal mode

**Abs. to Ga. pressure adjustment**
13.5 Psig

---

---
D.S.T. REPORT File Reference ..... SLID6STA

Company ................. PACIFIC OIL & GAS
Street ........................ 826 WHITEHORSE ROAD
City .......................... BOX HILL MELBOURNE.
Country ...................... AUSTRALIA
Service Company/Rep .......... AUSTRALIAN D.S.T.CO.PTY.LTD. KEVIN PERRIN

Well Name ................. SHORTLAND #1
Well Location ............... MCAUTHUR BASIN PERMIT EP-18
Field / Pool ................ WILDCAT
Status (Oil, Gas, Other) .... OIL & GAS

Test Type ................... CONVENTIONAL BOTTOM HOLE TEST
Date of Test ............... 26-11-1992
Producing Interval........ 2683.30 TO 2742.90 ft
Perf. Type .................... 0
Producing Through .......... PERF
Elevation ................. (CF to KB): 878.2 ft (CF): 866.7 ft (KB): 11.5 ft
Pool Datum (subsea) ... 2712.0 ft
Mid Point of Prod. Intvl (MPF) 2742.9 ft
Datum Depth of Well from (KB) 2668.1 ft
Recorder Depth (KB) ........ 2668.1 ft
Recorder Position .......... MIDDLE RECORDER

McAllister EMP Identification

EMP Serial Number .......... 526
EMP Model Number .......... 168
Pressure Range ............. 5000.0 PSIA
EMP Battery Usage (Readings) 59.1367 0 05:08:12
Connected .................. 92/11/26 14:16:00
Disconnected .............. 92/11/27 19:24:12
EMP Calibration I.D. ....... 603-12205
EMP Last Calibration ....... 92/07/23

EMP Setup Parameters

Probe Set Up Time .......... 0:54
Time Delay to First Reading 0:00:01:00
Data Recording Interval .... 0:00:01:00
Data Recording Format ...... 3 Pressures/Temperature
Custom Program I.D. ....... Not used Normal mode
Abs. to Ga. pressure adjustment 13.5 PsiG
Well Name: SHORTLAND #1
Well Location: Mc ARTHUR BASIN PERMIT EP -18
Field / Pool: WILDCAT
Status (Oil, Gas, Other): OIL & GAS

Test Type: CONVENTIONAL BOTTOM HOLE TEST
Date of Test: 26-11-1992
Producing Interval: 2683.30 TO 2742.90 ft
Perf. Type: PERF
Producing Through: (CF to KB): 878.2 ft (CF): 866.7 ft (KB): 11.5 ft
Elevation: 2712.0 ft
Pool Datum (subsea): 2742.9 ft
Mid Point of Prod. Intvl (MFP):
Datum Depth of Well from (KB): 2726.3 ft
Recorder Depth (KB): BOTTOM RECORDER
Recorder Position: BOTTOM RECORDER

McAllister EMP Identification

EMP Serial Number: 258
EMP Model Number: 168
Pressure Range: 5000.0 PSIA
EMP: 32.4533 (1 08:27:12)
Connected: 92/11/26 12:36:00
Disconnected: 92/11/27 21:03:12
EMP Calibration I.D.: 344-11059
EMP Last Calibration: 91/02/28

EMP Setup Parameters

Probe Set Up Time: 11:38
Time Delay to First Reading: 00:00:00
Data Recording Interval: 00:01:00
Data Recording Format: 3 Pressures/Temperature
Custom Program I.D.: Not used Normal mode
Abs. to Ga. pressure adjustment: 13.5 Psig
Company: PACIFIC OIL & GAS
Well: SHORTLAND #1 Mc ARTHUR BASIN PERMIT EP-16
Test Date: 06-11-1992

Pressure (Psig)

Horner Time; (Tf+dt)/dT
(Final Shut-In)

Shut-In Started: 06/11/92 11:00:00
Shut-In Ended: 06/11/92 14:55:04
Total Flow Time: 45.00 minutes

Intercept: 1.24 msi
R-sq: 0.956

4 January 1993

Pacific Oil and Gas Pty Ltd
PO Box 509
BOX HILL VIC 3128

Attention: Sandy Menpes

REPORT: HH/2156 - PART 1

CLIENT REFERENCE: DPO 77751

MATERIAL: Water Sample

LOCALITY: Shortland-1, DST-1

WORK REQUIRED: Water Analysis

Please direct technical enquiries regarding this work to the signatory below under whose supervision the work was carried out.

Brian Watson
Laboratory Supervisor
on behalf of Amdel Core Services Pty Ltd

Amdel Core Services Pty Limited shall not be liable or responsible for any loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from any information or interpretation given in this report. In no case shall Amdel Core Services Pty Ltd be responsible for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report.
Water Analysis Report  
Job No. 2AD3728  
Method WAT 2 Page W2

