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## **ANNUAL TECHNICAL REPORT - YEAR FIFTEEN**

### **EXPLORATION LICENCE 23722**

**18 SEPTEMBER 2017 – 17 SEPTEMBER 2018**

<b>Titleholder</b>	John Earthrowl, Kimalta Pty Limited, Dolwave Pty Ltd, Poatina Pty Limited, Rodney Hass & Wolpers Grahl Pty Limited
<b>Titles/Tenements</b>	EL23722
<b>Tenement Manager/Agent</b>	AMETS Pty Ltd
<b>Mine/Project Name</b>	N/A
<b>Personal author(s)</b>	Joseph Lori
<b>Company reference number</b>	N/A
<b>Target Commodity or Commodities</b>	Cu, Pb, Co, Ni, Ag & Zn
<b>Date of report</b>	14 November 2018
<b>Datum/Zone</b>	GDA94/Zone 52
<b>250 000 K Mapsheet</b>	Pine Creek SD5208
<b>100 000 K Mapsheet</b>	Reynolds River 5071
<b>Contact details</b>	Joseph Lori – Doe Run Australia jl@doerun.com

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## **1. Abstract**

Exploration licence 23722 (the licence) is located approximately 60km South of Darwin and has an area of 5 square kilometres.

The licence area sits within the highly prospective and resource rich Pine Creek Orogen. The area is known to host various commodities, which includes copper, lead, nickel, zinc, cobalt and uranium.

*Northern Territory Resources (NTR) has entered into an Agreement* which has been assigned to Doe Run Australia NL (DRA). During the reporting period a LiDAR survey was flown over all of the NTR tenements. A detailed investigation was also conducted on existing known targets, focusing on exploration potential of the southern tenements within the NTR land tenure. As well, a land owner identification study was completed for all of the southern tenements. These activities were completed to validate and strengthen the current geologic and geophysical interpretation of the tenements in order to determine the economic potential and plan future exploration.

## 2. Copyright

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This document and its contents are the copyright of Northern Territory Resources Pty Ltd. (NTR). The document is for submitting to the Department of Primary Industry and Resources of the Northern Territory, as part of the tenement reporting requirements of the *Minerals Titles Act 2010*. Any information included in this report that originates from historical reports or other sources is listed in the 'References' section at the end of this document. NTR authorises the Department of Primary Industry and Resources to copy and distribute the report and associated data.

## 3. Location and Access

The tenement is located approximately 60 kilometres south of Darwin and nearby the original mine sites of the Whites and Intermediate (Rum Jungle) Deposits.

Access from Darwin is via sealed roads to Batchelor and thence via the Batchelor, Litchfield Park and Windmill Roads.

