FINAL REPORT ON EXPLORATION ACTIVITIES

EXPLORATION LICENCE: 7089 MARSHALL RIVER

16/1/91 TO 21/12/92

EASTERN ARUNTA PROJECT

HUCKITTA 1:250,000 SHEET SF53-11
ILLOGWA CREEK 1:250,000 SHEET SF53-15

VOLUME 1 OF 1

Author: L.A. Price
Date: March 17, 1993
Commodities: Copper, Lead, Zinc, Silver, Tungsten, Gold

Authorised by:

Distribution: NT Department of Mines and Energy (1)
Poseidon Exploration, Darwin (1)
Poseidon Exploration, Adelaide (1)

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Report No. 11221
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<td>Exploration Licence 7089 Marshall River Location and Access Map</td>
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SUMMARY

Exploration Licence 7089 was granted to Poseidon Exploration on 16 January 1991. The tenement formed part of the larger Eastern Arunta Project Area.

The licence area was applied for to target base metal/gold mineralisation and tungsten/copper mineralisation hosted within the Proterozoic Arunta Block.

Exploration has included rock chip sampling of two outcropping sub-parallel sulphidic chert horizons.

Results from the rock chip sampling did not warrant follow-up.

The tenement was relinquished on the 21 December 1992.
1. INTRODUCTION

Exploration Licence 7089, Marshall River, was granted to Poseidon Exploration on the 16 January 1991 for a period of six years. The tenement covers an area of 15 blocks or 45 sq km.

The licence area was applied for to target base metal/gold mineralisation and tungsten/copper mineralisation hosted within the Proterozoic Arunta Block.

2. CONCLUSIONS & RECOMMENDATIONS

Conclusions

Reconnaissance rock chip sampling of Marshall River Exploration Licence 7089 has failed to produce further targets for follow-up.

The potential to host base metal/gold mineralisation and tungsten/copper mineralisation within the tenement is reduced.

Recommendations

Relinquishment of the tenement.

3. LOCATION AND ACCESS

The licence area is located 280 km north east of Alice Springs in the Northern Territory. The project area covers parts of the Huckitta (SF53-11), and Illogwa Creek (SF 53-15) 1:250 000 map sheets (Figure 1).

Access is via the Stuart Highway north of the Alice Springs and then east along the partially sealed plenty Highway to Jervois Station. Access throughout the tenement is via station tracks.

The exploration licence is located over portions of Jervois and Atula Pastoral Leases.

4. PHYSIOGRAPHY

The land surface within the licence area is predominantly flat, sandy plains of the eastern Sandover - Plenty Plains (Mabbutt 1967).

The sand cover varies from shallow on the undulating areas to deep near the rivers and creeks. Low outcrop is restricted to two sub-parallel strike ridges trending WSW.

The area is arid with rainfall mainly occurring as summer storms.

The vegetation is dominantly grass and spinifex with lesser acacia, grevillea and stunted eucalypt scrub.
5. **GEOLOGY**

5.1 Regional Geology

The project area is located towards the eastern margin of the Lower Proterozoic Arunta Orogenic Domain which is a major structural province within central Australia. It trends broadly east-west and has been divided into 3 tectonic areas: Central, Southern and Northern. The Central Tectonic Zone consists of an accumulation of sedimentary and volcanogenic rocks deposited in an east-west trough. With time the trough broadened to include the Northern and Southern Tectonic Zones and the composition of the sediments being supplied to the basin matured.

The rocks within the Orogenic Domain have been divided into 3 groups:

- **Division 1:** Felsic and mafic granulites
- **Division 2:** Schistose pelitic metasediments and quartz-feldspathic gneisses
- **Division 3:** Schistose, pelitic metasediments and metaquartzite.

The divisions are separated by unconformities. The increasing maturity of the sediments reflects the evolution of the basin.

The project area covers the Central and Northern Tectonic Zones of the Eastern Arunta Orogenic Domain and contains generally amphibolite grade Division 1 and 2 lithologies together with basal units of the Georgina Basin sequence.

An early tectonic event during the mid-Proterozoic metamorphosed and dislocated the rocks into many fault bounded blocks. A later event, the Carboniferous Alice Springs Orogeny reactivated the faults. The project area is located within the Jervois and Jinka Blocks.

Sedimentation in the Georgina Basin began during the Adelaidean with the deposition of argillites, arenites, glacigene sediments and carbonates along the southern margin of the basin. After the Adelaidean the sediments primarily consisted of carbonates and arenites.

6. **EXPLORATION PROGRAMME**

Prior to exploration commencing, records of the Aboriginal Areas Protection Authority were inspected and site details recorded. Sampling programmes were planned to ensure they did not encroach upon any recorded sites.
6.1 Rock Chip Sampling

Reconnaissance rock chip samples were collected from two outcropping sub-parallel sulphidic chert horizons which straddle the boundary between EL 7089 (Marshall River) and EL 6993 (Bonya Creek). The chert horizons were approximately 300m long, up to 3m high and protruding out of thick sand cover. Sulphides consisted entirely of fresh euhedral pyrite.

A total of 3 samples were collected within the Marshall River Exploration Licence. They were analysed by Classic Laboratories, Darwin. The samples were crushed and pulverized using a non metallic grinding mill and chrome free bowl and analysed by the following techniques:

- AAS (Code 2M) : Bi, Cd, Co, Cr, Cu, Fe, Mn, Ni, Pb, Zn, Ag, Mo
- AAS (Code 9S) : Au
- XRF : As, W, Ba

The sample locations are marked on Plan No. NTD 234 and results are available in Appendix 1.

None of the samples returned results requiring follow up.
7. REFERENCES


APPENDIX 1

ANALYTICAL RESULTS
MARSHALL RIVER EL 7089
ROCK CHIP GEOCHEMISTRY
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<th>SAMPLE</th>
<th>Bi</th>
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<th>Cr</th>
<th>Cu</th>
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<th>Mn</th>
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**UNITS**

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- **ppm**
- **ppm**
- **ppm**
- **ppm**
- **ppm**

**DETLIM**

- 2
- 0.1
- 2
- 5
- 1
- 5
- 2

**SCHEME**

- AAS2M
- AAS2M
- AAS2M
- AAS2M
- AAS2M
- AAS2M
- AAS2M
## ANALYTICAL REPORT

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- ppm
- ppm
- ppm
- ppm
- ppb

### DET. LIM
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- 1
- 1
- 1
- 1

### SCHEME
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- AAS2M
- AAS2M
- AAS2M
- AAS2M
- AAS9S
# Analytical Report

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<tr>
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<tr>
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**Units**

- **Det. Lim**: ppm
- **Scheme**: XRF1

- **As**: 2
- **W**: 10
- **Ba**: 10