Sample ID: SHORTLAND 1 DST 1 SAMPLE 3229800

### Chemical Composition

<table>
<thead>
<tr>
<th>Cations</th>
<th>mg/L</th>
<th>me/L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium (Ca)</td>
<td>510.0</td>
<td>25.45</td>
</tr>
<tr>
<td>Magnesium (Mg)</td>
<td>94.0</td>
<td>7.74</td>
</tr>
<tr>
<td>Sodium (Na)</td>
<td>2986.0</td>
<td>128.75</td>
</tr>
<tr>
<td>Potassium (K)</td>
<td>160.0</td>
<td>4.09</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Anions</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydroxide (OH)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbonate (CO3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bi-Carbonate (HCO3)</td>
<td>1057.6</td>
<td>17.34</td>
</tr>
<tr>
<td>Sulphate (SO4)</td>
<td>1990.0</td>
<td>41.43</td>
</tr>
</tbody>
</table>

| Chloride (Cl)| 3381 | 95.24|
| Nitrate (NO3)| <0.1  |     |

### Derived Data

<table>
<thead>
<tr>
<th></th>
<th>mg/L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Dissolved Solids</td>
<td></td>
</tr>
<tr>
<td>A. Based on E.C.</td>
<td>8117</td>
</tr>
<tr>
<td>B. Calculated (HCO3=CO3)</td>
<td>9624</td>
</tr>
<tr>
<td>Total Hardness</td>
<td>1660</td>
</tr>
<tr>
<td>Carbonate Hardness</td>
<td>865</td>
</tr>
<tr>
<td>Non-Carbonate Hardness</td>
<td>795</td>
</tr>
<tr>
<td>Total Alkalinity</td>
<td>865</td>
</tr>
<tr>
<td>(Each as CaO3)</td>
<td></td>
</tr>
<tr>
<td>Totals and Balance</td>
<td></td>
</tr>
</tbody>
</table>

| Cations (me/L) | 166.0 | Diff= 12.01 |
| Anions (me/L)  | 154.0 | Sum = 320.04 |

ION BALANCE (Diff*100/Sum) = 3.75%
Sodium / Total Cation Ratio 77.5%

### Remarks

IMBALANCE UNKNOWN.

### Other Analyses

| Reaction - pH | 6.9 |
| Conductivity (E.C) | 13000 |
| (micro -S/cm at 25°C)| |
| Resistivity Ohm.M at 25°C | 0.77 |

### Note:

mg/L = Milligrams per litre; me/L = MilliEqvs. per litre

Name: Ms R. TAMKE
Address: AMDEL CORE SERVICES
         FLEMINGTON STREET
         FREMANTLE

Date Collected NOT SHOWN
Date Received 14-12-92
Collected by CLIENT
Water Analysis Report

Sample ID: SHORTLAND 1 DST 1 SAMPLE 3229799

Chemical Composition

<table>
<thead>
<tr>
<th>Cations</th>
<th>mg/L</th>
<th>me/L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium (Ca)</td>
<td>447.0</td>
<td>22.31</td>
</tr>
<tr>
<td>Magnesium (Mg)</td>
<td>90.0</td>
<td>7.41</td>
</tr>
<tr>
<td>Sodium (Na)</td>
<td>2955.0</td>
<td>128.53</td>
</tr>
<tr>
<td>Potassium (K)</td>
<td>150.0</td>
<td>3.84</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Anions</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydroxide (OH)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbonate (CO3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bi-Carbonate (HCO3)</td>
<td>1168.7</td>
<td>19.16</td>
</tr>
<tr>
<td>Sulphate (SO4)</td>
<td>1930.0</td>
<td>40.18</td>
</tr>
</tbody>
</table>

| Chloride (Cl)    | 3386 | 95.39 |
| Nitrate (NO3)    | <0.1 |      |

Derived Data

<table>
<thead>
<tr>
<th>Derived Data</th>
<th>mg/L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Dissolved Solids</td>
<td></td>
</tr>
<tr>
<td>A. Based on E.C.</td>
<td>8117</td>
</tr>
<tr>
<td>B. Calculated (HCO3=CO3)</td>
<td>9543</td>
</tr>
<tr>
<td>Total Hardness</td>
<td>1486</td>
</tr>
<tr>
<td>Carbonate Hardness</td>
<td>956</td>
</tr>
<tr>
<td>Non-Carbonate Hardness</td>
<td>531</td>
</tr>
<tr>
<td>Total Alkalinity</td>
<td>956</td>
</tr>
<tr>
<td>(Each as CaCO3)</td>
<td></td>
</tr>
<tr>
<td>Totals and Balance</td>
<td></td>
</tr>
<tr>
<td>Cations (me/L)</td>
<td>162.1</td>
</tr>
<tr>
<td>Anions (me/L)</td>
<td>154.7</td>
</tr>
<tr>
<td>Sum =</td>
<td>316.81</td>
</tr>
</tbody>
</table>

ION BALANCE (Diff*100/Sum) = 2.32%
Sodium / Total Cation Ratio = 79.3%

Remarks

IMBALANCE UNKNOWN.

Note: mg/L = Milligrams per litre, me/L = MilliEqvls.per litre

Name: Ms R. TAMKE
Address: AMDL CORE SERVICES
         FLEMINGTON STREET
         FREMVILLE

Date Collected: NOT SHOWN
Date Received: 14-12-92
Collected by: CLIENT
Water Analysis Report

Sample ID: SHORTLAND 1 DST 1 FILTRATE SAMPLE 3229801

Chemical Composition

<table>
<thead>
<tr>
<th>Cations</th>
<th>mg/L</th>
<th>me/L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium (Ca)</td>
<td>97.0</td>
<td>4.84</td>
</tr>
<tr>
<td>Magnesium (Mg)</td>
<td>33.0</td>
<td>2.72</td>
</tr>
<tr>
<td>Sodium (Na)</td>
<td>1650.0</td>
<td>71.77</td>
</tr>
<tr>
<td>Potassium (K)</td>
<td>70.0</td>
<td>1.79</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Anions</th>
<th>mg/L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydroxide (OH)</td>
<td></td>
</tr>
<tr>
<td>Carbonate (CO3)</td>
<td></td>
</tr>
<tr>
<td>Bi-Carbonate (HCO3)</td>
<td>756.5</td>
</tr>
<tr>
<td>Sulphate (SO4)</td>
<td>1012.0</td>
</tr>
<tr>
<td>Chloride (Cl)</td>
<td>1822</td>
</tr>
<tr>
<td>Nitrate (NO3)</td>
<td>&lt;0.1</td>
</tr>
</tbody>
</table>

