

SECTION 1 - ENGINEERING DATA

1.1 Engineering Summary

Scarborough No.1 is located in EP4 (Exploration Permit 4), McArthur Basin, N.T., 190km. due east of Mataranka (Figure 1). The hole was drilled to test the hydrocarbon prospectivity of the Roper Group in the McArthur Basin. The hole was drilled by Pacific Oil and Gas Pty Limited, the permit holder and operator, using ROCKDRIL Contractors Pty. Limited's modified MINDRILL 55 (Longyear 550 - Rig 18).

Access preparation involved upgrading of existing pastoral roads and seismic (Amoco, 1983) lines, while drill pad preparation required bulldozing of scrub over an area 50m x 50m. Water for drilling was supplied from a natural catchment 10km. from the drillsite, potable water was carted from a waterhole approximately 15km. from camp.

Scarborough-1 was spudded at 0700 hours on the 9th September, 1987. A 7-7/8" hole was drilled to 8.1m and 6-5/8" conductor set, then a 5-5/8" hole was reamed out from 101 to 90.5m. Casing (5") was set at 89.6m and blow out preventors were nipped up and tested at this level prior to drilling out cement with a 101mm bit. A formation integrity test was conducted 3m below the casing shoe.

Fully cored drilling continued to 691.4m (TD) with a 101mm bit.

Electric logs were run on 28th September, 1987 at the total depth of 691.4m. These logs consisted of gamma, density, caliper and porosity from 2m. to 690m., self potential and dual spaced focussed electric log from 87m. to 690m. and gamma, caliper and sonic log from 2m. to 690m.

The well was plugged (with a 40m. plug at 620m. and a 40-50m. casing shoe plug) and abandoned on 29th September, 1987. Total time from spud to rig release was 21 days.

1.2 General Data

Well Name and number	Scarborough-1
Operator	Pacific Oil & Gas Pty Limited
Interest Holders	Pacific Oil & Gas Pty Limited 100%
Petroleum Title	EP4, Northern Territory
Location:	
1:250,000 sheet	Hodgson Downs SD5314
1:100,000 sheet	St Vidgeon 5867
Latitude	15°10'59"
Longitude	134°47'54"
Metric grid reference	478332E 8321396N
Seismic (Amoco 1983)	Line 83-172, SP 329
Elevation	59m. AMSL
Total Depth	691.3m (Driller) 693.4m (Logger)
Commencement date	09/09/87
Total depth reached	28/09/87
Completion date	29/09/87
Drilled by	ROCKDRIL Contractors P/L
Drilling rig	RIG 18
Hole size	101mm
Plugging Details	40m plug at 620m 40m plug at casing shoe
Logs	Spontaneous Potential Dual Focussed Resistivity Gamma, Dual Density, Caliper Gamma, Dual Spaced Neutron Multichannel Sonic

1.3 Drilling Rig

ROCKDRIL RIG 18 - RIG AND EQUIPMENT DESCRIPTION

- DRILLING RIG: Longyear-Model 550
1. Drawworks: Longyear single drum operation 3/4" line up to 4 parts with lockhead disc breaking system.
 2. Power: One Caterpillar type 3304T diesel engine, mechanically driving rotation and drawworks (5 speeds) and hydraulically driving holdback rams, breakout and spinning tools and chuck.

One Perkins 4.354 diesel engine hydraulically driving two (2) triplex pumps and wireline winch assembly.
 3. Mast: Box section angle type mast

Working height above sub structure-50 ft.

Static hook load capacity (4 lines) 85,000 lbs.

Racking Capacity-9,600 ft of CHD 76 drill pipe.
 4. Substructure: Allison low loader with box type drill floor and support racking capacity up to 40 tons.
 5. Rig Machinery: Longyear pipe breakout and spinning tool to handle drill pipe and casing up to 3.7".
 6. Rig Pumps: Two (2) Bean 435 triplex pumps hydraulically driven. Capacity 37 gallons/minute Rating 1200 psi.
 7. Mud Systems: Two (2) steel tanks with a capacity of 40 barrels each operating on a settling basis.

One (1) only 40 barrel mixing tank.

One (1) CD62 mono pump for mixing and desilting.

One (1) only two cone desilter bank.

5.

Two (2) only Honda centrifugal pumps for transfer, recirculating and mixing.

8. Kill mud/cement mixing:

One (1) 40 barrel tank utilizing mono pump and hoppers for mixing kill mud and cement as required.

9. B.O.P. Equipment

One (1) Regan Torus annular type blow out preventor with a 7-1/16 bore and having a working pressure of 3,000 psi.

