# ## HAR HNC (AUSTRALIA) RESOURCES PTY LIMITED

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# **EXPLORATION LICENCE IN RETENTION 146** THE EMBAYMENT

Title Holder: Compass Resources Limited Operator: HNC Australia Resources Pty Ltd

**Annual Report** 

From 19th September 2014 to 18 September 2015

Bynoe 1:100 000

Darwin 1:250 000

D.Rosewall david.rosewall@harresources.com.au Date: 18/11/2015 Target:Cu,Pb,Co,Ni,Ag,Zn

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Appendix 1 Territory Iron Annual Report

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# **INTRODUCTION**

ELR146 was incorporated into the large regional modelling exercise undertaken during the year. All recent geophysical surveys, EM, IP and Gravity are currently being integrated and targets are being generated.

Proposed drill programs are completed and some others are being added.

Ground IP surveys are currently underway.

This tenement will look to be incorporated into a larger tenement amalgamation exercise for 2015.

The area is considered prospective for uranium, copper, lead, zinc, cobalt and nickel mineralisation..

### TENEMENT DETAILS

Exploration Licence 4880 was granted to the Central Electricity Generating Board Exploration (Australia) Pty. Ltd (CEGBEA) on 31st October 1989, covering a larger area, but including that now covered by ELR 146.

EL 4880 was part of areas joint ventured by Compass Resources NL in 1989, with CEGBEA reverting to a net profit interest in 1992, leaving Compass with a 100% ownership. Guardian Resources, under a regional joint venture arrangement, obtained a 25% interest in the tenement.

A joint venture with Billiton Australia Gold Pty. Ltd. was signed on 11th August 1993 covering EL 4880 and other tenements. Billiton Australia Gold subsequently floated on the Australian Stock Exchange as Acacia Resources Limited. They withdrew from the joint venture on 16th June, 1997, retaining a small royalty interest.

The ownership of ELR 146 became 90% Compass Resources NL and 10% Guardian Resources Pty. Ltd. However, as a result of dealings completed in 2006, ownership became 100% Compass Resources NL.

An application for renewal was lodged by Acacia Resources on 27th July, 1995 and an application for an Exploration Retention Licence (ERL) was lodged on 30th October, 1995.

ELR 146 was subsequently granted on 19th September 2001 for a period of five years and renewal granted in 2006 for a further 5 years.

Another joint venture (this time with Phelps Dodge Australasia Inc and Red Metal Limited) covered part of this tenement in the period 2003-2004. In 2003 the size of the ERL was reduced to 1008 hectares, of which part is covered by the Browns Mining Leases.

It should also be noted that Compass Resources NL has become Compass Resources Limited.

### **GEOLOGICAL SETTING**

The main zone of prospectivity for base metals occurs in an area known as "The Embayment". The term "Embayment" describes the structure hosting a line of mineralisation extending north-easterly from Browns through Intermediate, Whites and on to the Dysons uranium deposit. The structure of this zone is consistent with a tight and deep south-westerly plunging syncline, with the known mineralisation occurring on the north-western limb of that structure.

Within this ELR, rock types include Archaean granitic basement and metasediments of Lower Proterozoic age. The Lower Proterozoic sediments belong to the Mt. Partridge Group which unconformably overlay the granitic basement. The oldest of these sediments belongs to the Crater Formation which is most commonly present as grits, arkoses and conglomerates.

Conformably overlying the Crater Formation is a major carbonate sequence named the Coomalie Dolomite. This unit contains dolomites, stromatolitic dolomite, tremolitic dolomite and magnesite as the major rock types. Several periods of karstification, silicification and haematisation has resulted in the formation of many collapse zones within the dolomite. These zones are often referred to as "haematite quartz breccias"

with a variety of origins being proposed. Compass Resources suggest that the precursor rock is most likely to have been chloritised dolomitic breccias containing fluorapatite as a major accessory mineral. Overlying the Coomalie Dolomite is the Whites Formation; a sequence of pyritic carbonaceous argillites and dololutites. A transition zone often exists between these two formations. Minor dolerites and calcareous amphibolites are also present within the Whites Formation at higher stratigraphic levels. It is within the lower parts of the Whites Formation and in the transition zone that the stratabound and stratiform base metal sulphides occur.