Derived Data

<table>
<thead>
<tr>
<th>Derived Data</th>
<th>mg/L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Dissolved Solids</td>
<td></td>
</tr>
<tr>
<td>A. Based on E.C.</td>
<td>4737</td>
</tr>
<tr>
<td>B. Calculated (HCO3=CO3)</td>
<td>5063</td>
</tr>
<tr>
<td>Total Hardness</td>
<td></td>
</tr>
<tr>
<td>Carbonate Hardness</td>
<td>378</td>
</tr>
<tr>
<td>Non-Carbonate Hardness</td>
<td></td>
</tr>
<tr>
<td>Total Alkalinity (Each as CaCO3)</td>
<td>619</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Totals and Balance</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cations (me/L)</td>
<td>81.1</td>
</tr>
<tr>
<td>Anions (me/L)</td>
<td>84.8</td>
</tr>
</tbody>
</table>

ION BALANCE: (Diff*100/Sum) = 2.22%
Sodium / Total Cation Ratio = 88.5%

Remarks

IMBALANCE UNKNOWN.

Name: Ms R. TAMKE
Address: AMDEL CORE SERVICES
         FLEMINGTON STREET
         FREMVLIE

Date Collected: NOT SHOWN
Date Received: 14-12-92
Collected by: CLIENT

Note: mg/L = Milligrams per litre; me/L = MilliEqvs. per litre.
<table>
<thead>
<tr>
<th>Sample</th>
<th>Density at 20°C (gm/ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3229799</td>
<td>1.0990</td>
</tr>
<tr>
<td>3229800</td>
<td>1.0103</td>
</tr>
</tbody>
</table>
21 April 1993

Pacific Oil & Gas Pty Ltd
PO Box 509
BOX HILL VIC 3128

Attention: Sandy Menpes

REPORT: HH/2136

CLIENT REFERENCE: DPO 77751

MATERIAL: Gas Sample

LOCALITY: Shortland-1, DST-1

WORK REQUIRED: Gas Composition

Please direct technical enquiries regarding this work to the signatory below under whose supervision the work was carried out.

BRIAN L WATSON
Laboratory Supervisor
on behalf of Amdel Core Services Pty Ltd

Amdel Core Services Pty Limited shall not be liable or responsible for any loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from any information or interpretation given in this report. In no case shall Amdel Core Services Pty Ltd be responsible for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report.

Adelaide Office: P.O. Box 109, Eastwood, SA 5063 Australia.
Telephone: (08) 379 9888 Facsimile: (08) 372 2886
Amdel Core Services Pty Limited
(incorporated in South Australia)
ACN: 008 273 005
1. INTRODUCTION

Two gas samples were received from Shortland-1, DST-1 for compositional analysis.

2. PROCEDURE AND RESULTS

The samples were analysed by gas chromatography. Results are presented in Table 1.

<table>
<thead>
<tr>
<th></th>
<th>#3229802 3rd Chamber Blowdown</th>
<th>#3229803 Chamber Vent After Final Shut-in</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen</td>
<td>99.36</td>
<td>99.55</td>
</tr>
<tr>
<td>Methane</td>
<td>&lt;0.01</td>
<td>0.17</td>
</tr>
<tr>
<td>Carbon Dioxide</td>
<td>0.64</td>
<td>0.28</td>
</tr>
</tbody>
</table>
APPENDIX 5

