

Operator: Crossland Strategic Metals Ltd

# Chilling Project

COMBINED ANNUAL REPORT  
for the period  
9 November 2012 to 8 November 2013

ELs 22738, 24557, 25076 and 25077

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Tenement Holders: Crossland Mines Pty Ltd

## Summary

This report covers the period 9 November 2012 to 8 November 2013. The Chilling project now comprises four exploration licences, ELs 22738, 24557, 25076 and 25077, which discontinuously cover the north-south trending Tolmer Group Sandstones, stretching from Litchfield Park in the north to the Wingate Plateau in the south. Crossland Strategic Metals Limited (formerly Crossland Uranium Mines Limited) has been exploring the region for uranium and other commodities since 2004 utilising the concepts of target identification based on the proprietary methods of Paradigm Geoscience Pty Ltd (now Global Geoscience Pty Ltd).

No field-based work was carried out over the period covered by this report. The current financial climate, which has greatly affected the availability of exploration dollars for the junior exploration industry, has had a severe impact on Crossland's ability to raise funds. The funding that has been made available to the company has been principally directed towards pre-feasibility and scoping studies related to the Charley Creek REE Project in Central Australia.

Management has been actively searching for Joint Venture partners to take over funding of the Chilling project. To date this has been unsuccessful although several parties have shown some interest. Emphasis has been placed on looking for a company that could contribute the appropriate funding to the level that would allow a project such as Chilling to be explored diligently.

From 2007 to the end of 2012, Crossland has expended approximately \$5.14 million on the Chilling project. From the results of the exploration activities carried out over this period, the company believes that there remains a potential for the discovery of base metal, gold and uranium deposits.

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## Bibliographic Data

<b>Report Title</b>	Combined Annual Report for Chilling Project for the period 9 November 2012 to 8 November 2013
<b>Author</b>	P Melville.
<b>Tenement / Project</b>	Chilling
<b>Tenement Number</b>	ELs 22738, 24557, 25076 and 25077
<b>Tenement Holder</b>	Crossland Mines Pty Ltd
<b>Operator</b>	Crossland Strategic Metals Limited
<b>Commodities</b>	Base Metals, Uranium and Gold
<b>1:250 000 MapSheet</b>	Pine Creek (SD5208), Fergusson River (SD5212)
<b>1:100 000 MapSheet</b>	Reynolds River (5071), Daly River (5070) and Wingate Mountains (5069)

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# 1 Introduction

## 1.1 Background

The Chilling area was initially selected because of the presence of a 'Primary Hub', which was identified using confidential data supplied by Paradigm Geoscience, (now Global Geoscience Limited). The aim of the technology is to identify targets for mineral exploration with the same signatures as major mineral deposits. The method offers a means to identify important mineral resources without the need to acquire title to broader areas, with the resultant demanding access and land use challenges. The 'Hubs' have responded to the selection process in a similar fashion to major mineral deposits. It is to be expected that in most cases the target deposits do not outcrop, or they would already have been discovered, so it will be necessary to penetrate the overburden to make discoveries. The selection technique does not necessarily permit identification of target commodities, and these must be determined by consideration of regional metallogenic factors and field reconnaissance.

## 1.2 The Target Area

The Chilling Target Area as identified by Paradigm Geoscience was initially restricted to the now surrendered EL 23682. The licence was situated at or close to a locus of important geological features including the Litchfield Province, the Fitzmaurice Mobile Zone, the Pine Creek Orogen and the Daly Basin. Some important intersecting bounding structural features are also present as are an unusual diversity of intrusive rocks, as demonstrated by the airborne radiometrics and magnetics.

The target area was gradually expanded to include the Tolmer Group trend and adjacent country. Two licences, which were considered highly prospective, were purchased to add to the inventory. Both of the latter were the focus of historical uranium exploration activities by several multi-national companies.

