FIRST AND FINAL REPORT ON EXPLORATION LICENCE

8057 (DUTCY) TO 8/11/93

FLYING FOX JOINT VENTURE

URAPUNGA 1:250,000 SHEET SD53-10
FLYING FOX 1:100,000 SHEET 5669

VOLUME 1 OF 1

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Date: 3 February, 1994
Commodities: Lead, Zinc

Authorised by: [Signature]

Distribution: NT Department of Mines and Energy (1)
Poseidon Exploration Ltd, Darwin (1)
Poseidon Exploration Ltd, Adelaide (2)
Stockdale Prospecting Ltd (1)

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ABSTRACT

This report details activities for the period from the date of grant, 11 May, 1993 to surrender on 8 November, 1993 for Exploration Licence 8057, Dutchy. This tenement forms part of the Flying Fox Joint Venture between Poseidon Exploration Ltd and Stockdale Prospecting Ltd.

Although the majority of the target Proterozoic sequences are concealed by Cretaceous cover, the tenement was applied for to secure a contiguous unit with adjacent tenements which were considered prospective for sediment hosted base metal mineralisation, similar to other Pb/Zn deposits of the Carpentarian Zinc Belt.

The tenement area also contains the interpreted unconformity between the Katherine River Group to the west and the younger Mount Rigg (= Nathan) and Roper Groups to the east and south.

Because of extensive Cretaceous cover, geochemical sampling was not feasible and exploration focussed on remote sensing techniques: aeromagnetics, radiometrics and Landsat TM.

Results from adjoining tenements were not sufficiently encouraging and the tenement has been recommended for relinquishment. Surrender was effected on 8 November, 1993.
1. **INTRODUCTION**

   Exploration Licence 8057, D RTC, was granted to Poseidon Exploration Limited on 11 May, 1993 for a period of six years. The tenement forms part of the larger Flying Fox Joint Venture which includes EL's 6287, 6288 and 7852.

   Although dominated by Cretaceous cover, the licence was considered prospective for sediment hosted Pb/Zn mineralisation similar to other deposits of the Carpentarian Zinc Belt. Such deposits include HYC, Century and Mt Isa/Hilton.

2. **CONCLUSIONS AND RECOMMENDATIONS**

   Because of extensive Cretaceous cover, geochemical sampling was not feasible and exploration focussed on remote sensing techniques: aeromagnetics, radiometrics and Landsat TM.

   Results from adjoining tenements were not sufficiently encouraging and the tenement was recommended for relinquishment.

   Surrender was effected on 8 November, 1993.

3. **LOCATION AND ACCESS**

   The project area is located approximately 15 km west of Mountain Valley H.S. in the NW corner of FLYING FOX\(^1\) map sheet (URAPUNGA), Figure 1.

   Access to the project area is gained via the unsealed Bulman-Gove Road, although access into the actual licence area is limited to one poor quality station track west of Flying Fox Creek.

   In general, access is limited to the dry season, generally in April-November.

4. **TENEMENT**

   EL 8057, totaling 40 blocks, was granted to Poseidon Exploration Limited on 11 May, 1993 for a period of six years.

   The tenement forms part of the Flying Fox Joint Venture between Stockdale Prospecting Limited and Poseidon which includes EL's 8057, 6287, 6288 and 7852.

   The tenement was surrendered on 8 November, 1993.

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\(^1\) Names of 1:250 000 and 1:100 000 map sheet areas are given in large and small capitals respectively, e.g. URAPUNGA, FLYING FOX.
5. **PHYSIOGRAPHY**

Most of the project area consists of hilly terrain interspersed with open savannah areas, typical of the Gulf Fall physiographic domain. The western part of the licence area is dominated by a sandstone plateau with a total relief of approximately 90 metres. The eastern edge of the plateau is characterised by a well developed escarpment.

Drainages are well defined and incised about the escarpment. Perennial waterholes are common along Flying Fox Creek.

Annual rainfall averages 1100mm, the bulk of which falls during November to March.

Vegetation consists mainly of open eucalyptus savannah forest with grasses while pandanus and paperbark trees grow along perennial watercourses.

6. **REGIONAL AND TENEMENT GEOLOGY**

The generalised geology is shown in Figure 2 (NTD 387).

Regionally, the project area is located in the north west of the McArthur Basin, a large and complex depositional basin containing substantial thicknesses of Middle Proterozoic sediments and associated volcanics including shelf/platform lithologies considered prospective for sediment hosted base metal mineralisation.

The major tectonic elements of the McArthur Basin are shown in Figure 3, together with the location of EL 8057, Dutchy.

The licence covers the eastern edge of the Waterhouse Syncline, north of the Urapunga Fault Zone.

Exposed Proterozoic sequences are restricted to the immediate vicinity of Flying Fox Creek, in the north and east of the tenement. Both exposures are of Mt Rigg Group, Bone Creek Sandstone in the north and Dook Creek Formation in the east.