SUMMARY OF DRILLING ACTIVITIES
<table>
<thead>
<tr>
<th>Date and Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/11/92</td>
<td></td>
</tr>
<tr>
<td>1815</td>
<td>Pre-spud safety meeting.</td>
</tr>
<tr>
<td>1830</td>
<td>Drill 12¼&quot; hole to 38.7m.</td>
</tr>
<tr>
<td>13/11/92</td>
<td></td>
</tr>
<tr>
<td>0000</td>
<td>Drill 12¼&quot; hole to 59m.</td>
</tr>
<tr>
<td>0600</td>
<td>Circulate clean.</td>
</tr>
<tr>
<td>0630</td>
<td>Deviation survey at 59m, 1°.</td>
</tr>
<tr>
<td>0715</td>
<td>Pull out of hole (P.O.O.H.).</td>
</tr>
<tr>
<td>0815</td>
<td>Velocity survey (12-38m).</td>
</tr>
<tr>
<td>1000</td>
<td>Run in hole (RIH) wiper trip.</td>
</tr>
<tr>
<td>1100</td>
<td>Circulate clean.</td>
</tr>
<tr>
<td>1130</td>
<td>P.O.O.H.</td>
</tr>
<tr>
<td>1200</td>
<td>BPB wireline log RR2 (12.7-59.0m).</td>
</tr>
<tr>
<td>1330</td>
<td>Rig up for casing/cement.</td>
</tr>
<tr>
<td>1530</td>
<td>Run 5&quot; casing to 59m, (95/8&quot;, K55 x 3616)</td>
</tr>
<tr>
<td>1700</td>
<td>Wash down casing.</td>
</tr>
<tr>
<td>1800</td>
<td>Mix, pump, displace 16.4 bbl of 15.6 ppg slurry of Class A cement. Bump with 600 psi, bled off pressure.</td>
</tr>
<tr>
<td>1930</td>
<td>Wait on cement.</td>
</tr>
<tr>
<td>14/11/93</td>
<td></td>
</tr>
<tr>
<td>0000</td>
<td>Wait on cement.</td>
</tr>
<tr>
<td>0100</td>
<td>Rig up diverter, blooie line and air package.</td>
</tr>
<tr>
<td>1730</td>
<td>Make up slick BHA/RIH.</td>
</tr>
<tr>
<td>1830</td>
<td>Drill out plug and shoe.</td>
</tr>
<tr>
<td>2000</td>
<td>Drill 8½&quot; hole to 114.4m using air/water. Lost circulation at 90.5m. Continue drilling no returns.</td>
</tr>
<tr>
<td>15/11/92</td>
<td></td>
</tr>
<tr>
<td>0000</td>
<td>Drill 8½&quot; hole to 133.3m. No returns.</td>
</tr>
<tr>
<td>0100</td>
<td>Circulate clean.</td>
</tr>
<tr>
<td>0115</td>
<td>Deviation survey at 133m, ½°.</td>
</tr>
<tr>
<td>0130</td>
<td>P.O.O.H.</td>
</tr>
<tr>
<td>0230</td>
<td>Change BHA.</td>
</tr>
<tr>
<td>0530</td>
<td>RIH.</td>
</tr>
<tr>
<td>0630</td>
<td>Free stuck pipe at 112m.</td>
</tr>
<tr>
<td>0700</td>
<td>Ream 112 to 130m.</td>
</tr>
<tr>
<td>0730</td>
<td>Adjust draw brake.</td>
</tr>
<tr>
<td>0845</td>
<td>Ream 130 to 133m.</td>
</tr>
<tr>
<td>0900</td>
<td>Drill 8½&quot; hole to 189.4m. No returns.</td>
</tr>
<tr>
<td>1915</td>
<td>Compressor breakdown.</td>
</tr>
<tr>
<td>1930</td>
<td>Drill 8½&quot; hole to 218.5m. No returns.</td>
</tr>
</tbody>
</table>
0000 Drill 8½" hole to 308.8m. No returns.
1315 Circulate clean.
1330 P.O.O.H., retrieve float valve at 196m.
1430 RIH, set float valve at 318.8m. Hole tight.
1515 Deviation survey at 299m, 1°.
1545 Ream 301 to 308m.
1600 Drill 8½" hole to 364.1m. No returns.

17/11/92

0000 Drill 8½" hole to 402.9m. No returns.
0830 Repair fuel system on compressor.
1030 Deviation survey at 401m, ½°.
1115 Drill 8½" hole to 412m. No returns.
1430 Repair booster, P.O.O.H.
1630 Check trip.
1700 Slip drilling line.
1900 Ream 139 to 168m.
1930 RIH to bottom, tight hole.
2030 Drill 8½" hole to 419.9m. No returns.

18/11/92

0000 Drill 8½" hole to 437.3m. No returns.
0700 Repair booster.
0730 Drill 8½" hole to 477.9m. No returns.
1115 2nd booster breakdown, unable to drill P.O.O.H.
1300 Attempt to log, tool stood up at 110m.
1330 Lay down collars. RIH with drill pipe for logging could not penetrate 110m.
1445 P.O.O.H. - RIH, ream to 109m.
1545 Ream 109 to 118m solid bridge, light reaming to 164m, ream to 1678m.
1700 P.O.O.H., make up drilling assembly with new bit and RIH to 109m.
1900 Ream 109 to 118m.
1930 RIH to 436m.
2045 Ream 436 to 447.9m.
2115 Drill (break in bit) to 448.9m.
2315 Repair compressor.

19/11/92

0000 Drill 8½" hole to 487.3m.
1530 Free stuck pipe and blocked bit.
1715 P.O.O.H. to unblock string. Tight hole 189 to 167m.
1915 Remove 20m fill (cuttings) inside drill collars.
2030 RIH, rotating 160m tight hole.
2230 Ream 468 to 474m.
2245 Pump foam to clear fill.
2315 Ream 477 to 487m.
2330 Pump foam to clean hole fill.
20/11/92

0000  Drill 8½" hole to 553.5m.
1445  Bit blocked, work free and pull 5 singles.
1500  Repair blown hose on torque chef.
1530  P.O.O.H.
1715  Repair thread compensator.
2000  RIH to 108m.
2030  Ream 108 to 300m.
2230  Pull back to 205m.
2245  Back ream 205 to 177m.
2300  Pull back to 108m.
2315  Ream 108 to 119m.

21/11/92

0000  RIH wiper trip for logging. Reaming at 125 to 135m, 242 to 270m, 402 to 450m and 525 to 553m.
0800  Repair mud pump.
0815  Circulate hole clean with foam.
0845  P.O.O.H. slowly prior to log.
1100  RIH open ended drill pipe and attempt to log at 132, 188, 283 and 330m. Logging dummy tool hold up 30 to 50m below drill pipe on each attempt.
1715  Pull back to 264m and log velocity survey at 316m. Pull back to 132m and log velocity survey at 73.0m, 67.7m and 38.0m.
2000  RIH wiper trip. Ream 110 to 120m and 205 to 214m. Pull back to 108m. Ream 109 to 112m.