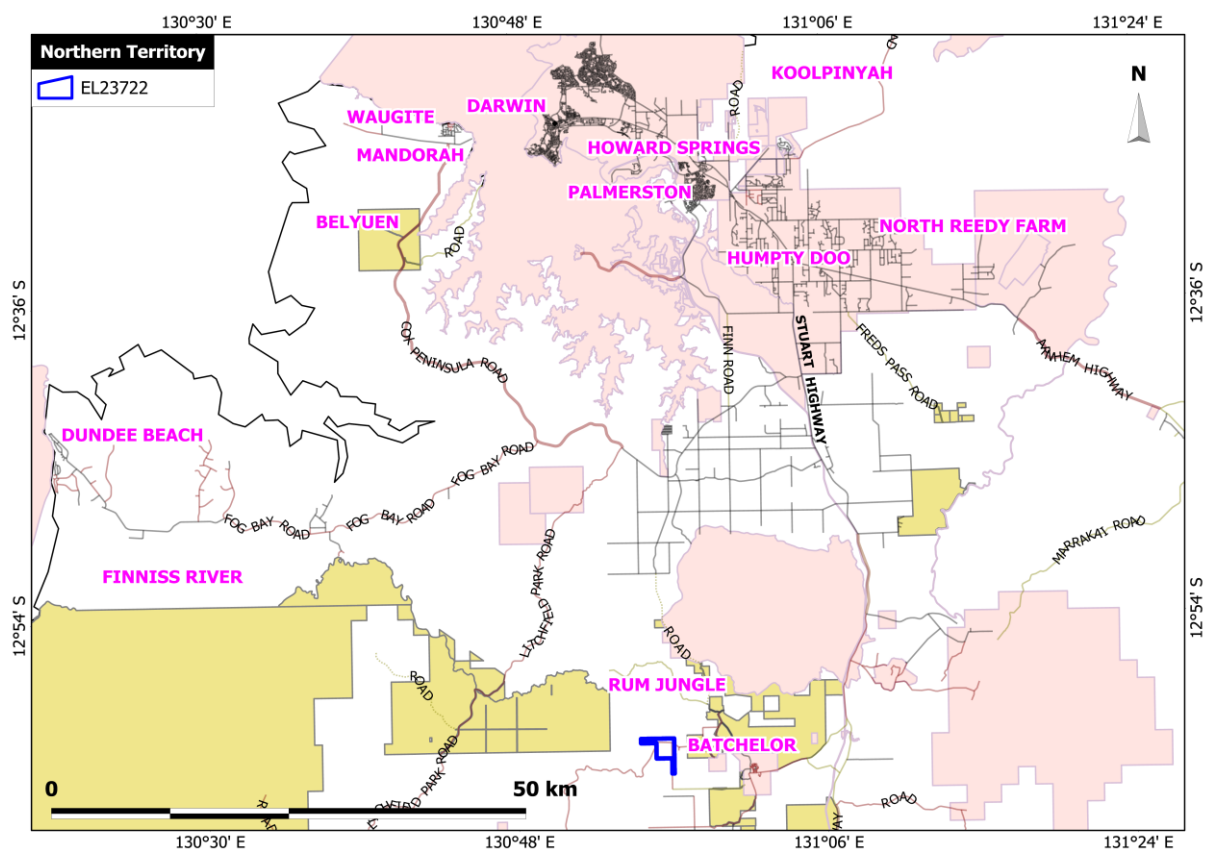


Figure 1- Location Map

#### 4. Tenure and Land Use

Exploration licence 23722 was originally granted to J. A. Earthrowl on 18 September 2003. On 6 October 2003, J. A. Earthrowl transferred a total of 50% equity equally between five partners, Kimalta Pty Limited, Dolwave Pty Ltd, Poatina Pty Limited, Rodney Hass & Wolpers Grahl Pty Limited, which left John A. Earthrowl with a 50% equity.

During 2005, the licence was reduced from 10 blocks to 5 blocks to comply with a statutory requirement.

A joint venture agreement was entered into with Compass Resources NL on 24 July 2006. Compass Resources NL has since become Northern Territory Resources.

The licence covers numerous Freehold portions of land, which are listed in the below table.

Parcel Description	Status	Type
Hundred of Goyder (315) - Parcel 2916	Privately owned	Freehold
Hundred of Goyder (315) - Parcel 3005	Privately owned	Freehold
Hundred of Goyder (315) - Parcel 2111	Privately owned	Freehold
Hundred of Goyder (315) - Parcel 3004	Privately owned	Freehold
Hundred of Goyder (315) - Parcel 2900	Privately owned	Freehold
Hundred of Goyder (315) - Parcel 2113	Privately owned	Freehold
Hundred of Goyder (315) - Parcel 2112	Privately owned	Freehold
Hundred of Goyder (315) - Parcel 3001	Privately owned	Freehold
Hundred of Goyder (315) - Parcel 2012	Privately owned	Freehold
Hundred of Goyder (315) - Parcel 3000	Privately owned	Freehold
Hundred of Goyder (315) - Parcel 3009	Privately owned	Freehold
Hundred of Goyder (315) - Parcel 2930	Privately owned	Freehold
Hundred of Goyder (315) - Parcel 2918	Privately owned	Freehold
Hundred of Goyder (315) - Parcel 3010	Privately owned	Freehold
Hundred of Goyder (315) - Parcel 2901	Privately owned	Freehold
Hundred of Goyder (315) - Parcel 3008	Privately owned	Freehold

## 5. Topography & Hydrology

The topography within the area is dominantly low, with limited outcrops. Roads intersect the licence and small creeks and river branches also flow through the licence into the Finnis River.

