Operator: Crossland Strategic Metals Ltd

Mount Stafford

Anmatjira Range, Arunta Region

Fourth Annual and Final Report for EL 28492 for the period 28 July 2011 to 22 May 2015

Tenement Holders: Crossland Nickel Pty Ltd and Panconoz Pty Ltd

P Melville
June 2015
Summary

Exploration Licence 28492, Mount Stafford, is situated approximately 200 km northwest of Alice Springs. Tenure was granted for a period of 6 years commencing on 28 July 2011 to Crossland Nickel Pty Ltd and Panconoz Pty Ltd. The Operator of the licence was Crossland Strategic Metals Ltd (Crossland). In the period August 2011 to December 2012, the company conducted regional stream sampling programmes totalling 350 samples collected. The target commodity was Rare Earth Element (REE) mineralisation.

This is the Annual and Final Report for the licence. Surrender was effected on the 22 May 2015. There have been no exploration activities conducted on the licence during the subject period 2014 to 2015.
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1 Introduction

This is the Fourth Annual Report for the period 28 July 2014 to 22 May 2015 and the Final Report for the period 28 July 2011 to 22 May 2015. Exploration Licence (EL) 28492 Mount Stafford is located approximately 200 kilometres northwest of Alice Springs and centred 80 kilometres west of Ti Tree. The tenement lies predominantly within the Napperby (SF53-09) 1: 250,000 sheet with the northern most portion in the Mount Peake (SF53-05) sheet. The tenement is accessed via an unsealed road; the turn-off from the Stuart Highway is approximately 15 km north of Aileron roadhouse. The road gives access to both Pine Hill and Coniston Stations.

Unfortunately, further exploration within the licence was curtailed by a lack of funds. A combination of Crossland’s joint venture partner announcing they could no longer guarantee financial support and the nation-wide situation involving investment in junior exploration companies had a severe impact.

Over the life of the tenement, $117,695.91 (PLUS 2014-2015) was expended as ‘eligible expenditure’.

![Figure 1 Location of Mount Stafford EL 28492](image)
2 Tenure Details

EL 28492 was granted to Crossland Nickel Pty Ltd and Panconoz Pty Ltd on 28 July 2011 for a period of six years. The licence is comprised of 271 sub-blocks, an area of approximately 848 square kilometres. Crossland Nickel is a wholly owned subsidiary of Crossland Strategic Metals Ltd and Panconoz is a subsidiary of Pancontinental Uranium Corporation of Canada.

3 Geology & Mineralisation

The Regionally the Mount Stafford Project lies in the eastern portion of the Mesoproterozoic Arunta Region. The Paleozoic Ngalia Basin lies 25 km to the south and the Paleozoic Georgina Basin 50 km to the northeast. The Arunta Region consists of metamorphosed sedimentary rocks and igneous bodies that have been intruded by various granites. Within Crossland’s EL the main formations are:

- Paleoproterozoic
  - Aloolya Gneiss - Medium-grained granitic gneiss, with tourmaline and garnet.
  - Yaningidjara Orthogneiss - Coarse porphyritic granitic augen gneiss with mantled feldspars; some sillimanite-garnet orthogneiss.
  - Anmatjira Granite - Biotite granite, mantled k-feldspar megacrysts (rapakivi texture), tourmaline-bearing; also equigranular, seriate, porphyritic and "orbicular" textural variants.
  - Unnamed igneous mafic Intrusive.

The main feature within the licence is a northwest trending corridor of fairly rugged country, which is controlled by a series of major parallel faults. In the south this is referred to as the Anmtjira Range while the northern part is referred to as the Yundurbulu Range. The high parts of the ranges are formed by the Anmatjira Granite. To the southwest, other metamorphic rocks are present; there is an increasing alluvial cover leading to the Lander River. The northern part of the EL is covered by alluvium and sand plains. The regional geology is illustrated below in Figure 2.
Various mineral occurrences have been discovered by past explorers. Within the Lower Proterozoic Lander Rock Formation, which outcrops along the southeastern boundary of the licence, the following styles of mineralisation occur:

- Low sulphide gold-quartz veining
- Polymetallic copper-lead-zinc-gold veining
- Tin-tantalum bearing pegmatites
- scheelite veining

The varied geology hosts other deposit types including:

- Intrusive-related REE mineralisation was identified within monazite-garnet gneiss rubble (Kojan, 1979). The trend of the mineralised zone extends along the Anmatjira Range; assays greater than 14% REE, 6.3% thorium and 0.1% uranium occur within the trend. Crossland applied for the licence to exploit possible alluvial concentrations derived from this anomalous unit.

