EL 28837 Annual and Final Report for the period
14/03/2018 to 17/01/2019

March 2019

Target Commodities: Li, Co, REE, Ni, Cu, Au
Mapsheet 100K: Dneiper (5952)
Mapsheet 250K: HUCKITTA (SF5311)

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Abstract

EL 28837 was surrendered by Xavier Resources Pty. Ltd., a subsidiary company of Northern Cobalt Limited in January 2019. Although no on-ground work was completed on EL 28837, poor surface geochemical sampling results were returned on adjacent tenements and for this reason Northern Cobalt Ltd could not justify any further work on the tenement.
Table of Contents

Copyright 2
Abstract 2

1 Introduction 4
  1.1 Location & Access 4
  1.2 Regional Geology 5
  1.3 Local Geology 5
  1.4 Previous Exploration 6

2 Work Completed 6
  2.1 Geological Activities & Office Studies 6

3 Conclusion & Recommendations 6

4 References 6

Figures

Figure 1: Location map for EL 28837 4

Tables

Table 1: Previous Exploration Summary 6
1 Introduction

EL 28837 was surrendered by Xavier Resources Pty. Ltd., a subsidiary company of Northern Cobalt Ltd in January 2019, based on recommendations from a tenement consolidation review. No on-ground work was completed during the reporting period, however the tenement was visited during a reconnaissance trip incorporating all of the Arunta Project tenements.

1.1 Location & Access

EL 28837 is located within the Harts Range, central Australia approximately 170km north-east of Alice Springs. Access from Alice Springs is north via the Stuart Highway (70km), then east along the Plenty Highway (110km), then north along the Arapunya Road (70km) to McDonald Downs Station.

Figure 1: Location map for EL 28837
1.2 Regional Geology

The project area is located within the Palaeoproterozoic Aileron Province of the Arunta Region. The Arunta Region is a poly-deformed and metamorphosed basement terrain located along the southern margin of the North Australian Craton, which is unconformably overlain by the Ngialia, Amadeus, Murraba, Georgina and Eromanga Basins (Scrimgeour, 2003).

The Aileron Province is comprised of variably metamorphosed clastic sediments, meta-volcanic rocks, calc-silicate rocks, dolerite, mafic rock and granite and is prospective for metamorphosed VMS and carbonate replacement Pb-Zn-Cu, iron-oxide Cu-Au, orogenic Au, W(-Mo), Sn, mafic-hosted Ni-Cu, vermiculite, hydrothermal U, and apatite- and pegmatite-hosted REE-U(-P) (Scrimgeour, 2003).

1.3 Local Geology

EL 28837 is predominantly comprised of Palaeoproterozoic Aileron Province Lander Rock beds, with a lesser component of and Strangways Metamorphic Complex (SMC) in the central north of the tenure. Surface geology is a mixture of transported and in-situ regolith. Transported regolith includes: overbank/channel deposits on alluvial plains; floodplains; fans and swamps. In-situ regolith includes: variably weathered bedrock on erosional plains; rises; hills and plateau surfaces (STRIKE, 2018).

The licence area is bounded to the north by west-north-west trending Delny Shear Zone (DSZ) and to the south by east-south-east trending Entire Point Shear Zone (EPSZ), 80% of which is overlain by a relatively thin veneer of Cainozoic sediments. Cainozoic sediments include: Tertiary chalcedonic limestone, sandstone, mudstone and sandy conglomerate assigned to Waite Formation. In addition lower Tertiary weathered rocks, laterite and silcrete of deeply incised Waite Formation, crop out along drainage systems. Recent (2007) aircore drilling by Hale Energy over the south-east of licence area intersected on average 60m of Tertiary sediments, however coal measures were intersected at about 103m (extreme south-east corner) (Mackie, 2017).

Kanandra Granulite (pCk) crops out extensively for 10km from the western licence area boundary to Black Point and beyond where it abuts exposed Dneiper Granite (1771Ma). The dominant rocks type is fine grained massive mafic granulite, which form ridge cappings with low rubbly outcrop on slopes of low rounded hills, interlayered with medium grained, layered quartzo-feldspathic gneiss, migmatitic garnet-quartzo-feldspathic gneiss and biotite-garnet and hornblende gneiss. The fine grainize combined with complete recrystallisation and abundance of interlayered aluminous metasediments, plus the absence of chilled margins and igneous layering suggest protoliths were basaltic lava flows or sills. Coarse grained pyroxenite pods/lenses showing distinctive dimpled weathering surfaces, which are often associated with mafic granulite (Mackie, 2017).