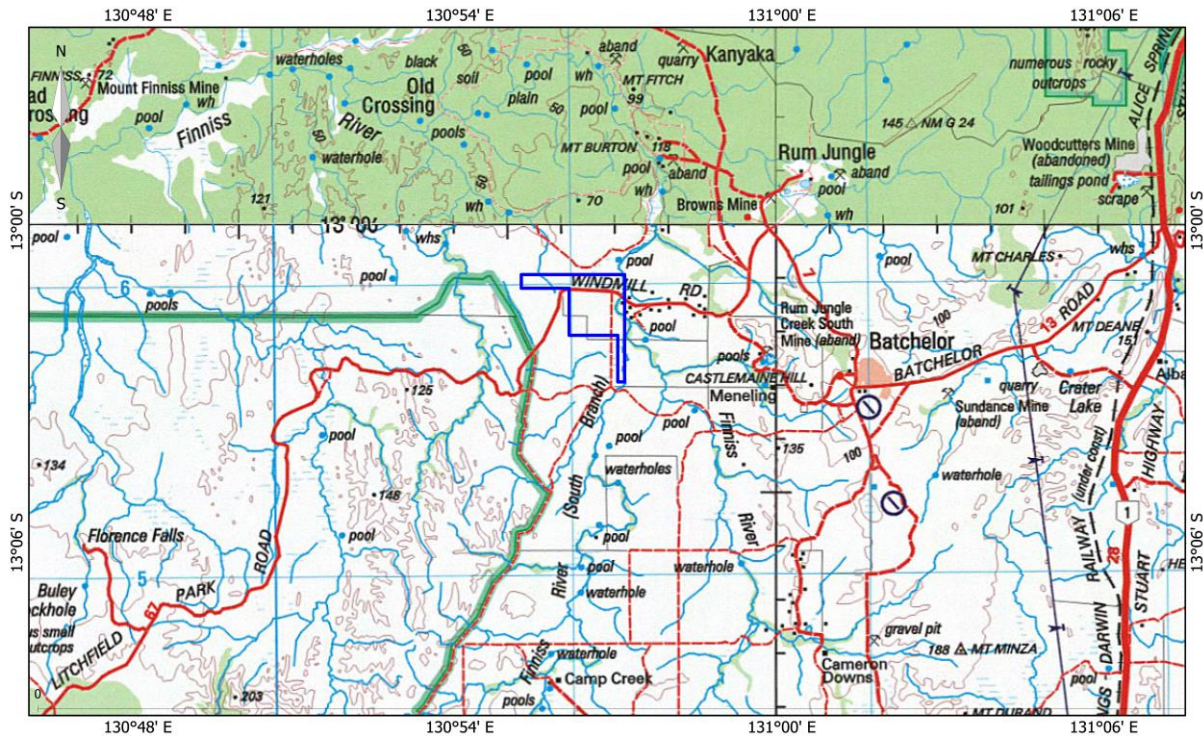


Figure 2 - Topography Map

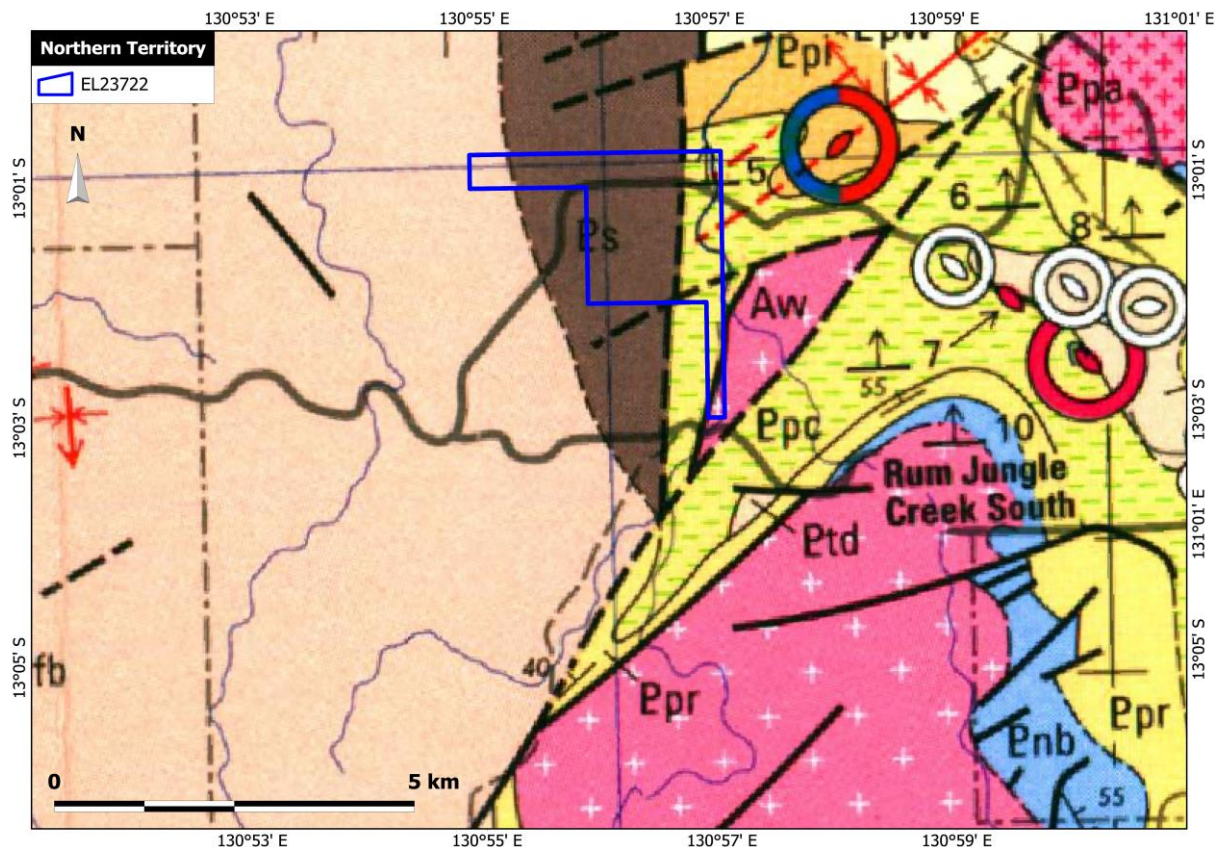
## 6. Geology

The licence is situated within the Pine Creek Orogen and is underlain by Early Proterozoic stratigraphy overlying the Rum Jungle and Waterhouse Granite Complexes. The regional strike of the rocks is north to north northwest with evidence of extensive strike parallel thrust faulting. Various sill and dykes of the Mid Proterozoic Zamu Dolerite have intruded into the sequence probably in conjunction with the thrust faulting.

The stratigraphy within the tenement comprises of the Burrell Creek Formation, the Whites Formation, Coomalie Dolomite and the Crater Formation.

Much of the basement geology within the tenement is covered by an irregular, thin covering of Tertiary sands.





**Figure 3- Geology Map** *Legend in Appendix 1*

## 7. Exploration Rationale

The licence area sits within the highly prospective and resource rich Pine Creek Orogen. The area is known to host various commodities, which includes copper, lead, nickel, zinc, cobalt and uranium.

Northern Territory Resources believes the tenement has the potential to host an economic Pb-Zn-Cu-Ni-Co deposit.

## 8. Previous Exploration

EL 23722 flanks the Rum Jungle Mineral Field and has been subjected to systematic exploration in the past. Past exploration has primarily targeted uranium and, to a lesser extent, base metal mineralisation. Some regional sampling of stream sediments and rock chip for