The project area was initially considered highly prospective for the classic basement-hosted, unconformity-related uranium deposit type and also for structurally controlled deposits within or adjacent to granites. The similarities of the regional geological setting to Rum Jungle, the Alligator Rivers Uranium Field (ARUF) and the Athabasca Basin in Canada were major considerations in the targeting of the region. The principal focus by Crossland has therefore been on the paleoproterozoic basement and the unconformably overlying Mesoproterozoic platform cover, a combination which extends throughout much of the project licences and covers a considerable strike length.

Base metals and gold became the focus in later years, with most of the exploration effort being concentrated in the southern part of the project area.

### 1.3 Exploration Rationale

The geological setting of the Chilling project environment suggests that a wide variety of deposit styles could be present. The greater region has historically produced base metals, gold and tin-tantalum. Gold mineralisation occurs at the historical Fletcher's Gully Mine, which is within EL 25076; incomplete historical records indicate that 70 kg (approx 2,250 oz) of gold were produced here. Tin, as alluvial concentrations and lode deposits are known from Buldiva, Muldiva and Collia, all located in ELs 25076 and 22738. These small occurrences are hosted by pegmatites and greisens related to the hydrothermally active Soldiers Creek and Allia granites; the pegmatites intrude the favourable lower Proterozoic Burrell Creek formation. Base metals have been prospected and mined in a structurally prepared meta-sediment / volcanic environment assigned to the basal Burrell Creek formation at Daly River. Isolated occurrences of disseminated lead-zinc sulphides have been found in the carbonate rocks of the Daly Basin, sometimes associated with barite or fluorite. Basic intrusives in the region could have a potential to host nickel-copper or platinoid mineralisation.

Regional uranium exploration commenced in the late 1960s / early 1970s. Various companies have explored for the unconformity-style deposit without success although several small occurrences were located, all within the lower proterozoic Burrell Creek Formation. The March Fly (Mount Thomas) uranium prospect was discovered in 1980 by Mobil Energy Minerals Australia, but was inadequately assessed. Total Mining drilled the prospect between 1988 and 1991, providing a wealth of useful data. Crossland followed up in 2008-2009 with a program of diamond drilling, outlining a small zone of uranium mineralisation. The prospect is located in Crossland's EL 24557. Another uranium occurrence, Eccles Prospect (within EL 25077) was discovered by Total and drill tested without much success. At these prospects, the uranium mineralisation is associated with graphitic rocks and pegmatites, and in both cases there is a spatial relationship with the mid-Proterozoic unconformity.

Minor green and yellow secondary uranium mineralisation is present at the MEMA Prospect (EL 25076), occurring in a shear zone within the Allia Creek granite; and also in a similar geological environment within the Soldiers Creek granite in EL 22738. The latter was located during prospecting activities by Crossland geologists in 2009.

The Soldiers Creek granite was the focus of uranium exploration by Planet in the early 1970s and by PNC in the mid 1990s. Vein swarms within the granite were prospected with some exhibiting elevated radioactivity. PNC also looked at alteration features in the granite, specifically large zones of hematization, which they considered as being similar to the Olympic Dam model where copper-uranium mineralisation is hosted by a hematitic granite breccias.

Also within EL 22738, widespread base metal and minor uranium anomalism was identified by Crossland within a sequence of hematitic-silicified breccias, carbonates and volcanics. These rocks occupy a small, closed, basin-like structure within a geologically complex environment. Drilling in 2011 established the stratigraphy, clarified the structure and provided some insights into the possible origin of the anomalous metals signature. The underlying Soldier's Creek Granite is considered prospective for uranium mineralisation along cross faults and in veins, for base metals in carbonate dominant vein systems and for tin mineralisation in greisen.

The variety of mineral occurrences spread throughout the Chilling project tenements illustrates that both source rocks and suitable structurally prepared lithological hosts are present.

## 2 Location and General Description

The licences comprising the Chilling Project are located in the Daly River region, and are centred approximately 145 km south of Darwin. The original group of tenements formed a north-south trending swathe of land of variable width running from the southern part of Litchfield Park in the north to the Wingate Plateau in the south.