- Uranium-bearing pegmatites associated with a Lower Proterozoic granitic intrusive, along the northern boundary of the EL.
4 Previous Exploration - Other Companies

Previous exploration within the Anmatjira Range had been directed towards a number of commodities but with a focus on uranium and gold. REE mineralisation, diamonds, tin and tungsten have also been explored for. The following compilation has been summarised from various NTGS open file reports.

Following a 1977 Airborne Survey, Otter Exploration ground checked the radiometric anomalies and sampled water bores. Groundwater draining north from the Anmatjira Range was found to be anomalous in uranium; ground truthing of the airborne radiometric anomalies was generally negative. Ground traversing located two radiometric anomalies associated with what was later identified as monazite mineralisation. Samples from one location assayed greater than 14% REE 6.3% Th and 0.1% U while the other assayed 740 ppm Th and 40 ppm U (Kojan, 1979). Further work in 1979 consisted of gridding and scintillometer surveys over the occurrence. It was found to be localised but provided very high radiometric (scintillometer) readings of >20 000 cps. Further airborne anomalies were ground checked with one giving >1800 cps. It was assumed that monazite was also the source for this anomaly. No samples were collected from this location.

Work was conducted by BHP Minerals in the early 1980’s with the main target being diamonds. The company completed a regional stream survey for kimberlite indicator minerals without success. The samples were also analysed for a number of elements; anomalous cerium, lanthanum and zirconium were indicated in some samples. Given the low prospectively for diamonds the ground was eventually relinquished.

In the 1990’s Poseidon Gold Limited and North Flinders Mines Limited explored much of the ground adjacent to the western and northern boundaries of the licence. Work during this period was heavily focused on gold. Extensive programmes were completed by both companies, including many shallow drillholes and costeans. These programmes delineated widespread but low-grade gold occurrences, the most notable being the Sabre Prospect. Aberfoyle Resources Ltd completed a detailed airborne radiometric and magnetic survey over the southern portion of EL 28492 in the late 1990’s. Reports of any further work by Aberfoyle could not been located.

Arafura Resources NL held title over a small portion of the ground in the early 2000s but elected to relinquish due to financial constraints. Little on-ground exploration was done.
5  Work Completed – Crossland

5.1 2011-2012 Stream Sediment Survey

Introduction

A regional stream sampling program was commenced in late August 2011. The samples were collected over three field visits. The aim was to delineate areas of anomalous REE and to determine the potential for alluvium-hosted concentrations. A total of 350 samples were collected, consisting of approximately 20 kg of material per sample. The samples were analysed by Genalysis, Adelaide for REE plus a 49 element scan.

The programme returned positive results for REE. Five anomalous areas were outlined for follow up work to be carried out. The anomalous clusters were located in the same general area where the historical occurrences of REE mineralisation were discovered. Assays for gold returned a maximum value of 12 ppb but overall, results were negative.

Figure 3  Stream Sample Locations
Mount Stafford, NT

Methodology

The programme at Mount Stafford commenced on 17 August 2011 and ended on 2 December 2011. Accommodation was provided at both Pine Hill and Coniston Stations. Access to the region is good and is easily gained via conventional 4WD; sample site access was by quad bike and/or hiking. If access was difficult via the quad bike then the sample was panned at site to reduce weight. At each site approximately 20 kg of material was collected in a large calico bag.

After each field visit, samples were transported to Crossland’s facility near Alice Springs for processing. Each sample was weighed and then dry sieved to <3mm and then <1.5mm. The finer fraction was passed across a Wilfley table in order to acquire a Heavy Mineral Concentrate (HMC). An aliquot of the HMC was sent to Laboratory for processing. The aliquot consisted of approximately 30 grams of the final product. See Appendix 1 for results.

Laboratory Analysis

The first batch of 95 aliquots were sent to Genalysis in Adelaide and assayed by methods FB6/MS and FB6/OE. This method uses lithium borate fusion which offers a relatively low temperature, aggressive digest that dissolves almost all geological samples while limiting losses due to volatilisation. FB6/OE and FB6/MS provided analytical results for the following 37 elements:

Al2O3 %, Ba ppm, CaO %, Ce ppm, Cr ppm, Dy ppm, Er ppm, Eu ppm, Fe2O3 %, Ga ppm, Gd ppm, Hf ppm, Ho ppm, K2O %, La ppm, Lu ppm, MgO %, MnO %, Na2O%, Nb ppm, Nd ppm, P2O5 %, Pr ppm, S %, SiO2 %, Sm ppm, Sn ppm, Ta ppm, Tb ppm, Th ppm, TiO2 %, Tm ppm, U ppm, W ppm, Y ppm, Yb ppm, Zr ppm.