22/11/92

0000  Continue wiper trip.
0515  Circulate clean.
0615  P.O.O.H.
0915  Rig up to run 7" casing.
1100  Run 44 joints of 7" 29# N80 casing. Set shoe to 532.2m. Very difficult at 110 to 140m and 490 to 532.2m.
2200  Fill casing, mix 75 sacks Class A cement of 15.6 ppg install bottom plug - pump cement, install top plug and displace with 81 bbl of water. Bump plug with 1000 psi - held for 10 minutes. Bled off pressure to 200 psi.

23/11/92

0000  Mix/pump 20 sacks Class A cement in 95/8" - 7" annulus.
0030  Wait on cement.
0230  Mix/pump 20 sacks Class A cement in 95/8" - 7" annulus.
0300  Wait on cement.
0515  Mix/pump 20 sacks Class A cement in 95/8" - 7" annulus.
0545  Wait on cement.
Install landing plate.
0900 Slack off casing - nipple up BOP.
1930 Change ring gasket in kill valve.
2030 Pressure test blind rams against casing. 300/1500 psi.
2045 Make up BHA.
2330 Test choke manifold against pipe rams. 300/1500 psi.

24/11/92

0000 Attempt to test annular preventor - not holding. Repair annular preventor and re-weld bullplug on wellhead.
1015 Pressure test annular preventor/well head 300/1500 psi.
1045 RIH, BHA to 200m.
1200 Pressure test choke/kill valves, lines and HCR valve to 300/1500 psi.
1300 RIH and tag top of cement at 519.09m.
1415 Drill plug and shoe to 553.2m. Wash/ream to bottom at 553.5m.
1630 Drill new formation to 555.8m.
1645 Circulate hole clean with Hi Vis pill.
1730 Performed leak off test. Limited to 400 psi surface pressure EMW 12.7 ppg.
1815 Attempt deviation survey. Instrument faulty.
1915 P.O.O.H. 30 singles.
1930 Rig up for air drilling.
2030 RIH, wash down to 558.8m.
2045 Drill 6" hole to 593.7m with air.

25/11/92

0000 Drill 6" hole to 638.6m with air.
0315 Check sample form drilling break.
0330 Drill 6" hole to 773.1m with air.
1315 Circulate well to mud.
1445 Repair mud pumps.
1700 Circulate and condition (shear) mud.
1830 Drill 6" hole to 778.6m.
1900 Circulate and condition mud.
2030 Drill 6" hole to 801.3m.

26/11/92

0000 Drill 6" hole to 822.3m.
0330 Circulate bottoms up (gas).
0405 Drill 6" hole to 827.7m.
0445 Circulate bottoms up.
0515 Drill 6" hole to 829.7m
0545 Circulate bottoms up x 2.
0645 Drill 6" hole to 835.8m.
0815 Circulate bottoms up/clean.
0900 P.O.O.H.
1145 Make up test tools, RIH, rig up surface equipment and test equipment to 1000 psi.
2000 Start DST 1.
27/11/92

0000  Continue DST 1.
1500  Rig down surface equipment, P.O.O.H. to test assembly.
1800  Breakdown testing assembly.
2130  Make up bottom hole assembly and RIH to 820.33m.
2330  Wash/ream 820 to 830m.

28/11/92

0000  Circulate to bottom.
0030  Adjust draw brake.
0045  Drill 6" hole to 839m.
0130  Clean out settling tank and re-seal.
0200  Drill 6" hole to 864.3m.
0615  Repair mud pump (blocked charge pump).
0645  Drill 6" hole to 867.3m.
0730  Repair torque chief.
0930  Drill 6" hole to 871.9m.
1015  Repair mud pump (Piston seal).
1100  Drill 6" hole to 888.5m.
1330  Circulate for sample.
1415  Drill 6" hole to 908.8m.
1815  Circulate for sample.
1845  Drill 6" hole to 915.3m.
2000  Circulate.
2030  Deviation survey at 912m, 0.0°.
2130  Drill 6" hole to 925.8m.

29/11/92

0000  Drill 6" hole to 957.3m.
0745  Repair mud pump.
0800  Drill 6" hole to 1011.5m.
2000  Repair hydraulic hose on power swivel.
2030  Drill 6" hole to 1020m (TD).
2230  Pump 20 bbls. Hi Vis and clean hole.
2230  Deviation survey at 1018m.

30/11/92

0000  Complete deviation survey at 1018m, 1°.
0030  P.O.O.H.
0100  Adjust brake.
0130  Continue P.O.O.H.
0415  Rig up Schlumberger.
0445  Wait on Schlumberger - generator set on truck broken down, transformer arrived on location by air charter at 1335.
1530  Schlumberger run log No. 1 and 2.
01/12/92

0000  Schlumberger run log No. 3 and 4. Rig down Schlumberger.
0215  Lay down drill collars and RIH with open ended drill pipe to 960m.
1200  Circulate - mix/pump and set abandonment plug No. 1.
1315  Pull back and circulate clean - pull back to 570m.
1500  Circulate.
1530  P.O.O.H.
1630  Make up.
1715  RIH.
1915  Repair hydraulic hose.
2030  Continue RIH. Tag TOC at 852m.
2130  Drill cement to 908m.