The nearest settlement is Daly River, which comprises an aboriginal community (Naiyu), police station and hotel. The region has several tourist facilities. Detailed geographical and landholding descriptions of the individual licences are compiled in the 2007 report and are for the most part still valid. The reader is referred to that report for the information. Since that report the Fish River pastoral lease has been sold by Tipperary Station to the Indigenous Land Corporation and the Fish River Gorge block, on which EL 22738 is located, is now under the control of Parks and Wildlife Service of the Northern Territory.

## 3 Tenure Details

The Chilling Project as of 31 December 2013 consists of ELs 22738, 24557, 25076 and 25077. Crossland Strategic Metals Limited is the operator of the licence package. See Table 1 for a summary of tenement details and Figure 1 for the location of the project licences.

- EL22738 (Buchanan) was granted on 15 January 2009 and will expire on 14 January 2015. The licence was purchased by Crossland from Buchanan Exploration in 2006. The tenement originally consisted of 162 blocks, an area of 537.2 km<sup>2</sup>. A request for a Partial Waiver of Reduction was submitted on 12 December 2012. The request involved reduction to 121 blocks (401.1 km<sup>2</sup>).
- EL24557 (Mount Thomas). Purchased by Crossland from Aldershot Resources. The licence was granted on 7 December 2005 (expiring 6 December 2011) and covers 20 blocks or 66.51 km<sup>2</sup>. Waivers of Reduction since 2008 have been successful with the 20 blocks being retained to the end of the initial term of the licence in December 2011. On the 28 May 2012, DME approved a further 2 years of tenure and allowed retention of the 20 blocks. Prior to expiration of the licence on 6 December 2013, an application was made to renew the licence for a further two years. The application is currently being considered by DME.
- EL 25076 (Allia) was granted for a six year term on 18 September 2006 (expiring 17 September 2012). The title covered an area of 189 sub-blocks (630 km<sup>2</sup>). Subsequent reductions in 2011 and 2012 have reduced the area to 111 blocks (370 km<sup>2</sup>). On 23 November 2012, DME approved renewal of the licence for a 2 year term, expiring on 17 September 2014.

- EL 25077 (Litchfield) was granted for a six year term on 9 November 2006 (expiring 8 November 2012). The title originally covered an area of 99 sub-blocks (278.5 km<sup>2</sup>). Subsequent reductions have reduced the area to 24 blocks (73 km<sup>2</sup>). An application to renew the licence for a further 2 years was submitted to DME in late 2012. The renewal was officially approved on 10 May 2013.