One A.P.I. threaded wellhead and drilling spool to suit 5" A.P.I. casing.

One (1) twin choke manifold with adjustable Cameron chokes and three (3) outlets rated at 3000 psi and two inch (2") 3000 psi valves.

One (1) Hydril K80 accumulator with a storage capacity of eighty (80) gallons at 1500 psi pressure.

One (1) Oilwell D 323 triplex plunger with a rating of 3000 psi for use as a kill pump.

One (1) Guiberson type H wireline B.O.P. and oilsaver rated at 3000 psi with a type C releasing attachment.

One (1) lower kelly cock (2.75") with a rating of 3000 psi.

10. Tubular Equipment:

CHD 101 drill pipe (800 metres) and barrels 4-3/4" Collars and Stabilizers.

11. Utility and Auxilary Equipment:

One (1) Caterpillar power generating unit (output 135 k.v.a.).

One (1) fully equipped workshop container carrying tools and spare parts.

Two (2) Toyota Landcruiser utilities.

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1.4 Hole Sizes and Depths

7-7/8" to 8.1m
5-5/8" to 90.5m.
101 to 689.3m (TD).

1.5 Casing and Cementing Record

6-5/8" Conductor: Grade: K55 A.B.
 Depth: 8.1m

5" Surface Casing Weight: 13 ppf
 Grade: K55 AB
 Thread: FL4S
 No. of Joints: 8
 Shoedepth: 89.6m
 Cement Used: Class A
 Additives: Nil
 Accessories: 5" shoe and rubber packer.
 Cemented by: ROCKDRIL CONTRACTORS P/L
 Remarks: None

1.6 Mud Record

See Appendix I for full details.

1.7 Water Supply

The water supply for drilling was from a natural catchment approximately 10km. from the drill site. Potable water was carted from a clean fresh waterhole 15km. from camp.

1.8 Bit and Deviation Record

Bits:

A total of seven bits were used in the drilling of Scarborough-1.

Full details are given in Appendix II.

Deviation

A summary of the deviation surveys recorded is given in Table 1.

1.9 Fishing Operations

Nil

1.10 Sidetracked Hole

Nil

1.11 Formation Testing

Nil

TABLE 1

DEVIATION SURVEY SUMMARY

WELL: SCARBOROUGH-1
LOCATION: EP4, NORTHERN TERRITORY

DEPTH (metres)	DEVIATION (degrees)
183	0.5
452	0.5
691.4	1.0

Using Eastman Camera supplied by Eastman Christiansen
- Sale Victoria.

1.12 Time Analysis

An account, of the time spent on the well from spud to rig release is given in Table 2 (and detailed in Appendix II), and the time/depth curve for Scarborough-1 is included as Figure 2.

1.13 Costs

An account of costs is compiled below:

Operation/Item	Cost \$A	Total \$A
Rotary Drilling Costs	\$80/metre	
Coring Costs	0 - 99m \$90/m 100-199m \$95/m 200-299m \$100/m 300-399m \$105/m 400-499m \$110/m 500-599m \$115/m 600-699m \$120/m	
Work Rate	\$140/hr	
Standby	\$105/hr	
Camp	\$37.50/man/day	Average \$650/day
Earthworks	average \$120/day	
Fuel	average \$200/day	
Others	- Vehicles \$220/day - Site manager \$150/day - Staff \$900/day - Genset \$ 45/day - Eastman camera \$ 45/day - Caravan \$200/week ATCO \$180/week Watertank \$150/week	
Total Cost Scarborough-1		\$158,058
Extra costs for entire drill programme Mobe/Demobe	\$18,000.	

TABLE 2

TIME ANALYSIS

WELL: SCARBOROUGH-1
 PERMIT: EP4, NORTHERN TERRITORY

OPERATION	TIME (hrs)	PERCENTAGE
Rig Up/Tear down	2.5	0.5
Drill Actual	334.75	70.4
Reaming	12	2.6
Condition/Circulate	5	1.1
Trips	27	5.7
Lubricate Rig	1.5	0.3
Repair Rig	19	4.0
Deviation Survey	2	0.4
Wireline Logs	15.25	3.2
Run casing and Cement	7	1.5
Wait on cement	15.5	3.3
Nipple up BOP/Test	10	2.1
Rig shift	12	2.5
Free stuck rods	1.5	0.3
Cut out Tube	2	0.4
Fishing	3.5	0.7
Drill	2	0.4
Drill pipe	3	0.6
	475.5	100.0

DAYS 21

TIME - DEPTH CURVE

SCARBOROUGH - 1

