Charley Creek – Everard

Arunta Region
Partial Cancellation Report for EL 28866 for the period 21 February 2012 to 21 November 2015

Tenement Holders: Crossland Nickel Pty Ltd and Essential Mining Resources Pty Ltd

Paul Melville
7th March 2016
Summary

EL 28866 was granted to Crossland Nickel Pty Ltd (Crossland) and Panconoz Pty Ltd (Panconoz) on 21st February 2012 for a period of 6 years. The interests of Panconoz were acquired by Essential Mining Resources Pty Ltd (EMR) in late 2015; EMR is now joint venturing with Crossland.

The subject licence is one of 21 tenements that comprise the Charley Creek Rare Earth Element (REE) Project. Due to an underspend of the licence’s exploration expenditure covenant, NTDME have penalised the company and cancelled three (3) sub-blocks. No on-ground work has been carried out within the cancelled blocks for the period covered by this report.
Bibliographic Data

Report Title  Partial Cancellation Report for EL 28866 for the period 21 February 2012 to 21 November 2016
Author  Paul Melville
Project Name  Charley Creek – Everard
Tenement Number  EL 28866
Tenement Holder  Crossland Nickel Pty Ltd (56.28%), Essential Mining Resources Pty Ltd (43.72%)
Operator  Crossland Strategic Metals Limited
Commodities  Rare Earth Elements
Tectonic Unit  Arunta Region
1:250 000 MapSheet  Hermannsburg (SF53-13)
1:100 000 MapSheet  Anburla
Keywords  Arunta Region, Charley Creek, Uranium, REE

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1 Introduction

Exploration Licence (EL) 28866 Everard, originally comprising 18 blocks or an area of 56.7 km², is located approximately 65 kilometres northwest of Alice Springs. The tenement lies within the Anburla 1:100,000 and Hermannsburg SF53-13 1:250,000 map sheets. The location is illustrated in Figure 1. Access is via the sealed Tanami Highway, which traverses the property. Off-road access is provided by Station tracks and fence lines.

EL 28866 is one of twenty one (21) licences that comprise Crossland’s Charley Creek Project. In recent years the primary target has been REE.

This report deals with three (3) sub-blocks that were cancelled by NTDME under Section 105 (1) (b) of the act. The cancellation was necessitated due to a shortfall in the required exploration expenditure within the subject tenement.

2 Tenure Details

EL 28866 was originally granted to Crossland Nickel Pty Ltd and Panconoz Pty Ltd on 21 February 2012 for a period of six years. The licence comprised 18 sub-blocks, an area of approximately 56.7 km². Crossland Nickel Pty Ltd is a wholly owned subsidiary of Crossland Strategic Metals Limited (formerly Crossland Uranium Mines Ltd). The interests of Panconoz were acquired by EMR in late 2015. EMR is now Crossland’s joint venture partner in the Charley Creek project.

On 22 April 2014, Crossland received a Partial Cancellation Notice for the licence (Loss of Block Penalty). The penalty was for a total of seven (7) sub-blocks to be surrendered. The total area nominated for cancellation was 20.052 km². Crossland nominated the following sub-blocks for cancellation:

<table>
<thead>
<tr>
<th>Map Sheet</th>
<th>Blocks</th>
<th>Sub-Blocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:1,000,000</td>
<td>l m n q v w x</td>
<td></td>
</tr>
</tbody>
</table>

Further to the above, Crossland received another cancellation notice on the 21st November 2015. This was issued due to two consecutive years of underspend on the licence which equated to a loss of 1 block. Details of the cancelled block are as follows.

<table>
<thead>
<tr>
<th>Map Sheet</th>
<th>Block</th>
<th>Sub-Block</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:1,000,000</td>
<td>2896</td>
<td>f</td>
</tr>
</tbody>
</table>


Regional Geology

The majority of the Charley Creek Project ELs are located within the Hermannsburg 1:250,000 scale geological map sheet (SF 53-13) including all of EL 28866. The regional geology is shown in Figure 3 and the lithology legend is given in Figure 4.

The project area lies within the Central Province of the Arunta Block on the southern margin of the North Australian Craton. The southern margin of this block is marked by a high strain zone, the Redbank Thrust Zone, which contains several mapped units. Most of the Central Province is granulite facies metamorphic grade with some retrograde zones of amphibolite facies. The oldest rocks are dated as Lower Proterozoic.

Much of the plains country to the north of the ranges is composed Quaternary and to a lesser degree Tertiary sediments. The Tertiary sediments have been described as sands, clays, siltstone, and conglomerates with some lignitic horizons. The Quaternary sediments are characterised by shallow alluvial fans of coarse gravels, sandy ephemeral creek deposits, sand and clay with a surficial
covering of aeolian silts and sand with minor calcrete and carbonate deposits. The degree of cover formed by these sediments varies regionally.

![Map of EL 28866 showing 2016 cancelled blocks](image)

**Figure 2** EL 28866 showing 2016 cancelled blocks

The original licence covered sections of the easternmost extension of the Mount Hay Granulite complex (Ceilidh Hill). Most of this country is now within the surrendered blocks. Elsewhere the licence covers undifferentiated Quaternary and Tertiary units.

### 4 Previous Exploration

Historical exploration activities were undertaken by Conzinc Rio Tinto Australia Exploration (CRAE) for sedimentary uranium targets in the 1970s and nickel, copper and PGE in the mid to late 1990’s. Several junior companies also explored the area for it’s sedimentary uranium potential.

Esso Australia Limited explored the Teapot Granite in 1977 for uranium following an airborne radiometric survey.

There appears to have been no historical work within the subject blocks.
5 Exploration Rationale and Work Completed

Initially, Crossland entered the region to explore for nickel-copper within the Mount Hay complex.

The recognition that the Teapot Granite had an anomalously high radiometric background caused a shift in exploration strategy. Due to the high uranium content of the granite, it was considered an ideal source rock for the formation of sedimentary uranium deposits. Crossland proposed that this mass of ‘hot’ granite could potentially supply sufficient uranium to form these types of deposits in the plains to the north of the foothills. Therefore, the underlying alluvial fans and buried paleochannels were considered prospective targets for calcrete-hosted uranium and “redox” zone-related concentrations respectively.

Crossland acquired several tenements north of the MacDonnell Ranges with the intention to explore for these types of sedimentary-hosted uranium deposits. Following the discovery of anomalous REE in aircore drillhole samples, the emphasis shifted again from uranium to alluvial-hosted concentrations of REE. The subject tenement has the potential to host both uranium and REE styles of mineralisation.

There have been no exploration activities carried out by Crossland within the subject cancelled blocks.

6 References


Melville P.M. Partial Cancellation Report for EL 28866 for the period 21 February 2012 to 22nd April 2014. Crossland Strategic Metals Limited