Roper Group sediments occur to south of the licence area and are in faulted contact with the underlying Dook Creek Formation. A truncated basal section of Limmen Sandstone is overlain by a thin unit of Mountain Valley Limestone. Stratigraphic relationships between the Limmen Sandstone and Mountain Valley Limestone are obscured by Cretaceous Mullaman Beds and Quaternary alluvium.

Massive and blocky quartz sandstones of the Hodgson Sandstone Member (Abner Sandstone) are preserved southeast of the licence area, together with irregularly exposed dolerite dykes.

Cretaceous Mullaman Beds consisting of sandstones and siltstones unconformably overlie all the older units in the licence area and have been extensively lateritised during the Cainozoic.
Physiographically, these form a plateau approximately 50 to 90 metres above the surrounding lowlands.

This Cretaceous plateau conceals the contact relationship between the Katherine River Group (exposed in the adjacent tenement to the west, EL 7852) and Roper Group lithologies exposed to the east in EL 6287.

Structure

The licence is dominated by structure-less Mullaman Beds of the Cretaceous.

A linear, trending 065°, can be seen in the imaged processed aeromagnetic data. However, the nature of this linear is unknown. It broadly parallels the Diljin Fault, to the west.

In the SE of the licence area (Flying Fox 1:100,000 sheet), an east-west striking fault separates the Dook Creek Formation (Nathan Group equivalent) from the overlying Limmen Sandstone (Roper Group). This fault broadly parallels the trend of the Urapunga Fault Zone which regionally separates the Northern and Southern McArthur Basin.

7. CURRENT EXPLORATION

Exploration in adjacent tenements located weak and sporadic Pb ± Zn mineralisation within Katherine River and Roper Group sediments.

Because of the dominance of Cretaceous cover in EL 8057, work undertaken has concentrated on remote sensing techniques: aeromagnetics, radiometrics and Landsat TM.

A brief helicopter reconnaissance of the east and north of the tenement was undertaken to inspect the Dook Creek Formation and Bone Creek Sandstone.

7.1 Airborne Magnetic and Radiometric Survey

Aeromagnetics and radiometrics were collected by Aerodata over the licence area as part of a regional survey. Survey specifications and equipment used are detailed below.

- Flight Line direction: 0 - 180 degrees
- Flight Line separation: 400 m
- Tie line direction: 090 and 270 degrees
- Tie line separation: 4000m
- Terrain clearance: 60m (MTC)
- Date: July 1992
- Aircraft: Cessna Stationair U206G
- Magnetometer: Scintrex VIW 2321 - H8
- Cesium Vapour
- Magnetometer resolution: 0.001 nT
- Magnetometer sample interval: 6m
- Spectrometer: 256 channel GR800
Volume 33.12 litres
Spectrometer sample interval 1.0 secs (70m)
GPS Navigation System Ashtech XII GPS receiver

Contours of the total magnetic intensity are presented in Figure 4.

Image processed aeromagnetics as reduced to pole are presented in Figure 5 whilst the first vertical derivative, reduce to pole, is presented in Figure 6. In both these Figures, the regional survey data has been stitched into the regional NTGS database for MARUMBA.

7.2 Landsat TM Imagery

To assist with regional evaluation, Geoimage Pty Ltd was contracted to provide hard copy Landsat TM images. Four images were produced and they are presented as Figures 7 to 10, inclusive, viz:

Figure 7 - Bands 247
Figure 8 - Local Area Stretch
Figure 9 - Gossan Image
Figure 10 - Clay Prediction

8. DISCUSSION

The thickness of Cretaceous cover within the tenement varies from 0 to 90 metres, prohibiting geochemistry as a sampling tool.

Where exposed, the Dook Creek Formation was not encouraging.

No targets were generated from the aeromagnetics, radiometrics or Landsat TM data. Results from exploration of the adjoining tenements has not enhanced the prospectivity of the tenement.

9. EXPLORATION EXPENDITURE

Exploration expenditure during the report period totalled $10,865.86 and is detailed below.

Salaries/Wages/Overheads 1,737.50
Geophysics 5,347.50
Remote Sensing 480.00
Travel/Accommodation/Field Living 185.01
Helicopter Charter 1,807.50
Drafting 312.50
Computing 82.13
Field consumables/supplies 57.71
Depreciation 40.79
Tenement and Legal 530.00
Regional Office Costs 285.22

TOTAL $10,865.86
SPECIFICATIONS

AIRCRAFT: CESSNA STATIONAIR L2066
MAGNETOMETER: Cesium Vapour Scintrex V2221
SAMPLE INTERVAL: 6m
SPECTROMETER: 256 CHANNEL GR800
VOLUME: 33.12 LITRES
SAMPLE INTERVAL: 60m
LINE SPACING: 400m
LINE DIRECTION: 0-180 DEGREES
MEAN TERRAIN CLEARANCE: 60m

NAVIGATION USING GPS SATELLITE POSITIONING
AERODATA JOB NUMBER: 1305
CONTOUR INTERVAL: 5nT