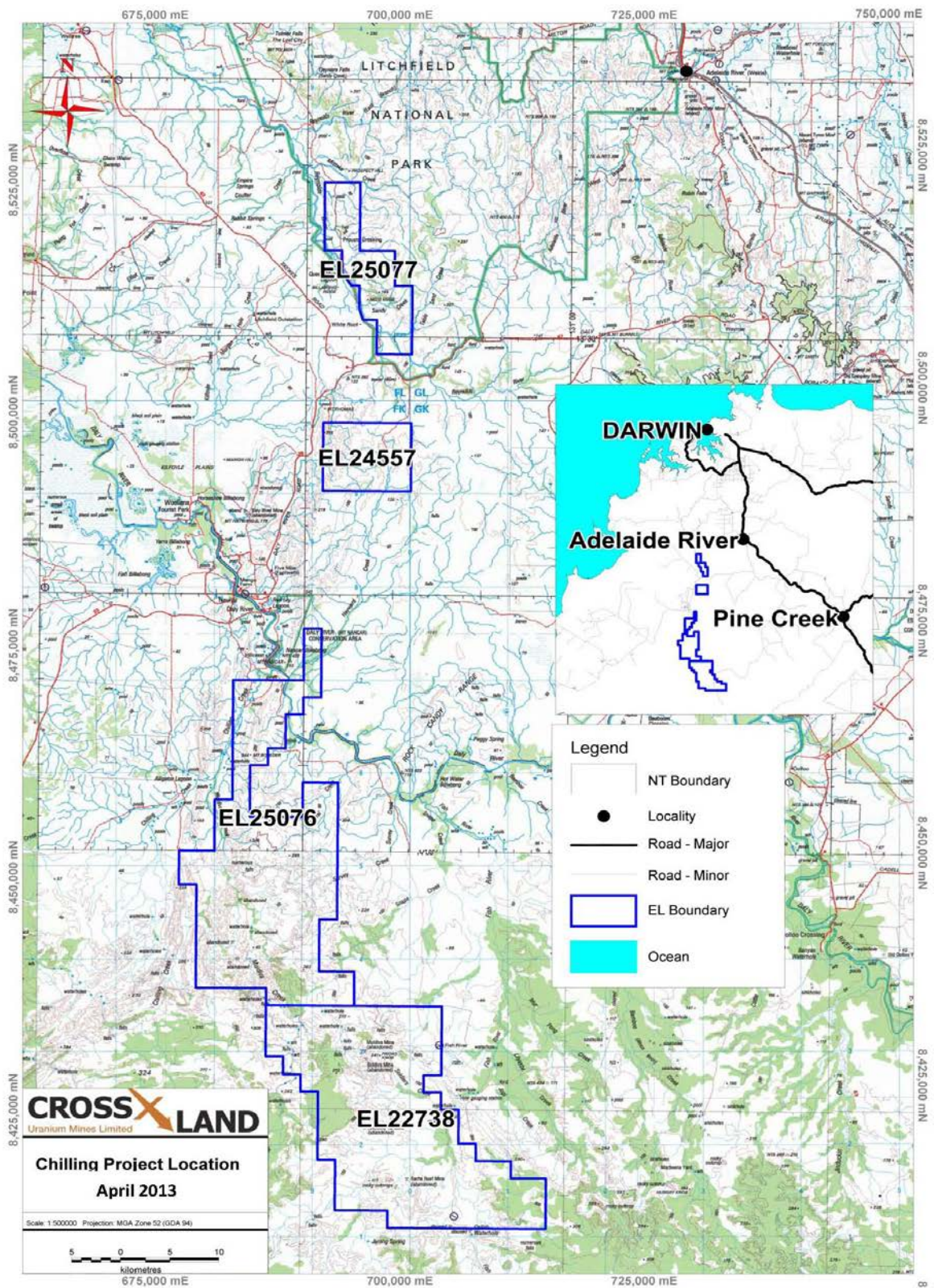
**Table 1.** Current Chilling Project Exploration Licences

<b>E.L. Number</b>	<b>Grant or Renewal Date</b>	<b>Expiry Date</b>	<b>Current Year of Tenure (as at 8/01/2014)</b>
EL 24557	7/12/2011	6/12/2013 *	9
EL 25076	18/09/2012	17/09/2014	8
EL 25077	09/11/2012	08/11/2014	8
EL 22738	15/01/2009	14/01/2015	5

\* Awaiting application for a further two years

Permission was granted by DME in 2008 to allow for a common reporting date on all the Chilling Project tenements.





**Figure 1.** Location Map of Chilling Project Licences

## 4 Geology

The Chilling Project tenements are covered by three 1:100,000 scale geological maps, which from north to south are the Reynolds River, Daly River and Wingate Mountains sheets. Details as follows :

- NTGS 1:100,000 Wingate Mountains Sheet, published with explanatory notes, in 1989 (Edgoose *et al*, 1989).
- NTGS 1:100,000 Daly River Sheet, published with explanatory notes in 1987 (Dundas *et al*, 1987).
- NTGS 1:100,000 Reynolds River Sheet, published with explanatory notes in 1989 (Pietsch, 1989).

The regional geological setting of the project area is illustrated in Figure 2. The figure was constructed from the 1:250,000 scale geological map of the Northern Territory (Ahmad and Scrimgeour, NTGS 2006).

