POSEIDON GOLD LTD

ANNUAL REPORT FOR
EXPLORATION LICENCE 6342
BROLGA PROSPECT
FOR THE PERIOD
FROM 9/5/1991 TO 8/5/1992

Submitted to: Department of Mines and Energy
PO Box 2901
DARWIN NT 0801

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REPORT NO:
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<td>1:50,000</td>
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<td>Plan 2</td>
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<td>1:50,000</td>
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1.0 SUMMARY

Exploration Licence 6342 (Brolga) is located approximately 13 kilometres ESE of Tennant Creek, 2.5 kilometres north of the Nobles Nob mine. The licence was granted to Poseidon Gold Limited on May 9, 1991 for a period of three years, and consists of one graticular block.

Exploration undertaken on the licence during this report period includes a review of past exploration data a regional gravity survey, reconnaissance prospecting, and an assessment of airborne magnetometer data.

2.0 INTRODUCTION

The first annual report for EL 6342 contains details of the work undertaken during year one of tenure, with the following initial objectives in mind:

a) Evaluation of regional gravity data and airborne magnetic data with the aim of identifying Tennant Creek style magnetite and/or haematite ironstone targets.

b) Integration of the geophysical with relevant geological data, to target prospective areas for testing by detailed geochemical and other ground-based geophysical surveys.
3.0 LOCATION AND ACCESS

Exploration Licence 6342 is located approximately 13 kilometres ESE of Tennant Creek and 2.5 kilometres north of Nobles Nob mine. Access to the licence area is via bush tracks south from the Peko to Golden Forty mine track. The licence covers low relief, bulldust covered flats with scattered subcrop.

4.0 REGIONAL GEOLOGY

Exploration Licence 6342, is situated within the Lower Proterozoic Tennant Creek Inlier which consists of Warramunga Group sediments and acid volcanics for which Le Messurier et al (1990) proposes a maximum thickness of 6000 metres. The sediments are turbiditic in origin and consist of interbedded siltstone, sandstone and greywacke units with minor concordant acid volcanics and porphyry dykes.

The Warramunga Group has been sub-divided into the Carraman Formation, Black Eye Member, Bernborough Formation (volcanics) and the Whippet Formation. Sediments within the upper two units contain broad zones of disseminated magnetite and local horizons of laminated haematitic and magnetite bearing shale. All units in the Warramunga Group have been metamorphosed to greenschist facies.

The Warramunga Group has been subjected to at least three phases of deformation resulting in refolded isoclinal folds occurring about east-west axes and plunging both east and west. Two major episodes of faulting have been recognised consisting of a WNW trending set of shear zones sub-parallel to fold axes and a NW-SE set which are commonly quartz-filled and show sinistral movement.

Two phases of granite intrude the area, as well as numerous small intrusions of quartz porphyry, dolerite and lamprophyre dykes. The central and eastern sections contain the earlier Tennant Creek Granite, which predates all deformation. The western part of the field contains the Warrego granite, which post-dates the first two deformation phases.
5.0 LOCAL GEOLOGY

Exploration Licence 6342 covers an area of low relief, bulldust covered flats. Scattered and sparse outcrops are restricted to the north-east corner of the tenement. The tenement covers lithotypes which are stratigraphically situated on the south hinge of the Peko syncline, and comprise north-dipping unaltered to ferruginous siltstone, sandstone, shale, tuff and quartz-feldspar porphyry. Minor jasper occurs on the upper contacts between the porphyry and the sediments, and numerous north-west and east-west trending quartz veins are present, indicative of the regional fault and shear trends. No historical workings or mines occur within the licence area, and only minor gossanous ironstone pods and stringers are present in the central eastern portion of the tenement.

6.0 EXPLORATION UNDERTAKEN DURING THE PERIOD 9/5/91 TO 8/5/92

6.1 DATA REVIEW - PREVIOUS EXPLORATION

Poseidon Gold's previous exploration data for the Nobles Nob environs dates back to the 1930's, and this has been complemented with a vast amount of data acquired from Peko Wallsend Limited as part of the purchase of their Tennant Creek assets in 1991. As such this data is being progressively integrated with Poseidon's, both on prospect scale and regionally.

