EL 28170
TOBERMOREY

ANNUAL AND FINAL REPORT
5 April 2011 to 05 May 2015

Holder/Operator: Krucible Metals Ltd
Tenement Manager: Krucible Metals Ltd
Author: B Humphries
Commodity: Copper, Gold, Silver/Lead/Zinc
Report Date: 06 May 2015
Datum/Zone: MGA94 Zone 53 GDA94
250,000 Mapsheet: Hay River (SF53-16)
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1. SUMMARY

Exploration Licence (EL) 28170 (Tobermorey) held by Krucible Metals Limited (Krucible) is located on the Northern Territory/Queensland border about 400km east of Alice Springs and 300km south-south-west of Mount Isa. The conceptual target models include Iron Oxide Copper Gold (IOCG) and Orogenic/Tennant Creek Style mineralisation. Secondary targets include Century and Broken Hill Style lead/zinc/silver mineralisation in Proterozoic rocks as well as Mississippi Valley Style base metal mineralisation in Neoproterozoic to Palaeozoic aged sediments.

Since granting in April 2011 Krucible has completed surface geochemical programmes, an aeromagnetic/radiometric survey culminating in an RC percussion drilling program of 12 holes. A subsequent review of the exploration data downgraded deemed prospective areas and Krucible has subsequently surrendered the entire EL.
2. INTRODUCTION

This report, the fifth annual and final report, has been prepared to present exploration activities undertaken on EL 28170 for the period 5 April 2011 to 05 May 2015.

2.1. Tenement Details

EL 28170 ‘Tobermorey’ was granted to Krucible Metals on 5 March 2011 for a period of six years and comprised 490 sub-blocks. Krucible relinquished 112 sub-blocks at the end of the 2\textsuperscript{nd} year of term and a further relinquishment of 78 sub-blocks at the end of the 3\textsuperscript{rd} year of term. Two relinquishments totalling 249 blocks were lodged prior to the end of the 4\textsuperscript{th} year of term reducing the area held to 51 sub-blocks (Table 1 and Figure 2).

Table 1: Tobermorey Tenement Details

<table>
<thead>
<tr>
<th>BIM</th>
<th>Block</th>
<th>Sub-Block</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF53 2878</td>
<td>E K P</td>
<td></td>
</tr>
<tr>
<td>SF53 2879</td>
<td>A B C F G H J L M N O P Q R S T U W X Y Z</td>
<td></td>
</tr>
<tr>
<td>SF53 2880</td>
<td>L Q R U V W X Y Z</td>
<td></td>
</tr>
<tr>
<td>SF53 2951</td>
<td>C D E H J K P</td>
<td></td>
</tr>
<tr>
<td>SF53 2952</td>
<td>A B C D E F G H K L M</td>
<td></td>
</tr>
</tbody>
</table>

Total = 51 Sub-Blocks

2.2. Location and Access

The Tobermorey tenement is located on the Northern Territory/Queensland border about 400km east of Alice Springs and 300km south-south-west of Mount Isa in the 1:250,000 Hay River (SF53-16) map sheet. The project area is accessed via existing Tobermorey station tracks south from the Plenty Highway to Yardida Bore (Figure 1).

2.3. Exploration Rationale

Krucible selected this tenement following exploration results on the Company’s Toomba Tenement 60km to the east in Queensland. The Toomba Fault to the north and east of Tobermorey was interpreted by Krucible as a high angle listric fault system with multiple movements and fracturing along this zone that could result in large scale fluid flow and hydrothermal alteration – ideal conditions for the formation of gold and base metals. It is along this zone directly east of the EL (in Queensland) where Krucible discovered copper/gold mineralisation in rock chips and shallow RC percussion drilling (up to 3m @ 2.4% Cu).