In summary, the rock units present within the company's licences range in age from Paleoproterozoic to Cretaceous with development of Tertiary and Quaternary deposits in places. The dominant mapped stratigraphic units are as follows :

- The Paleoproterozoic Finnis River Group metasediments, consisting of greywacke (lithic quartz arenite), phyllite and minor conglomerate with locally developed andalusite schist and carbonaceous/graphitic schist. The Chilling Sandstone is present in the southernmost part of the tenement package and contains some interbedded volcanics. These rocks form the basement throughout much of the region.
- The middle Proterozoic Tolmer Group are present as remnants of once regionally extensive platform cover rocks. The dominant lithology within the tenements is the basal 'Depot Creek Sandstone' , a quartzitic arenite. The Tolmer Group grades stratigraphically upwards into carbonate dominant sequences. The Depot Creek sandstone is seen in the field to be unconformably overlying the paleoproterozoic and various granites.
- Cambrian volcanics, limestone and minor sandstone. Remnants are present within some tenements. Best exposures are in EL 22738.
- Cretaceous sediments. Mostly confined to the Wingate Mountains in the south, overlying the Tolmer Group.
- Various intrusive such as the Soldiers Creek, Allia and Reynolds River Granites. Also basic rocks etc.

Previous company reports provide a more detailed description on the geological framework of each tenement. Please refer to the 2011-2102 Annual Report (Buskas *et al* 2012).

