POSEIDON GOLD LTD

ANNUAL REPORT FOR
EXPLORATION LICENCE 6343
PENGUIN PROSPECT
FOR THE PERIOD
FROM 9/5/1991 TO 8/5/1992

Submitted to: Department of Mines and Energy
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May 1992

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CONTENTS

1.0 SUMMARY

2.0 INTRODUCTION

3.0 LOCATION AND ACCESS

4.0 REGIONAL GEOLOGY

5.0 LOCAL GEOLOGY

6.0 EXPLORATION UNDERTAKEN DURING THE REPORT PERIOD
   6.1 Data Review - Previous Exploration
   6.2 Airborne Magnetic Survey
   6.3 Gravity Survey
   6.4 Regolith Mapping

7.0 EXPENDITURE INCURRED DURING REPORT PERIOD

8.0 PROPOSED EXPLORATION PROGRAMME - YEAR TWO

9.0 PROPOSED EXPENDITURE STATEMENT - YEAR TWO

10.0 REFERENCES

11.0 KEYWORDS
### LIST OF PLANS

<table>
<thead>
<tr>
<th>PLAN</th>
<th>TITLE</th>
<th>SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan 1</td>
<td>EL 6343 Location Plan</td>
<td>1:50,000</td>
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<tr>
<td>Plan 2</td>
<td>EL 6343 Total Field Magnetic Contours (Airborne)</td>
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</table>
1.0 SUMMARY

Exploration Licence 6343 (Penguin) is located approximately 12 kilometres east of Tennant Creek, 7 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 seven graticular blocks.

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

2.0 INTRODUCTION

The first annual report for EL 6343 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 above geophysical surveys with geological data to target prospective areas for testing by detailed geochemical and other ground-based geophysical surveys.
3.0 LOCATION AND ACCESS

Exploration Licence 6343 is located approximately 12 kilometres east of Tennant Creek and 7 kilometres north of Nobles Nob mine. Access to the licence area is via bush tracks north from Peko mine, which traverse the western section of the licence to the Lone Star mine and Mulga prospects.

4.0 REGIONAL GEOLOGY

Exploration Licence 6343, 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 6343 covers an area of low relief hills and soil covered flats, with the majority of outcrop occurring in the northern area of the tenement. Stratigraphically, the lithotypes are situated on the north limb of the Peko syncline and comprise dominantly south-dipping greywacke, grits, sandstone and shale. The sediments host numerous north-west and east-west trending quartz veins and are strongly sheared in places. Several small pods of quartz-haematite occur in the northern outcrops, and the whole package of lithotypes represents the south-eastern end of
the regional Mary Lane shear zone. Historically no mine production has been recorded from the tenement. The nearest old mine being the Comet Mine, situated immediately south of the licence.

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 of 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 6343 was mapped in the mid-1970's by Australian Development Limited (ADL) and Peko-Wallsend Limited (Peko) at a scale of 1:12,000. Airborne and ground magnetic surveys were conducted over the area by the BMR and Peko. An anomaly named Explorer 114 was delineated and covered by MLC’s 772 and 773 (now expired). One diamond drillhole was completed to 228.5 metres but was abandoned at this depth due to unacceptable flattening of the hole. The initial target depth from magnetic modelling was 285 metres. The drillhole was not probed with the downhole magnetometer as the hole encountered
fine-grained magnetite-bearing sediments only. In the early 1980's, Peko held much of the area of interest under EL 2535. Under this tenure they investigated Explorer 99, an aeromagnetic anomaly, and Explorer 194, a subcropping ironstone reported as gold bearing by a local prospector. One diamond core hole was completed at Explorer 99 with insignificant results, and the drillhole was not probed with the downhole magnetometer. No detailed work was completed on Explorer 194, although it corresponds in location to magnetic anomaly AR16, delineated from the original BMR survey.

In 1986 ADL held EL4929, part of which now constitutes EL 6343. Two magnetic anomalies, Gull and Shag were drilled with percussion drillholes, with no ironstone bodies intersected. In 1988 ADL (now Poseidon Gold Limited) applied for and were granted MLC's 927 to 944 covering Explorer 114 and several other magnetic anomalies in the area.

MLC's 927 to 944 fall within EL 6343 and are still current, as do MLC's 150 to 153, covering Explorer 99. These MLC's were purchased by Poseidon Gold from Peko in 1991.

6.2 AIRBORNE MAGNETIC SURVEY

Regional airborne magnetic surveys were flown over the Tennant Creek region in 1984 by Aerodata, and 1989 by Austirex. This data has been processed and merged to provide contour and image
processed plans at 1:50,000 scale. This data will be combined with the Peko airborne and ground magnetic data to define new targets for investigation and to check the original modelling for the drilling completed at Explorer's 114 and 99.

6.3 GRAVITY SURVEY

A regional gravity survey incorporating EL 6343 is currently being undertaken by Poseidon Gold Limited in the Tennant Creek region and 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 REGOLITH MAPPING

In early 1992 a regional geological regolith mapping exercise was completed by Poseidon Gold Limited over the Tennant Creek region. The survey involved integration of aerial photograph mapping, colour thematic mapper imaging, 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 6343 both erosional and depositional regimes are present. The majority of the northern
blocks of the tenement are within the erosional regime and would be amenable to soil and/or vacuum drilling geochemistry. The southern blocks contain extensive sandy soils, sheetwash and alluvium which would prohibit soil geochemical sampling methods.

7.0 EXPENDITURE INCURRED DURING THE REPORT PERIOD

Expenditure incurred on EL 6343 during the period 9/5/91 to 8/5/92 totals $10,517. A breakdown of this is as follows:

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$10,517

Exploration Licence 6343 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 $121,000 was no longer justifiable. 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.

- Downhole magnetometer probing of Explorer’s 99 and 114 drillholes.
- Stratigraphic and structural interpretations based on geological mapping to target sites of potential mineralisation.

- 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 6343 is detailed as follows:

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

$10,000
10.0 REFERENCES

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11.0 KEYWORDS

EL 6343, Penguin, magnetics, gravity, diamond drilling,  
geochemistry, geomorphology, Explorer 99, Explorer 114, Explorer  
194.