2.4. Exploration Undertaken and Methods used

Krucible’s exploration programmes at Tobermorey have comprised geochemical sampling, RC percussion drilling and geophysical surveys including 3D modelling and processing of the line data.
Figure 1: Tobermorey Project - Tenement Location Plan
Figure 2: Tobermorey Project – Sub-block Identification Plan
3. REGIONAL SETTING

3.1. Regional Geology

The tectonic model for the Diamantina region is poorly understood due to paucity of information. However, research suggests the region is characterised by large scale tectonic plate movement and that the Tobermorey tenement lies within the eastern extent of the Arunta Province close to the junction of three major plates i.e. the Mount Isa Block, the Tennant Creek Block, and the Gawler Craton. Subsequent rifting and thrusting would have created zones of high heat flow and brecciation conducive to development of large scale mineral deposits such as IOCG or orogenic shear hosted deposits. Secondary targets include base metal mineralisation in Proterozoic or younger sediments.

The regional basement geology (Figure 3) of the Tobermorey Project is interpreted to consist of the Northeast Aileron Province which is ‘a Paleoproterozoic crust in the Arunta Region’ (pg 12:1 Ahmad & Munson 2013) the age of which is prior to 1700Ma. This Province is comprised of granite, metamorphic rocks, and pegmatite’s intruded by alkali granitoids. Outcrops occur as sporadic granitic and schist outcrops. The northern section of the block is considered to be continuous with the gold bearing Tennant Creek Region (Carroll 2008). In the southern area of the EL the Strangways Metamorphic Complex (part of the eastern Arunta Province) is interpreted to be at shallow depths. This complex contains a number of metamorphic assemblages derived from mafic and felsic granitic units (GA 2012).

Sitting unconformably on the Aileron (east Arunta) Province (GA 2012) the Georgina Basin is a widespread Neoproterozoic-Palaeozoic intracratonic basin that was initiated as part of the centralian super-basin and extends east into Queensland (NTGS 2011). The basin is comprised of clastic and calcareous units consisting of shales, limestones, dolostones, and siltstones.

3.2. Tenement Geology

Most of the area of the original granted EL is covered by aeolian sand with occasional sand dunes becoming more prominent in the southern area of the tenement. Outcrops of duricrust are also common within the EL.

Recessive outcrops of Neoproterozoic Gnallen-A-Gea Arkose and Yardida Tillite formations are common and outcrop as shales, quartzite and tillites within the EL. There are a number of quartz outcrops within the EL which appear to have been fractured and infilled by iron rich fluid.

3.3. Mineralisation and Conceptual Models

The Arunta Complex historically has not been considered a highly prospective province but this may be due to the limited exploration. Copper, gold, lead and zinc deposits have all been found and mined in this province and there is increasing interest in this under explored terrane. The Strangways Metamorphic complex is prospective for carbonatites with associated REE mineralisation and for marble lenses in the lower stratigraphic units of the complex which may be prospective for base metal mineralisation.

Magnetic maps provided by Government show numerous destruction zones and obvious large scale folding and faulting with potential remobilisation of fluids deemed prospective for IOCG and orogenic shear hosted mineralisation. There are a number of sub-parallel structures indicative of stacked or listric fault systems. Gravity images have poor resolution and do not provide any detail over the tenement area.
**IOCG Olympic Dam Style - Breccia Hosted**

Krucible’s main target in this EL is Olympic Dam IOCG style intrusive granite breccia systems within a shallow-level magmatic-hydrothermal breccia complex. The reasons for selection of this are as follows:

- **The Toomba Fault is a major thrust separating the Toko Syncline (east) from platform basement (west) - this is considered to be analogous to the Stuart Shelf setting in the Gawler Craton that hosts the Olympic Dam mineralisation.**

- **There are a number of broad geophysical anomalies which once refined may be analogous to the Olympic Dam deposit features.**

- **The magnetics at Tobermorey indicate strongly magnetic units which may equate to steely hematites and iron rich metasediments. These are considered to be analogous to the footwall units to mineralisation at Olympic Dam and Prominent Hill.**

**Orogenic-Shear Hosted Tennant Creek Style Copper, Gold, Bismuth Mineralisation**

The Tennant Creek region is known for shear related gold, copper, and bismuth deposits hosted within a magnetite +/- hematite ironstone unit. The genesis involves deposition of turbiditic sediments which were then hydrothermally altered to discordant magnetite, hematite, chlorite, quartz ironstone bodies and then deformed by faulting during the Barramundi Orogen (1860-1840Ma). A period of granitic intrusions within close vicinity were the source for the economic fluids which precipitated within dilation, fold hinges and shear zones to form many thin pipe-like, ellipsoidal or lensoidal mineralised bodies. (Skirrow, Walshe 2002). The reasons for selection of this are as follows:

