

1. ENGINEERING DATA

1.1 Engineering Summary

Shea 1 is located in the Northern Territory Exploration Permit 5 (EP5), approximately 75km ESE of Mataranka (PetNfCW4387). The well was designed to access the middle Velkerri Formation to enable the CSIRO to conduct a series of tests on selected intervals to determine the in-situ rock properties. Shea 1 was drilled by Pacific Oil & Gas, using Rockdrill Contractors Pty Ltd's Rig 23, a W-N Apache, model 228-38-4.

The location was accessed via the Roper Valley Highway, 6km south of Mataranka, turning east off the Stuart Highway and travelling 75km, then travelling south along an upgraded track for 18km, leading directly to the well site. Drill site preparation involved the clearing of an area approximately 100m x 150m and the digging of several pits. Water was obtained at, and trucked daily from, the Roper River, approximately 25km to the north north east.

Well site supervision was provided by Shane Hibbird and John Torkington.

Drilling operations commenced at 1200 hrs on July 11, 1991 with the drilling of a 8 1/2" hole to 8.5m below ground level using water and native clays as the drilling medium. A 7 inch, 28 pounds per foot steel conductor was run and cemented to the surface using one barrel of Class A cement (15.6 pounds per gallon). Drilling operations were then suspended while the camp continued to be set up. At 1230 hrs on July 12, 1991 operations recommenced with the spudding of a 6 1/4 inch hole, drilled to a depth of 72.0m. A wiper trip was conducted prior to running the 5 inch casing.

Seven joints of 5 inch casing were run to the bottom of the hole. The casing shoe was landed at 69.5m below ground level, and the string cemented with Class A cement. The BOP stack was nipped up and pressure tested at 500psi for 15 minutes. The casing shoe was drilled out using a CHD101 coring assembly to 71.1m. A formation integrity test was conducted. The formation held pressure at 200psi, which equates to a maximum allowable mud weight of 24.3 pounds per gallon.

Coring then commenced at 0800 hrs on July 14, 1991 using a CHD101 coring assembly and the Newdril Polymer mud system. The formation was drilled to a total depth of 616.0m, which was reached at 0945 hrs on July 24, 1991.

The hole was circulated clean, BPB rigged up and the following logs were run; Dual Resistivity, Gamma Ray, Sonic, Neutron Porosity and Spontaneous Potential. BPB rigged down and a well cap with two 4 inch x 1500 psi ball valves and a 0-1500 psi pressure gauge was fitted to the well. The rig was released from Shea 1 at 0830 hrs on 25/7/91. The camp was rigged down and moved to the next site leaving the hole to the CSIRO, enabling them to commence their testing programme.

1.2 General Data

Well Name: Shea 1

Well Type: Middle Velkerri Test Well

Operator: Pacific Oil & Gas Pty Ltd

Licence Holders: Pacific Oil & Gas Pty Ltd

Petroleum Title: EP5, Northern Territory

Location: Approx. 75km ESE of Mataranka
 AMG Zone 53
 Easting - 366300 mE
 Northing - 8334500 mN
 Latitude - 15°04'15" S
 Longitude - 133°45'25" N
 1:100 000 Mapsheet: Mias 5667
 1:250 000 Mapsheet: Hodgson Downs SD53-14

Access: Via Roper Valley Highway, then 18km south east along upgraded track

Elevation: Ground Level - 130m AMSL
 Drill Floor - 131m AMSL

Total Depth: 616.0m (Driller)
 616.4m (Logger)

Commencement Date: July 7, 1991

Total Depth Reached: July 24, 1991

Rig Released: July 25, 1991

Drilled By: Rockdril Contractors Pty Ltd
 Rig 23, W-N Apache; Model 228-38-4

Datum: Ground Level- 130m AMSL

Hole Size: 8 1/2 inch to 8.5m
 6 inch to 72.0m
 101mm to 616.0m

Wireline Logs: Spontaneous Potential 616.0m to 70.0m
 Dual Resistivity 616.0m to 70.0m
 Gamma Ray 616.0m to surface
 Neutron Porosity 616.0m to 70.0m
 Sonic 616.0m to 60.0m

1.3 Drilling Rig

Rockdril Contractors Rig 23, a W-N Apache, model 228-38-4, was used to drill Shea 1. Specifications for this rig and all associated plant are given in Appendix 2.

1.4 Hole Size and Depths

Drilling at Shea 1 commenced with the rotary drilling of a 8 1/2 inch hole to 8.5m, using water and native clays as the drilling medium. A 6 1/4 inch rotary bit was then used to drill to 72.0m, with the casing shoe being set at 69.5m. A CHD101 coring assembly was used to drill out the cement as well as core the formation to total depth with a Newdril Polymer based mud system.

1.5 Casing

Details of the various casing runs in Shea 1 are given in Table 1.

TABLE 1
SHEA 1 CASING DETAILS

Casing Size	Depth Set	Grade	Joints	Weight	Cement Used
7 inch	8.5m		1	28lb/ft	1bbl Class A
5 inch	69.5m	N-80	7	14lb/ft	6bbl Class A

1.6 Drilling Mud

The Shea 1 well was drilled using the Newdril Polymer system. Typical mud properties were : weight < 8.5 ppg, viscosity 35 - 45 sec, filtration loss < 20 cc, pf 0.3 ml, mf 2.2 ml, pH 9.0. The well was suspended with a Newdril KCl Polymer mud system.

1.7 Water Supply

Water was obtained at, and trucked daily from, the Roper River, approximately 25km to the north north east. The water was suitable for drilling purposes, and although quite hard was also used in the camp.

1.8 Bit and Deviation Record

Appendix 3 contains details of all bits used in drilling Shea 1. No deviation surveys were conducted in Shea 1.

1.9 Formation Testing

A formation integrity test was conducted at 71.1m. The formation was found to hold pressure at 200psi, equating to a maximum allowable mud weight of 24.3 pounds per gallon.

1.10 Fishing and Related Operations

While coring at 536.5m the drill string parted at 111m below the drilling floor. The drillstring was recovered after a fishing tool was constructed and employed. A total of 14.75 hours was lost as a result of the drillstring parting.

1.11 Time Distribution

A full breakdown of drilling operations can be found in Appendix 1a and a summary of time distribution is given in Appendix 1b. A drilling progress chart for the well is included as PetNTcw4394

1.12 Well Costs

A summary for the costs of drilling Shea 1 is given in Table 2.

Site rehabilitation was postponed until 1992 to enable access to the well in the event of further work taking place.

TABLE 2
SHEA 1 WELL COSTS

ITEM	COST (\$)
Site Preparation	43 463.00
Site Rehabilitation	?
Mobilization	26 475.00
Camp	26 741.00
Drilling	83 128.00
Casing and Cement	4 130.00
Wireline Logging	12 939.00
Drilling Mud and Services	5 504.00
Sample Analysis	8 170.00
Communications/Office/Courier/Freight	12 535.00
Site Supervision/Labour	20 650.00
Equipment Hire/Vehicle Costs/Misc.	3 600.00
TOTAL	247 335.00

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