gold has been recorded. A base metal prospect known as Triangle in the northeastern part of the licence has been investigated by several parties with limited success. This included work by TEP in the 1960s and more recently in the mid-1990s by Nicron/Woodcutters.



Mt Grace/Savanna carried out regional 400 x 50 metre soil sampling in parts of what is now EL 23722. They assayed samples by the partial digest method and reported several areas of gold / arsenic anomalism and elevated base metal results.

In 2006, Compass Resources flew digital photography (1:5000) in order to develop a detailed base for previous exploration works.

During 2007, one vertical RC drill hole (07TR01) was drilled to 120m depth on the Triangle prospect, located towards the NE corner of the licence. This drilling followed up drilling done by Mt Grace Resources in the 1980's which reported minor base metal and elevated radiometrics. Compass Resources drilled 07TR01 testing for both uranium and base metal potential hosted at and beneath Coomalie Formation contacts.

Sampling was carried out using a cyclone and sample splitter, the few wet samples that could not be split were treated by hand. The samples were then sent to ALS Chemex for analysis being pulverised to 85% passing 75 microns or better. A four acid "near-total" digest was used followed by ICP-AES (OG62) analysis for Cu, Pb, Zn, Co, Ni, Ag, Mn, Fe, S, Mg, Ca, and U. Radioactivity was measured for each sample with a GR 110 scintillometer on site.