- **The Toomba Fault is a major reverse thrust fault similar to those responsible for the deformation and alteration in the Tennant Creek Province.**

- **The magnetics show indications of folding which maybe reflecting BIF (Banded Iron Formations) or Ironstone units similar to the host type in the Tennant Creek Region.**

- **Interpretations of the Arunta Complex suggest it is geologically continuous with the gold bearing Tanami and Tennant Creek provinces (Carroll 2008). Possible metamorphosed sediments with hydrothermal alteration close to Toomba fault zone within the Arunta Complex would be a favourable host setting.**

- **Both areas have similar evolution settings: there is the initial deformation event (Barramundi Orogen) creating the hydrothermal ironstones as well as dilation and shear zones and possible folding, and then later granitoid intrusions which provide the economic fluids.**
Figure 3: Tobermorey Project – Government Geology Plan
4. PREVIOUS EXPLORATION

The Tobermorey EL has had little previous exploration completed presumably due to the remote location of the tenement. Exploration programmes and results are summarised in Table 2 below.

Table 2: Summary of Previous Exploration on EL 28170

<table>
<thead>
<tr>
<th>Company</th>
<th>EL</th>
<th>Date</th>
<th>Commodity</th>
<th>Work Done</th>
<th>Results</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Le Nickel (Australia)</td>
<td>EL366</td>
<td>1973</td>
<td>Uranium</td>
<td>Helicopter supported reconnaissance</td>
<td>Failed to locate any prospective areas</td>
<td>Carrie 1973</td>
</tr>
<tr>
<td>Broken Hill</td>
<td>EL3164</td>
<td>1983</td>
<td>Diamonds</td>
<td>Geophysical Interpretation and Percussion drilling</td>
<td>Negative results</td>
<td></td>
</tr>
<tr>
<td>Jones Mining/BHP Minerals</td>
<td>EL4320</td>
<td></td>
<td>Roxby Downs targets</td>
<td>Geophysical interpretations</td>
<td>2 anomalies not followed up</td>
<td></td>
</tr>
<tr>
<td>CRA Exploration</td>
<td>EL7311</td>
<td></td>
<td>Pb, Zn, Cu, Au</td>
<td>111 Stream sediments, 6 rock chips</td>
<td>120ppm Pb, 550ppm Zn in rock chip</td>
<td></td>
</tr>
</tbody>
</table>

5. EXPLORATION COMPLETED

During the grant period of the EL Krucible has completed a number of geochemical sampling programmes and an aeromagnetic/radiometric survey and interpretations over the Elstone prospect. This culminated in an RC percussion drilling programme of 12 holes in late 2014. Results of the drilling did not provide encouragement for further exploration. See previous Krucible reports for information on exploration.

5.1. Rehabilitation

Krucible engaged the Station Holder as a contractor to complete the rehabilitation works on the tracks and 12 RC percussion holes drilled in 2014. The tracks used by Krucible have been levelled and scarified including the access track from the Tobermorey station. The sample bags have been removed from surface and disposed of by burial. All the drill holes have been plugged collars cut below surface, then covered as per guidelines. Hydrocarbon spills have been cleaned up and removed from site.

The final stage of remedial work was completed during April 2015 and involved traversing the previously disturbed areas and confirming the contractor’s work, photographs were taken as a record of the rehabilitation status at each drill site and the camp location.

Following a recent review of the tenement area Krucible has surrendered the entire EL on the basis of the failure to identify any potential for mineralisation as per the conceptual models targeted. Analysis of regional and historical data was undertaken in conjunction with assessment of the geochemical, geophysical and RC percussion drilling data.
Figure 4: Tobermorey Project - Sampling and Drill Hole Locations on Topography
Figure 5: Tobermorey Project Geophysical Survey RTP/TMI Magnetics with Drill Holes
6. BIBLIOGRAPHY


