SECTION 2 - GEOLOGICAL DATA

2.1 Geological Summary

Supply-1 was spudded in the Velkerri Formation of the Upper Roper Group (of Proterozoic age). Cuttings samples were taken at 2 metre intervals from the top of the hole to a depth of 10m from where the hole was fully cored.

The well penetrated a faulted and disturbed section of the Velkerri Formation of the Upper Roper Group. Enclosure 1 gives a description of the interval encountered. Table 3 summarises the actual versus prognosed formation tops.

The well was terminated in the Velkerri Formation and was plugged and abandoned in the approved manner.

TABLE 3

ACTUAL VERSUS PROGNOSED FORMATION TOPS

WELL: SUPPLY-1
PERMIT: EP4, Northern Territory

A G E	FORMATION	DEPTH TO FORMATION TOP		
		ACTUAL DEPTH	PROGNOSED DEPTH	DIFFERENCE
Proterozoic	Moroak Sandstone Member		Surface	
	Velkerri Fm.	Surface	65	
	Bessie Ck Sst		565	
	Corcoran Fm.		695	
	TD	182.5	725	

2.2 Well Objectives

A. To obtain a full stratigraphic and lithological section of the Upper Roper Group, McArthur Basin.

B. To obtain a full source rock quality profile through the whole stratigraphic sequence, including oil and gas generative potential.

C. To provide preliminary data on reservoir horizons.

D. To provide well control for the seismic data obtained by Amoco in 1983.

E. To test a seismically defined structure on a north south fault appearing to exhibit fault independent closure.

2.3 Performance vs. Objectives

The performance versus objectives are discussed below using the same subsections as section 2.2 above.

A. Supply-1 did not fulfill this objective. The well was spudded and terminated in the Velkerri Formation of the Upper Group. The early termination was due to drilling difficulties.

B. A partial source rock profile was obtained over sequence intersected in Supply-1. Samples were taken at five metre intervals through all potential source horizons (Velkerri Formation). All samples were analysed for TOC, and those samples with a TOC > 0.4% were analysed by the Rock-Eval pyrolysis technique. Results are located in Appendix III.

C. No reservoir horizons were intersected in Supply-1.

D&E. The validity of the test is uncertain. The quality of seismic data available is very poor and a reprocessing/reinterpretation excercise is currently underway to identify the structure more clearly.

2.4 Stratigraphy

The nomenclature used in the following discussion and stratigraphic table (Table 4) is based on a compilation of all available data concerning the stratigraphy of the McArthur Basin.

STRATIGRAPHY - ROPER GROUP

<table>
<tr><td colspan="2">CHAMBERS RIVER FORMATION</td><td rowspan="2">COBANBIRINI FORMATION</td></tr>
<tr><td>McMINN FORMATION</td><td>KYALLA MEMBER
SHERWIN IRONSTONE
MOROAK SANDSTONE MEMBER</td></tr>
<tr><td colspan="2">VELKERRI FORMATION</td><td>LANSEN CREEK SHALE</td></tr>
<tr><td colspan="3">BESSIE CREEK SANDSTONE</td></tr>
<tr><td colspan="3">CORCORAN FORMATION</td></tr>
<tr><td rowspan="3">ABNER SANDSTONE</td><td colspan="2">HODGSON/MUNYI SANDSTONE MBR.</td></tr>
<tr><td colspan="2">JALBOI MEMBER</td></tr>
<tr><td colspan="2">ARNOLD SANDSTONE MEMBER</td></tr>
<tr><td colspan="3">CRAWFORD FORMATION</td></tr>
<tr><td colspan="3">MAINORU FORMATION</td></tr>
<tr><td colspan="3">LIMMEN SANDSTONE</td></tr>
</table>

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Table 4

Velkerri Formation 10-183metres (thickness 183m plus)

The Velkerri Formation can be divided into two subsections which are as follows:-

1. **Upper Velkerri** 10-170 metres (thickness 160m)

10-30m
Weathered zone comprising silty mudstone. Greyish orange pink to pale red.

30-170m
Interbedded mudstone and fine sandstone. Minor siltstone. Anastomosing fractures, slickensides. Pyrite, carbonaceous laminae. Poor organic content. Calcite infilling veins.

2. **Middle Velkerri** 170-183 metres (thickness 13m plus)

Finely laminated mudstone, with high carbonaceous content. Calcite fracture infills. Brittle fracture common. Brown-grey, grey black.

2.5 Mud Logging

No mud logging services were contracted for Supply-1.

2.6 Electrical Logging and Other Surveys

No electrical logs were run in Supply-1.

2.7 Bottom Hole Temperature

No bottom hole temperature was recorded.

2.8 Formation Sampling

2.8.1 Ditch Cuttings

Ditch cuttings were collected at two metre intervals down the hole from 0 metres to 10 metres. A washed sample from each interval was described by the company geologist in detail and a portion of the sample submitted to the mines branch.

2.8.2 Conventional Cores

Supply-1 was a fully cored hole from 10m to 182.5m (T.D.). Core is stored at the CRA Exploration Pty Limited core shed in Darwin.

2.9 Petrology

No samples were submitted for petrological studies.

2.10 Geochemistry

2.10.1 Analyses

A total of 15 core samples from Supply-1 were sent to AMDEL in Adelaide for geochemical analyses. Samples were selected from the section 40 to 180m. at approximately five metre intervals. Every second sample was analysed for Total Organic Carbon (TOC), if this was ≥ 0.4 then the sample was analysed by the Rock-Eval pyrolysis technique.

The analyses provided by AMDEL were internally consistent and the service excellent.

The analytical results from AMDEL are included as Appendix III.

2.11 Geophysics

2.11.1 Core Gamma Ray

Core gamma ray measurements were taken over the entire interval from 0 - 182.5m in Supply-1. Results can be found as Enclosure 2.

2.11.2 Magnetic Susceptibility

The entire core from Supply-1 was measured for magnetic susceptibility. Results are included as Enclosure 3.

2.12 Contributions to Geological Concepts

Supply-1 provided limited stratigraphic data through Upper Roper Group of the McArthur Basin making evaluation of its hydrocarbon potential difficult. Fortunately two other wells Alexander-1 and Scarborough-1 were drilled in the same area.