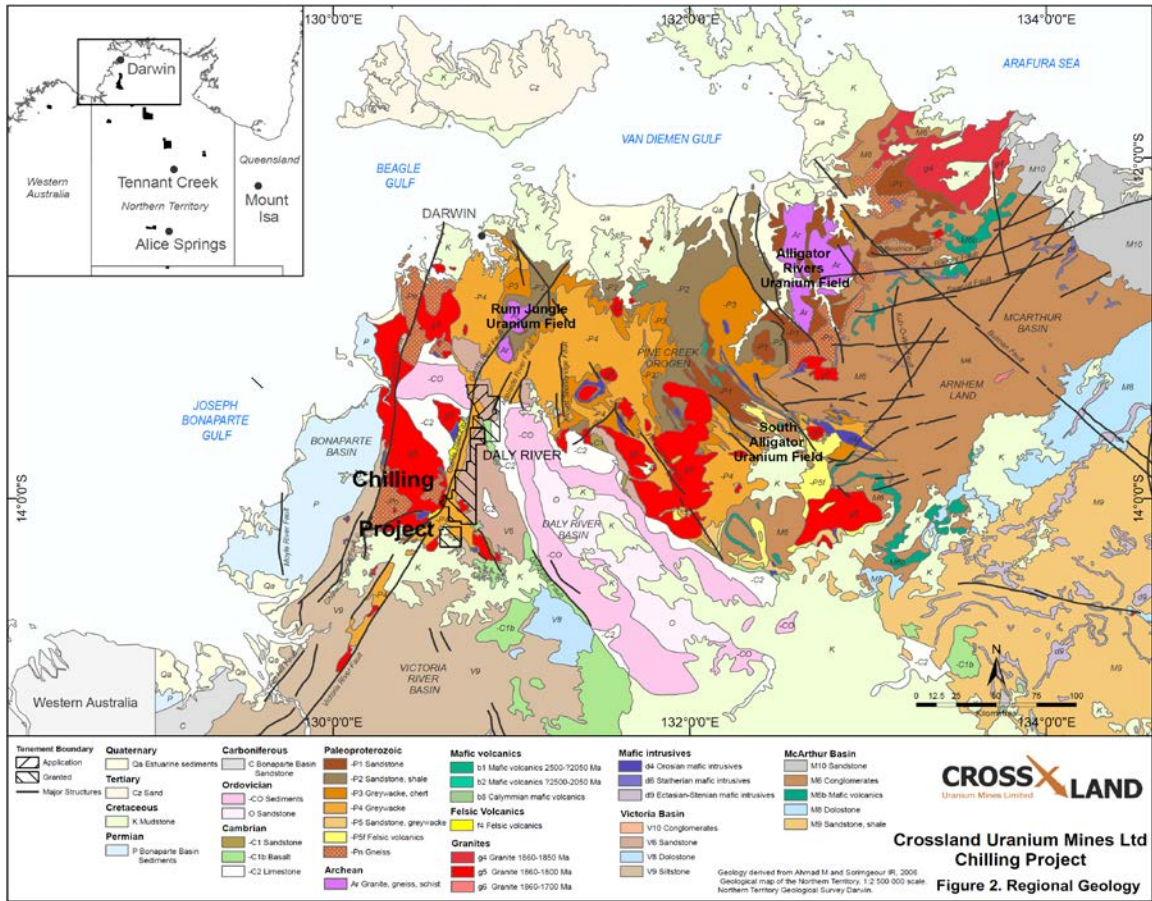


Figure 2. Project Area Regional Geology

## **5 Previous Exploration**

### **5.1 Other Companies**

The annual report for the Chilling project (Eupene and Buskas, 2007) covers in detail all previous historical work carried out within or in the vicinity of the project tenements since the early 1970s. This information is contained within Sections 2.6 and 2.7 of that report.

### **5.2 Crossland**

A detailed summary of Crossland's activities across all original exploration licences can be accessed by referring to the Chilling Annual Report for 2012-2013 (Melville P. 2013).

## **6 Reporting Period**

No exploration activities were conducted for the reporting period. In the 12 months to date, the company has continued its endeavours to acquire funding in order to maintain all of its exploration activities and fulfil its obligations in respect of its current inventory of exploration licences. As was the case for 2012, the past year has continued to be a challenge for Crossland's Directors to acquire further investment in the company so as to keep the Chilling project (and other projects) in good standing.

The continuing efforts over the past 12 months which have been made by management have met with some success. A limited amount of funding was provided by an investor but this has had to be directed towards Crossland's flagship Charley Creek project in Central Australia. During 2013 several entities were provided with Crossland's Chilling Project database with the view of acquiring a JV interest in the company. Nothing has eventuated from this initiative so far although there is one outstanding enquiry which may lead to something in the new year.

Despite minimal administrative expenditures for 2013 in respect of the Chilling Project, the company has historically maintained a healthy exploration expenditure at Chilling, the most recent being in 2011 where \$1.22 million was invested.

## 7 Conclusions and Recommendations

Over the last 12 months, due to the difficult financial climate that has been affecting the junior exploration industry in recent times, Crossland has been unable to acquire financial investment to enable it to continue its exploration on the Chilling tenements. The company has been continuing in its attempts to locate a joint venture partner to contribute to the costs on a project that, at its present advanced stage, requires a higher intensity and therefore more costly level of exploration.

Proposals for future exploration programs have been planned and presented to potential investors so as to clarify what Crossland believes are the main priorities based on the accumulation of data since 2007. The main areas of interest include:

- the 'Buchanan Basin' in EL 22738 where vein-style, primary sulphide Pb-Zn-Cu-Ag mineralisation was intersected in two diamond drill holes. Multi-element geochemical anomalies associated with a ferruginous-silicified sedimentary horizon are widespread, with the best concentration of anomalies located along the southern and southwestern sections of the basin. Both the Cambrian and the Granite are considered prospective.
- Fletchers Gully Gold Prospect EL 25076. As stated in the previous annual report, the compilation and interpretation of data relating to the gold mineralisation at Fletchers Gully has led to a recommendation by Crossland that a program of geological mapping and sampling take place. An assessment of the potential of the Fletchers Gully region by another explorer in the 1990s has contained suggestions that there may be a similar lithological and structural environment to the north of the historical minesite. Crossland considers this to be worthy of follow-up.
- Allia Granite Uranium. This environment is considered favourable for unconformity and vein-style uranium deposits.
- March Fly (EL 24557) and Eccles-SH2 (EL 25077) Uranium Prospects. Proposals for both have been detailed in the previous annual report. More recently, a proposed program for the March Fly prospect has been detailed in the Application for Renewal submitted in December 2013. Crossland still positively views March Fly as having some potential.
- Some regional geochemical work is proposed for parts of EL 25077 where anomalous gold has been reported.

## 9 References

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