The Kanandra Granulite was first metamorphosed to upper amphibolite granulite facies during 1780-1770Ma Yambah Event and again deformed and metamorphosed during 1730- 1690 Ma Strangways Event (PT: 800 degrees, 6 kilobars) the main tectono-thermal event to affect south east Arunta Region. Cropping out granulite on ALCOOTA northwest of Kanandra Dam i.e. 2km west of licence area has a highly variable magnetic character i.e. low/flat ranging to very high with massive to sub-linear texture. The interpreted extent of the granulite body concealed beneath alluvial deposits is defined by its variable magnetic character for over 100km from west to east. The most northern part of the body, adjacent to DSZ has a low, flat magnetisation possibly due to magnetite destruction related to shearing or a low magnetite phase of the intrusion. There are numerous discrete circular magnetic-highs scattered throughout intrusion, which delineate the aforementioned mafic plugs. The body is fragmented by numerous north-west trending faults and lesser east, north-east trending faults and bounded to the north by DSZ and to the south by EPSZ (Mackie, 2017). The Kanandra Granulite has similar zircon isochron spread as the Lander Rock Formation metasediments i.e. 1844-1820Ma, which dominate central/northern Arunta Region. They are also deemed age equivalents of
lower SMC multiply deformed and metamorphosed rocks on ALICE SPRINGS hosting VHMS base-metals deposits, hence they are considered prospective (Mackie, 2017).

The DSZ and its north-west trending splays including the local Perenti trend formed major conduits for hydrous fluids during late Devonian phase of the Alice Springs Orogeny (ASO), characterised by pervasive hydrous retrogression and veinin i.e. coarse apatite occurring in quartz reefs suggesting REE potential and also barite/fluorite mineralisation as well as iron-flourine-silica+Cu sulphide enriched mineralising fluids occurring as quartz-haematite-fluorite-chalcopyrite-bornite shear-hosted breccias at the Perenti prospect (Mackie, 2017).

Furthermore, recent GA research of geothermal heat flow/conductivity as a precursor to potential IOCG mineralisation has prioritised the prospectivity of Kanandra Granulite (Mackie, 2017).

1.4 Previous Exploration

Historic exploration has focused on shear hosted copper, vein and sediment-type uranium, kimberlitic intrusions (diamonds), IOCGU (iron oxide copper gold uranium) and ISCG (iron sulphide copper gold) mineralisation.

Table 1: Previous Exploration Summary (adapted from Mackie, 2017)

<table>
<thead>
<tr>
<th>Year</th>
<th>Company</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>CPM</td>
<td>Targeting the Perenti Cu prospect – IP survey, 3 diamond holes</td>
</tr>
<tr>
<td>1971</td>
<td>Kratos Uranium NL</td>
<td>Airborne radiometrics</td>
</tr>
<tr>
<td>1983</td>
<td>WMC</td>
<td>Stream sediments</td>
</tr>
<tr>
<td></td>
<td>CRAE</td>
<td>Ground magnetics, rock chips, soils and auger drilling</td>
</tr>
<tr>
<td></td>
<td>Uranerz Pty Ltd</td>
<td>Scintillometry, rock chips, radon survey.</td>
</tr>
<tr>
<td>1990</td>
<td>Roebuck Resources</td>
<td>Magnetic and non-magnetic lag sampling</td>
</tr>
<tr>
<td>2000</td>
<td>Rio Tinto</td>
<td>Heliborne HoistEM, rock chips, 4 deep drillholes</td>
</tr>
<tr>
<td>2002</td>
<td>Tanami Gold NL</td>
<td>Rock chips</td>
</tr>
<tr>
<td>2007</td>
<td>TGNL / Mithril JV</td>
<td>Magnetic/lateritic lag, rock chips, re-assay historic core, VTEM</td>
</tr>
<tr>
<td>2007</td>
<td>Hale Energy</td>
<td>AC Drilling (targeting uranium), heliborne SkyTEM</td>
</tr>
<tr>
<td>2009</td>
<td>ABM Resources</td>
<td>Desktop only</td>
</tr>
</tbody>
</table>

2 Work Completed

2.1 Geological Activities & Office Studies

A desktop review on tenure was completed during the reporting period. This enabled an assessment and planning for future exploration activities across the entire Arunta Project. A short reconnaissance trip incorporating all of the Arunta Project tenements was also completed during the reporting period.

3 Conclusion & Recommendations

Although no on-ground work was completed on EL 28837, poor results were returned from initial surface geochemical sampling on adjacent tenements. After completing a tenement consolidation review across all the Arunta Project tenements, Northern Cobalt opted to relinquish EL 28837.

4 References
