TENNANT CREEK JOINT VENTURE
THE THREE WAYS GROUP

COMPRISING EXPLORATION LICENCES
E.L. 7276, E.L. 7459 AND E.L. 7469

ANNUAL REPORT ON EXPLORATION COMPLETED DURING THE 12-MONTH PERIOD TO 30TH AUGUST 1992

Prepared for
Roebuck Resources NL

by
K. Fox

December 1992

Technical Report No. 286
## CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>2. PROPOSED EXPLORATION METHODS</td>
<td>1</td>
</tr>
<tr>
<td>2.1 Surface Sampling</td>
<td>1</td>
</tr>
<tr>
<td>2.2 Bedrock Geochemical RAB drilling</td>
<td>2</td>
</tr>
<tr>
<td>2.3 Ground Magnetics</td>
<td>3</td>
</tr>
<tr>
<td>3. PROPOSED EXPLORATION PROGRAMMES FOR THE YEAR ENDING 30TH AUGUST, 1993</td>
<td>3</td>
</tr>
<tr>
<td>3.1 E.L. 7276 - &quot;Three Ways&quot;</td>
<td>3</td>
</tr>
<tr>
<td>3.2 E.L. 7459 - &quot;Klondyke South&quot;</td>
<td>3</td>
</tr>
<tr>
<td>3.3 E.L. 7469 - &quot;Monument&quot;</td>
<td>4</td>
</tr>
</tbody>
</table>

## FIGURES

<table>
<thead>
<tr>
<th>Figure 1</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Three Ways Group. Tenement Location Plan</td>
<td>1:100,000</td>
</tr>
</tbody>
</table>
1. **INTRODUCTION**

The Three Ways Group of tenements comprises Exploration Licences 7276 (Three Ways - 3 graticular blocks), 7459 (Klondyke South - 8 graticular blocks) and 7469 (Monument - 50 graticular blocks). These tenements cover a total area of approximately 196 square kilometres.

Access can be gained via various station tracks off the sealed Stuart and Barkly highways.

Preliminary geological mapping and prospecting confirmed the presence of large areas of granitic intrusive and suggested that granite is present at shallow depth over much of the remaining area. No evidence of extensive Tennant Creek type alteration was noted except for a small ironstone (quartz-haematite) outcrop on E.L. 7276.

Most of the tenement group area is soil covered.

Because of the lack of a suitable geochemical exploration technique which could provide cost effective coverage of the large tenement group area no work was done during the past period.

A programme of surface sampling and bedrock geochemical RAB drilling is planned for 1993.

2. **PROPOSED EXPLORATION METHODS**

2.1 **Surface Sampling**

A large proportion of the Tennant Creek Goldfield area is soil covered. These soils are often thick and are generally transported.

A review of all published data relating to geochemical exploration done in the field prior to about 1987 was completed. This revealed that bedrock geochemical techniques appeared to be reliable as an indicator of near surface mineralisation. The review also suggested that conventional soil sampling methods produced reliable results only in areas of residual soil. Such areas are generally confined to elevated ground with scattered outcrop and are comparatively rare.

Since 1987 a number of explorers have conducted first pass exploration using the BLEG (bulk leach extractable gold) technique in which 2 to 5 kilograms of surface soil which has been screened to remove large rocks is treated in an unprepared state. All available data was reviewed and particular emphasis was placed on those of Newmont Australia Limited from sampling over areas now held by the Joint Venture.
It was noted that substantially high clearly anomalous BLEG results were relatively rare. Most of these were from samples proximal to either roads, well used tracks, or old mine workings. Some were located in areas of thin soil close to previously known mineralisation. Almost all of the anomalous BLEG values were discounted as being a product of contamination of one kind or another. Few anomalies had been followed up and then only by single line RAB traverses. In some areas of mineralisation recently located by Joint Venture Exploration the BLEG values were somewhat elevated but such $2 x$ background type values which fall within the normal distribution range could never be adjudged to be anomalous.

The writer is not aware of any discovery of Tennant Creek type mineralisation which can be attributed to BLEG survey results.

The BLEG sample technique has been concluded to be inappropriate to the Tennant Creek environment.

In the second half of 1991 Roebuck Resources NL commenced a series of orientation surveys in a number of areas of known mineralisation. These surveys included some areas of thick soil cover and one in which soil cover 5 to 15 metres thick included gravels in a drainage system.

Samples were collected from 30 centimetres depth, from the soil surface and from above the soil surface (biologically derived). The samples included various size fractions of soils collected in a variety of ways. This work continued throughout the early part of 1992 when the company’s consultant geologist, Dr. N. Marshall introduced some novel techniques of sample collection. These methods, resulting from Dr. Marshall’s considerable knowledge as both an analytical chemist and exploration geochemist remain the property of Marshall Geoscience Services. They are safeguarded by confidentiality agreements which have been signed by all members of the Roebuck exploration team.

The Marshall "M" sampling technique appears to be an extremely effective and powerful exploration tool which enables the identification of mineralisation in areas of both thick and thin soil cover.

### 2.2 Bedrock Geochemical RAB Drilling

Anomalies resulting from the surface sampling programme will be followed up by bedrock sampling.

In addition a magnetic alteration feature previously identified on E.L. 7276 will be gridded and investigated.
2.3 Ground Magnetics

A ground magnetic survey will be completed over the E.L. 7276 magnetic anomaly area in order to more precisely define the location and orientation of the magnetic body.

3. PROPOSED EXPLORATION PROGRAMME FOR THE YEAR ENDING 30TH AUGUST, 1993

3.1 E.L. 7276 - "Three Ways"

Since it is required that this tenement be reduced to one graticular block on 20th February, 1993 surface sampling will need to be completed by the end of January, 1993.

\[
\begin{array}{ll}
\text{Surface sampling (≈ 72 samples)} & 1,800 \\
\text{Analyses} & 950 \\
\text{Gridding} & 1,400 \\
\text{Ground magnetic survey} & 850 \\
\text{Bedrock geochemical RAB drilling} & 4,500 \\
\text{Analyses} & 1,500 \\
\text{Supervision and reporting} & 2,000 \\
\end{array}
\]

\[
\text{Total} \quad $13,000
\]

3.2 E.L. 7459 - "Klondyke South"

\[
\begin{array}{ll}
\text{Surface sampling (≈ 290 samples)} & 7,200 \\
\text{Analyses} & 3,800 \\
\text{Interpretation and reporting} & 2,000 \\
\end{array}
\]

\[
\text{Total} \quad $13,000
\]
Almost 40 percent of this tenement area is underlain by granite.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Sampling (≈ 500 samples)</td>
<td>12,500</td>
</tr>
<tr>
<td>Analyses</td>
<td>6,500</td>
</tr>
<tr>
<td>Interpretation and reporting</td>
<td>3,000</td>
</tr>
<tr>
<td></td>
<td>$22,000</td>
</tr>
</tbody>
</table>