This vertical hole drilled to 120m was situated within 50m of RC hole MRC-156, a hole drilled by Mt Grace Resources. Weakly anomalous Nickel and Uranium values were encountered near the Coomalie Dolomite contact at 50m depth in siliceous dolomite.

In 2008/09 a comprehensive compilation of all historical exploration data within the Rum Jungle Mineral Field was commenced. All drilling data was entered into a corporate database management system (DataShed) and hundreds of historical maps were georeferenced and registered into Arc GIS.

In 2009/10 a review of this data (in conjunction with field checking) resulted in the development of a new structural model for the Rum Jungle district.

The compilation of historical exploration data has generated a better understanding of both regional geology and the detailed geology of individual prospects. At Rum Jungle this has resulted in a complete re-think of the timing and controls to mineralisation.

Based on the review of the historical exploration data there are two distinct primary mineralisation events at Rum Jungle:

(a) Lower Proterozoic stratiform base metal event (Browns, Area 55, possibly Mt Fitch sulphides)

(b) Mid Proterozoic structurally controlled uranium-gold-platinoid-base metal event (all other prospects).

The mid Proterozoic event is associated with a series of stacked, essentially bedding parallel thrust surfaces. These surfaces are characterised by extensive zones of brecciation and variable and often intense hydrothermal alteration. Alteration includes silicification, haematite dusting, specular haematite, apatite, tourmaline, chlorite and disseminated pyrite.

Within EL 23722 the faulting may have resulted in the removal of the Whites Formation – Coomalie contact reducing exploration potential for base metals. However, the strong structural zone has potential for gold and uranium mineralisation.

In 2010/11 the tenement was flown with detailed airborne EM and magnetics (as part of a survey covering all Compass tenements within the Rum Jungle Mineral Field). These surveys were completed in late 2010. Flight lines within EL 23677 were E-W at 150m spacing with a nominal terrain clearance of 35m. N-S tie-lines were flown at 1km intervals. Approximately 45 line kilometres of survey were completed within EL 23722.

The tenement was flown with a Falcon gravity survey in late December 2012 (as part of a survey covering all tenements at Batchelor). The survey consisted of N-S lines at 200m spacing with a nominal terrain clearance of 80m. There were a total of 25.2km of flight lines within EL23722. An aeromagnetic survey was completed at the same time as was a LIDAR survey to provide the detailed topographic data for processing the gravity data.

(from the former Compass Annual Reports prepared by Johansen)