02/12/92

0000  Continue drill out cement plug to 915m.
0030  Repair mud pump.
0215  Continue drill cement plug and wash to bottom at 1020m.
0530  Circulate clean, P.O.O.H.
0930  Rig up Schlumberger. Re-run velocity survey. Rig down Schlumberger.
1230  RIH open end drill pipe.
1400  Repair rig engine.
1430  Continue to RIH to 960m. Circulate. Mix/pump 65 sacks Class A cement of 15.6 ppg. Set plug No. 1, 960 - 840m.
1900  P.O.O.H. to 803m. Circulate. P.O.O.H. to 570m. Mix/pump 54 sacks Class A cement of 15.6 ppg. Set plug No. 2 from 570 to 490m. P.O.O.H. to 414m. Circulate clean.
2030  Wait on cement. Prepare to nipple down BOPs.

03/12/92

0000  Wait on cement. Prepare to nipple down BOPs.
0200  RIH - tag top of cement at 501.5m, set down 5000 lb. OK.
0245  P.O.O.H. Remove BOP. Recover well head. Set cement plug No. 3 45m to cellar floor. Weld plate on casing and install name plate.

Rig release at 0800 hrs, 03/12/92.
APPENDIX 6

GEOLOGICAL DESCRIPTION
### GEOLOGICAL DESCRIPTIONS

**Surficial geology:** A soil profile comprising a light grey sandy A horizon and approximately one metre deep C horizon sits atop a red brown laterite believed to be Tertiary in age. The base of the laterite was not seen, nor the top of the claystone on which it is thought to directly lie as this is behind the surface conductor set to nine metres. A geologist was not on site, and samples were not collected when the hole for the conductor was drilled.

<table>
<thead>
<tr>
<th>Interval (m)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CUTTINGS</strong></td>
<td>ROTARY MUD DRILLING.</td>
</tr>
<tr>
<td>9 - 35m</td>
<td>CLAYSTONE. White, very pale orange, light brown, dark yellowish orange, greyish red and purple. Friable to firm, 50% weathered light brown dispersive clay. Jointed, iron stained planar joint and irregular fracture surfaces common. Minor loose quartz grains, medium to coarse, sub-rounded to rounded, translucent.</td>
</tr>
<tr>
<td>35 - 65m</td>
<td>SILTSTONE. Pale red, dark yellowish orange to white. Micaceous, 5% fine sericite crystals. Siltstone grading to clayey siltstone at base. Moderately calcareous at 60 to 65 metres.</td>
</tr>
<tr>
<td><strong>CUTTINGS</strong></td>
<td>ROTARY AIR DRILLING.</td>
</tr>
<tr>
<td>65 - 70m</td>
<td>IRONSTONE. Blackish red siltstone, minor medium to coarse translucent quartz grains. Well to very well indurated, leached, 10% porosity. Non-calcareous.</td>
</tr>
<tr>
<td>70 - 90m</td>
<td>WEATHERED CLAYSTONE. Light brown dispersive clay. 10-20% micaceous siltstone lithic clasts. Greyish orange pink, pale red, dark yellowish orange sub-rounded granules to pebbles, finely laminated to massive. Occasional siltstone clast is calcareous.</td>
</tr>
<tr>
<td>90 - 477m</td>
<td>NO RETURNS. (Lost circulation in cavernous Tindall Limestone, caverns up to 15 metres high).</td>
</tr>
<tr>
<td>477m</td>
<td>BASALT. Dark greenish grey. Fine grained basalt recovered from blocked drill collar.</td>
</tr>
<tr>
<td>477 - 553m</td>
<td>NO RETURNS. (Lost circulation in cavernous Tindall Limestone, caverns up to 15 metres high).</td>
</tr>
<tr>
<td>553 - 570m</td>
<td>NO RETURNS. (Damp well bore preventing cuttings from reaching surface).</td>
</tr>
<tr>
<td>570 - 573m</td>
<td>SILTSTONE to VERY FINE SANDY SILTSTONE. Greyish green and greyish red, fissile, laminated minor very fine sericite, glauconite, moderate calcareous cement.</td>
</tr>
</tbody>
</table>
573 - 579m
CLAYSTONE and SILTSTONE. Greyish red claystone and greyish green siltstone. Claystone becoming dominant over siltstone towards base. Claystone fissile, laminated, siltstone fissile to indurated, laminated. Siltstone glauconitic. Minor very fine sericite and very minor calcareous cement throughout.

579 - 606m
CLAYSTONE with minor SILTSTONE. Claystone greyish red with very minor light brownish grey towards base, fissile, laminated. Siltstone greyish green, fissile to indurated, laminated, glauconite. Minor very fine sericite and very minor calcareous cement throughout.

606 - 615m
SILTY CLAYSTONE and SILTSTONE. Dominantly greyish green initially grading to dominantly greyish red towards base. Minor light brownish grey claystone between 606-609 metres. Indurated, laminated, minor very fine sericite.

615 - 636m
CLAYSTONE, CALCAREOUS DOLOMITIC SILTSTONE, minor SILTSTONE. Greyish red claystone 80% and greyish green claystone and minor siltstone 20%. 30% calcareous dolomitic siltstone, white, well indurated at 627-630 metres. Between 630-633 metres 30% medium brownish grey claystone. Claystone fissile, laminated. Siltstone indurated to well indurated. Minor very fine sericite throughout.

636 - 651m
CLAYSTONE and SILTSTONE. Greyish green, medium brownish grey with minor greyish red, becoming more abundant towards the base as it grades into the unit below. Laminated, fissile claystone and indurated siltstone. Minor very fine sericite.