Crossland then chose to analyse the remaining samples using methods AR25/MS and AR25/OE. This method uses aqua regia digestion, a mixture of hydrochloric and nitric acids, which acts as powerful oxidizing agent with the ability to dissolve gold. AR25/OE and AR25/MS provided analytical results for the following 49 elements:

Au ppb, Ag ppm, Al ppm, As ppm, Ba ppm, Be ppm, Bi ppm, Ca %, Cd ppm, Ce pp, Co ppm, Cr ppm, Cs ppm, Cu ppm, Fe %, Ga ppm, Hf ppm, In ppm, K ppm, La ppm, Li ppm, Mg %, Mn ppm, Mo ppm, Na %, Nb ppm, Ni ppm, P ppm, Pb ppm, Pd ppb, Pt ppb, Rb ppm, Re ppm, Sb ppm, Sc ppm, Se ppm, Sn ppm, Sr ppm, Ta ppm, Te ppm, Tb ppm, Th ppm, Ti ppm, Tl ppm, U ppm, V ppm, W ppm, Y ppm, Zn ppm, Zr ppm.

Results

The stream sampling programme returned some positive results for REE. Crossland outlined five anomalous areas for follow up sampling and geological investigation. These areas are in the vicinity of those where the historical REE occurrences were discovered.

Results proved markedly different (especially for REE) between the two assay methods (see above). Crossland selected 25 of the highest REE assays by AR25 to be assayed by FB6. FB6 results returned between three and ten times the assay values of AR25 assays for selected rare earth elements. Experimenting with the different analytical methods has produced a different set of results; this highlights the necessity for using the correct assay method.
Assays for Gold returned a max value of 12 ppb Au but were generally negative. At this point no further exploration for gold is recommended as REE are the primary target.

5.2 2012-2013

Analytical work on the stream sediments was completed by July 2012, following the second lot of analyses. The intention for Year 2 was to ground-follow up on the positive results gained from the programme. An interpretation of the analytical results led to the targeting of several specific areas for re-sampling and more detailed geological investigation. A reinterpretation of airborne geophysical data was also undertaken by Crossland’s consultant Geophysicist.

Due to the increasing difficulty of acquiring finance for the on-going exploration efforts, Crossland had to postpone further work on the licence. All funding was having to be directed into the company’s on-going Charley Creek REE project to the south of Mount Stafford, where baseline environmental studies and a scoping Study were being conducted.

5.3 2013-2015

No further work was carried out on the licence for Years 3 and 4. Surrender of the licence became effective on May 22, 2015.

6 Conclusions and Recommendations

EL 28492 covers much of the northwest trending Reynolds Range, located approximately 200 km northwest of Alice Springs. Crossland considered the region to be highly prospective for REE mineralization given its proximity to the Nolans Bore REE deposit, the historical discoveries of REE mineral occurrences and the mix of favourable rock types present. Further land acquisitions were planned so as to expand the project area, specifically to cover the alluvial outwash country to the north of the ranges.

The regional stream sediment survey was successful in outlining several areas of anomalous REE, which were indicating ‘hard-rock’ occurrences of this mineralisation style. The company had serious intentions to do detailed follow up on these locations in order to characterise the minerals and their geological setting. This work was to be followed by assessment of the alluvial country assuming there would be favourable results from the ‘hard rock’ investigations.

The REE occurrence at Charley Creek was used as the model for Mount Stafford. Charley Creek is a large alluvial REE resource with the primary source of the REE minerals being the ‘hot’ Teapot Granite and older high grade metamorphic rocks. These units form the northern foothills of the MacDonnell Ranges. It was envisaged that a similar environment could exist in the flats to the north of the Reynolds Range.
From late 2011, Crossland’s exploration funding situation became more serious due to the combined effect of its JV partner withdrawing all financial support and the nationwide lack of available exploration finance. All funding from that time was being concentrated on financing the environmental and scoping studies at Charley Creek; these studies were considered a priority so that Crossland could further that project and advance it to a stage so as to attract alternative JV partner(s).
7 References


Mount Stafford, NT

7343 “Reynolds Range” 30/04/96 to 29/04/97 Reynolds Range Project. NTGS CR1997/0350