The area covered by EL 6342 was mapped by Australian Development Limited (ADL) and Peko-Wallsend Limited (Peko) in the mid-1970's, at a scale of 1:12,000. Airborne and ground magnetic surveys were conducted over the area by ADL and a prospect named R13 delineated and subsequently covered by MLC's 348 to 351. The prospect was investigated again in 1988 and renamed the Brogla prospect. Two further MLC's, 925 and 926 were pegged to cover the eastern extension to the magnetic anomaly and one diamond drillhole completed to 578.4 metres depth. This drillhole was probed with the downhole magnetometer with inconclusive results. The drillhole covered a sequence of magnetite-bearing sediments with discrete thin magnetite stringers. No massive ironstone body was intersected. The six MLC's within EL 6342 are still current.

6.2 AIRBORNE MAGNETIC SURVEY

A regional high resolution airborne magnetometer survey was flown by Austirex Limited in 1990 over the Nobles Nob Mine environs, including EL 6342. Data from this survey was used to produce contour plans at 1:25000 and 1:10000 scale. Earlier ground magnetic surveys by Australian Development Ltd had identified a broad anomaly in the area known as R13.

A preliminary assessment of the magnetic data indicates the R13/Brogla anomaly constitutes the majority of the tenement holding. No detailed magnetic modelling of the anomaly has been
undertaken recently, due to the discouraging results from the 1988 a diamond drillhole completed by ADL in 1988.

6.3 GRAVITY SURVEY

A regional gravity survey incorporating EL 6342 is currently being undertaken by Poseidon Gold Limited in the Tennant Creek region and a preliminary 1:50000 scale Bouguer Gravity contour plan has been produced. Prospect scale gravity interpretation has not been attempted at this stage due to incomplete survey coverage. The survey is being conducted with the aim of detecting large structures associated with the emplacement of ironstones and subsequent mineralising events. The survey data will also aid in refining the regional geological interpretation for the area.

6.4 RECONNAISSANCE PROSPECTING AND REGOLITH MAPPING

Brief reconnaissance traversing of the tenement has been conducted with the aims of validating the geological mapping completed by ADL and Peko, and assessing the area amenability of the area to geochemical soil sampling and shallow vacuum drilling. The extensive bulldust and sand cover in the area and the close proximity to the Peko mine tailings, which are susceptible to aeolian dispersion, indicates vacuum geochemistry will be preferable to surface soil sampling in the licence area. In early 1992 a regional geomorphological regolith mapping exercise was completed by Poseidon Gold Limited in the Tennant Creek region. The survey involved integration of aerial photograph mapping, colour thematic mapper imagery and field traversing. The main objective of the survey was to establish and map a framework of landform units within which geochemical sampling programmes can be planned. Within EL 6342, the landform study indicates that the north-east corner of the tenement is amenable to soil geochemistry, while the remainder is of a depositional (alluvial) regime and thus more suitable to shallow bedrock drilling.
7.0 EXPENDITURE INCURRED DURING THE REPORT PERIOD

Expenditure incurred on EL 6342 during the period 9/5/91 to 8/5/92 totals $9,516. A breakdown of this is as follows:

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$9,516

Exploration Licence 6342 was applied for in September 1988, but was not granted until May 1991. Since the application and proposed exploration programme were submitted, new and revised exploration techniques such as gravity, geochemistry and structural surveys, have been implemented in Tennant Creek. As a result the originally proposed programme (RC drilling) and covenant of $30,000 was no longer justifiable. As a result an application for variation of covenant was submitted to the Department of Mines and Energy Office in Tennant Creek on 20 March, 1992.

8.0 PROPOSED EXPLORATION PROGRAMME
- YEAR TWO 9/5/91 TO 8/5/92

The objectives set out for the exploration programme in year one were primarily achieved, in that the bulk of geophysical data was compiled, and the previous exploration data review completed.

In year two of tenure, the following programme is anticipated.

- Completion and integration of the regional gravity survey data.
- Interpretation of the magnetic and gravity data to delineate prospective magnetic anomalies and structural settings.
- Stratigraphic and structural interpretations based on geological mapping to target potential mineralisation sites.
- Vacuum drilling and soil geochemistry on the most promising targets outlined by all of the above.
9.0 PROPOSED EXPENDITURE STATEMENT - YEAR TWO

To complete the programme outlined above, the proposed expenditure for year two of tenure for EL 6342 is detailed as follows:

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<td>Wages</td>
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</table>

$9,000
10.0 REFERENCES


LARGE, R and ROBINSON, P, 1987: Application of Ironstone Trace Element Studies to the Exploration for Gold at Tennant Creek, in Geology and Geochemistry of Gold-Copper Iron Oxide Systems, Tennant Creek and Starra districts, Volume 2, Section 7, University of Tasmania.


11.0 KEYWORDS

EL 6342, Brolga, magnetics, gravity, R13 Prospect, diamond drilling, geochemistry, geomorphology.