651 - 657m
CLAYSTONE, minor SILTSTONE. Greyish red 70%, greenish grey 30%, laminated and massive, fissile claystone and fissile to indurated siltstone. Minor very fine sericite.

657 - 708m
CLAYSTONE, minor SILTSTONE. Greyish green with minor greyish red, finely laminated to massive, fissile to indurated claystone. Siltstone, greyish red and medium brownish grey, laminated, indurated. Minor very fine sericite, trace nodular pyrite, less than 0.5 mm in diameter.

708 - 720m
CLAYSTONE. Greyish red and greyish green, finely laminated to massive, fissile to indurated. Minor very fine sericite.

720 - 750m
SANDSTONE, SILTSTONE and CLAYSTONE. 50% very fine grained sandstone, white, dominantly siliceous but minor calcareous dolomitic cement, well indurated. 30% siltstone, medium brownish grey, finely laminated, indurated. 20% claystone, greyish green to medium brownish grey, finely laminated fissile to indurated. Minor very fine sericite, trace nodular pyrite.
SILTSTONE, CLAYSTONE, minor SANDSTONE. Grading to claystone at base. Dominantly greyish green and medium brownish grey finely laminated to massive siltstone and claystone, fissile to indurated. Minor very fine sericite. Trace anhydrite vein material, 1 mm thick, planar. Sandstone, white, very fine grained, sub-rounded well sorted, abundant siliceous cement, well indurated. Minor greyish red claystone at 768 metres.

771m

ROTARY MUD DRILLING.

771 - 780m

NO RETURNS.

780 - 792m

SILTSTONE, minor CLAYSTONE. Medium brownish grey to pinkish grey siltstone, finely laminated, indurated. Claystone, greyish red and greyish green, finely laminated, fissile to indurated, minor calcareous cement. Minor nodular pyrite, minor very fine sericite (Max. total gas = 2300 ppm, C₁ = 800 ppm, C₂ = 370 ppm, C₃ = 240 ppm).

792 - 801m

SILTSTONE and SANDSTONE. Medium brownish grey siltstone, laminated, indurated, coarse siltstone well indurated, minor very fine sericite. 10% sandstone, white, very fine grained well sorted, sub-rounded, abundant white cement, well indurated, minor glauconite. No visible porosity. (Max. total gas = 1900 ppm, C₁ = 850 ppm, C₂ = 300 ppm, C₃ = 210 ppm).

801 - 807m

SILTSTONE, minor CLAYSTONE. Medium brownish grey, laminated, indurated, minor very fine sericite. (Max. total gas = 1700 ppm, C₁ = 900 ppm, C₂ = 310 ppm, C₃ = 210 ppm).

807 - 819m

SILTSTONE and CLAYSTONE. 50% medium brownish grey siltstone and 50% greyish green claystone, laminated, fissile to indurated, minor very fine sericite. Trace very fine grained white sandstone, well sorted, sub-rounded, abundant white cement, well indurated, no visible porosity. Trace bright blue-white fluorescence, slow streaming cut. (Max. total gas = 350 ppm, C₁ = 190 ppm, C₂ = 30 ppm).

819 - 826m

SANDSTONE, SILTSTONE and CLAYSTONE. 50% white, very fine grained sandstone, well sorted, sub-rounded, abundant white cement, well indurated. No visible porosity. 30% greyish green and medium brownish grey siltstone and 20% greyish green claystone, laminated, fissile to indurated, minor very fine grained sericite.

Strong hydrocarbon odour from cuttings. 100% of sandstone cuttings possess dull yellow to pale yellow fluorescence with instant milky crush cut. (Max. total gas = 20966 ppm, C₁ = 9000 ppm, C₂ = 8500 ppm, C₃ = 8000 ppm, C₄ = 800 ppm).
826 - 830m SANDSTONE, SILTSTONE and CLAYSTONE. 70% white, very fine grained sandstone, well sorted, sub-rounded, abundant white cement, well indurated, minor glauconite. No visible porosity. 20% medium brownish grey siltstone and 10% greyish green claystone. Laminated, fissile to indurated, minor very fine grained sericite. Weak to moderate hydrocarbon odour from cuttings. 30% of sandstone possesses dull yellow to pale yellow fluorescence. Moderate to slow milky crush cut. (Max. total gas = 1500 ppm, C₁ = 800 ppm, C₂ = 160 ppm C₃ = 70 ppm).

830 - 836m SILTSTONE, SANDSTONE and CLAYSTONE. 50% medium brownish grey and greyish green siltstone and 20% greyish green claystone, laminated, fissile to indurated, minor fine grained sericite. 30% white very fine grained sandstone, well sorted, sub-rounded, abundant white cement, well indurated, minor glauconite. No visible porosity.

Very weak hydrocarbon odour from cuttings. 20% of sandstone possesses dull yellow to pale yellow fluorescence. Moderate to slow milky crush cut. (Max. total gas = 370 ppm, C₁ = 230 ppm, C₂ = 40 ppm, C₃ = 18 ppm).

836 - 867m CLAYSTONE, SILTSTONE and SANDSTONE. 90% medium grey, greyish green and medium brownish grey siltstone and claystone. Laminated, fissile to indurated, minor fine grained sericite (locally very abundant on bedding surfaces). 10% white very fine grained sandstone, well sorted, sub-rounded, abundant white cement, well indurated. Sandstone decreasing to trace and claystone dominating towards base. (Max. total gas = 2000 ppm, C₁ = 1300 ppm, C₂ = 270 ppm, C₃ = 120 ppm).