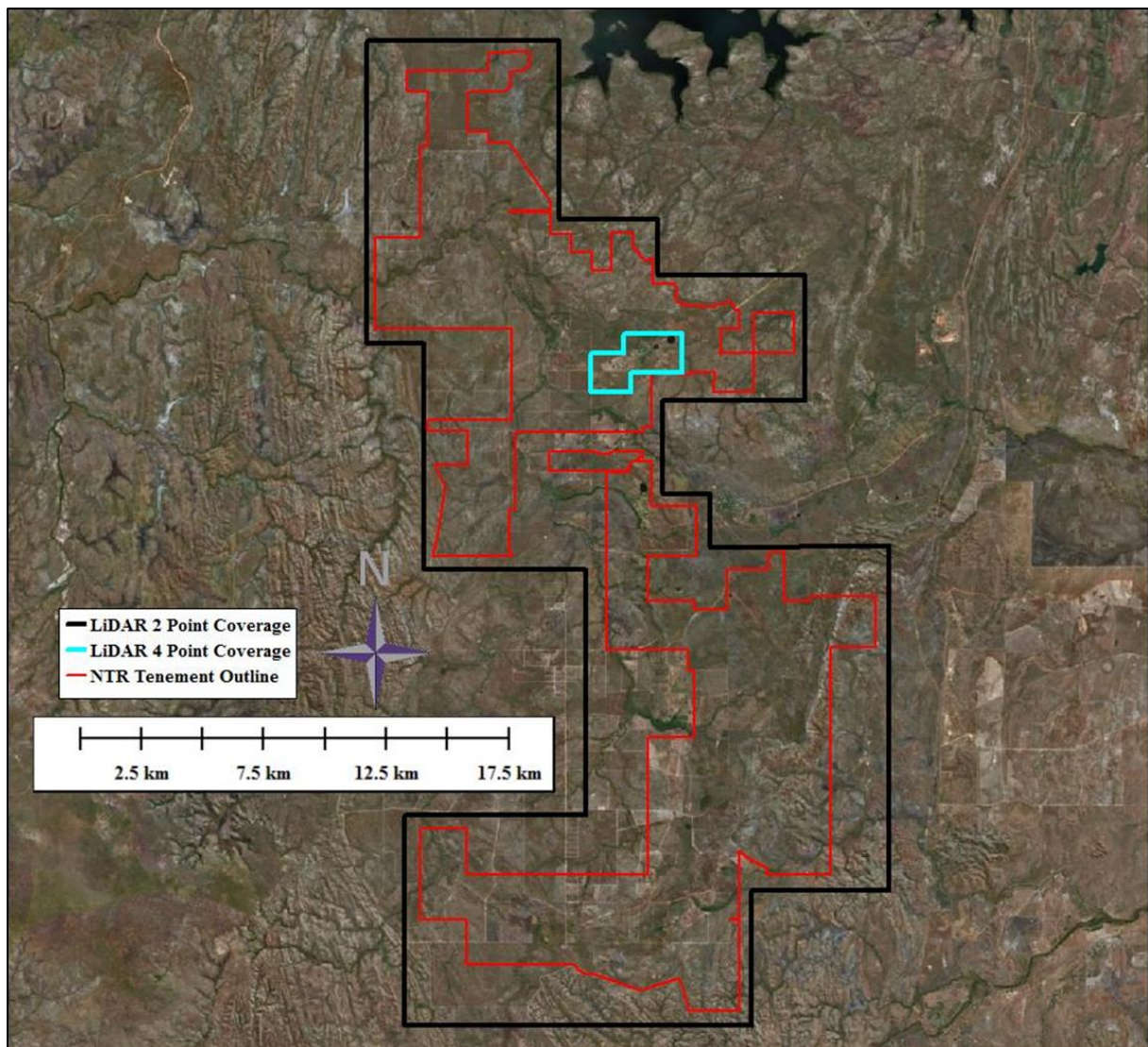
During 2014 to 2015, Compass underwent a complete reorganisation and re-financing. A Consultant Geophysist reviewed all geophysical data sets and redesigned potential IP traverses. Negotiations with landowners to gain access were also conducted.

In early 2017 Northern Territory Resources (NTR) has entered into an Agreement which has been assigned to Doe Run Australia NL (DRA). During 2017 DRA completed desktop reviews and compilation of historic data.

## 9. Exploration During Reporting Period

During the reporting period, Doe Run Australia (DRA) conducted work on EL23722 including a LiDAR survey, a detailed investigation of existing known mineral targets, and a land owner identification study.

*LiDAR Survey:* The entire NTR land tenure was flown to gain detailed topography. The work was completed by Earl James & Associates of Darwin, NT. In the figure below the black line represents the area that was flown with 2 point coverage, or 1 meter resolution. Inside the blue outline the area was flown with 4 point coverage, or 0.5 meter resolution. Over the next year the LiDAR data will be combined with existing geophysical coverage of the tenements to further strengthen geophysical and geological interpretation.



**Figure 4 – LiDAR Coverage of the NTR Tenements**

*Review of Existing Mineral Prospects:* Known mineral occurrences or prospects, especially on NTR's southern land tenure, were examined in detail during this reporting period. On EL23722 the Triangle prospect was reviewed in detail. This review included going through drill logs, assay database, and compiling geophysics.

*Land Owner Identification:* An ArcGIS database was created for NTR's southern land tenure, including EL23722, using publically available Cadastral data. Private property boundaries and parcel numbers were overlain within the tenement boundaries. A master list was created of parcel numbers in areas that NTR/DRA would potentially conduct field work on over the next few years. At the point in which NTR/DRA determines an exploration plan, the master list will serve as quick reference to conduct legal land owner title searches so that access negotiations can be initiated.

## **10. Conclusions and Recommendations**

During the next reporting period (18 September 2018 to 17 September 2019), NTR/DRA intends to carry out further office studies including combining the newly acquired LiDAR data with the airborne gravity data to further refine and strengthen geophysical anomalies. There is also potential to re-process the existing geophysical data. This work is being completed to further refine geophysical anomalies in order to design future exploration and mining programs.

## **11. References**

Johansen, G. EL23722 Annual Report For the Year ended 17 September 2016. Compass Resources Limited. 2016.