867 - 876m SANDSTONE, SILTSTONE and CLAYSTONE. Initially 10% grading to 50% white very fine to medium grained sandstone, well sorted, sub-rounded to sub-angular, abundant white cement. Well to very well indurated. Trace well rounded, fine to coarse glauconite grains. Trace pore filling pyrite and pale blue coloured grains? Glaucnate?? No visible porosity. Medium grey, greyish green and medium brownish grey siltstone and claystone, dominantly siltstone initially, 90% grading to 50%. Laminated, fissile to indurated, minor fine grained sericite.

869 - 872m, 40% dull pale yellow fluorescence. Instant milky white crush cut. Dull pale blue-white residual ring.
872 - 875m, 20% pale yellow fluorescence generally dull, trace bright pin point fluorescence.
875 - 876m, 10% dull pale yellow fluorescence, trace bright yellow pin point fluorescence.
(Max. total gas = 2100 ppm, C₁ = 390 ppm, C₂ = 100 ppm, C₃ = 20 ppm).
876 - 885m
SILTSTONE, CLAYSTONE, trace SANDSTONE. Dominantly medium grey, greyish green and medium brownish grey siltstone with subordinate claystone. Laminated, fissile to indurated, minor fine grained sercite. Trace white very fine grained sandstone, well sorted, sub-rounded. Abundant white cement, well indurated. No visible porosity. (Max. total gas = 1100 ppm, C_1 = 320 ppm, C_2 = 120 ppm, C_3 = 110 ppm, C_4 = 15 ppm).

885 - 891m
SILTSTONE, SANDSTONE and CLAYSTONE. 80% medium grey to greyish green siltstone and claystone grading to 50% at 891m. Laminated, fissile to indurated, minor fine grained sercite. White, very fine grained sandstone grading to 50% at 891m. Well sorted, sub-rounded, abundant white cement, well indurated, minor pyrite, trace glauconite. No visible porosity. (Max. total gas = 800 ppm, C_1 = 190 ppm, C_2 = 30 ppm, C_3 = 23 ppm).

891 - 906m
SANDSTONE, SILTSTONE, minor CLAYSTONE. Up to 50% white, very fine to medium grained sandstone. Well sorted, sub-rounded to rounded, abundant white cement, well to very well indurated. 1% pyrite and trace marcasite? or Bitumen? spheres, <0.5 mm in diameter, pore filling. Minor glauconite, trace calcite cement. No visible porosity. 50% plus medium grey, greenish grey and greyish green siltstone and minor claystone. Laminated, fissile to indurated, minor fine grained sercite.

892 - 893m, 50% dull pale yellow to bright yellow pin point fluorescence. Instant milky white crush cut. Dull pale blue-white residual ring, corresponds to bitumen? in pore space.
893 - 894m, 10% dull pale yellow to bright yellow pin point fluorescence. Instant milky white crush cut. Dull pale blue-white residual ring.
894 - 899m, 5% dull pale yellow to bright yellow pin point fluorescence. Instant milky white crush cut. Dull pale blue-white residual ring.
899 - 910m, trace dull pale yellow to bright yellow pin point fluorescence. (Max. total gas = 550 ppm, C_1 = 390 ppm, C_2 = 23 ppm).

906 - 924m
SANDSTONE, minor SILTSTONE. Fine to medium grained white quartz sandstone. Well sorted, sub-rounded. Grains possess quartz overgrowths implying well indurated. Sample 100% loose quartz grains. Porosity?, matrix?, cementation?. Trace calcite cement, minor pyrite. Trace siltstone (20%, 918 -921m). Medium grey to greenish grey, laminated, fissile to indurated, minor fine grained sercite. (Max. total gas = 720 ppm, C_1 = 530 ppm, C_2 = 37 ppm).
924 - 981m
SANDSTONE, SILTSTONE minor CLAYSTONE. 50%-70% fine to medium grained white quartz sandstone. Well sorted, sub-rounded, abundant white cement, well to very well indurated, minor pyrite. No visible porosity. 30%-50% medium grey, greyish green, very dusky red and medium brownish grey siltstone and minor claystone. Laminated, fissile to indurated, minor fine grained sericite. (Max. total gas = 830 ppm, C₁ = 650 ppm, C₂ = 50 ppm, C₃ = 18 ppm).

981 - 990m
SILTSTONE, CLAYSTONE and SANDSTONE. Medium brownish grey, medium grey, light grey and medium greenish grey siltstone and claystone. Laminated, fissile to indurated, minor fine grained sericite. Trace fine pyrite euheheda in siltstone. 10% white, very fine grained sandstone becoming less towards base. Well sorted, sub-rounded, abundant white cement, well indurated, minor pyrite. No visible porosity. (Max. total gas = 630 ppm, C₁ = 350 ppm, C₂ = 60 ppm, C₃ = 36 ppm).

990 - 1020m
SILTSTONE and CLAYSTONE. Medium brownish grey, medium grey and medium greenish grey siltstone and claystone. Laminated fissile to indurated, minor fine grained sericite. Trace fine pyrite euheheda in siltstone. (Max. total gas = 10472 ppm, C₁ = 3800 ppm, C₂ = 2200 ppm, C₃ = 1500 ppm, C₄ = 200 ppm).