Overlying the Whites Formation are sediments belonging to the Wildman Siltstone which is predominantly of a shaley nature. In the Embayment area, a pyritic carbonaceous orthoquartzite equated to the Acacia Gap Quartzite Member is the main outcropping rock which is assigned to the Wildman Siltstone.

Intense deformation (up to 4 generations of folding have been reported) and regional metamorphism of upper greenschist-lower amphibolite facies, together with complex faulting and shearing have resulted in a complex pattern of rock type distribution.

The major fault in the area - the Giants Reef Fault limits the southern and south-eastern outcrop pattern of the Lower Proterozoic sequence and displaces it approximately 8km to the southwest.

### PREVIOUS PRODUCTION AND EXPLORATION

(The following description of exploration is, in most part summarised from the ERL146 2008 Annual Report)

W. Fraser in the Australian IMM Monograph 5, reports open pit production between 1953 and 1971 from the Rum Jungle Deposits in this tenement as:

Dysons  $0.16 \text{ Mt} @ 0.34\% \text{ U}_3\text{O}_8$ 

Whites 0.40 Mt @ 2.7% Cu, 0.27% U<sub>3</sub>O<sub>8</sub> and

0.30 Mt @ 2.8% Cu, 0.31% Co and

0.085 Mt @ 0.8% Cu, 0.3% Co, 5.1% Pb

Intermediate 0.72 Mt @ 2.25% Cu

The remaining resource to a depth of 45 m below the Dysons pit is reported as being 83,500 tonnes at a grade of 0.1% U<sub>3</sub>O<sub>8</sub>.

In 1993 Compass reported the following manually calculated inferred resource in the Browns East area:

3.5 million tonnes averaging 2.8% Cu, 0.12% Co and 1.5 million tonnes averaging 0.3% Cu, 8.3% Pb 0.23% Co

Following resource evaluation at the Browns Deposit by Snowden Mining Industry Consultants in 2001, an inferred resource of 29.1 million tonnes at 1.29% Cu, 1.28% Pb, 0.13% Co and 0.13%Ni (using a cut off of 0.5% Cu, 3.0% Pb and 0.06% Co) was reported by Compass for this zone within ERL 146.

Late in 2001, one deep pre-collared diamond drill hole was commenced to the southeast of the Whites Open Cut mine. This hole was planned to intersect the eastern extension of the known sulphide mineralisation. This hole was eventually abandoned as a result of the Northern Land Council's actions concerning sacred sites.

In 2003-2004, as part of a joint venture agreement with Phelps Dodge Australasia Inc. over the Browns Mining Leases and parts of the surrounding tenements, a detailed gravity survey was undertaken to help target sulphide accumulations at depth near the old Shaft at the Browns Deposit. The results of this survey have been reported in the relevant Annual Report.

In 2004-2005, a two phase reverse circulation drill programme was completed in the Browns East area between the two old open cut mines. The first part of drilling was planned to delineate the contact of the Coomalie Dolomite and the overlying Whites Formation, and to check out reported copper and uranium mineralisation near the western edge of the Whites open cut mine. Follow up drilling involved 9 RC holes, planned to intersect the copper-cobalt zones located by the phase1 drilling.

Two angled RC holes were completed at the Rum Jungle East uranium prospect on the eastern side of the Whites open cut mine.

In late 2005, an additional two vertical RC were completed at the RJ east prospect. These were holes 05RJE03 and 05RJE04. Both intersected good uranium mineralisation; including 6m at  $0.14\%~U_3O_8$  between 67 and 73 m in 05RJE03 and 2m at  $0.48\%~U_3O_8$  between 43 and 45m in 05RJE04.

In 2006, drilling for base metals recommenced in the Browns East area between the two old open cut mines. Heavy water flows prevented several holes reaching their planned depths. Up until the end of the report period, 12 holes were attempted, identified as 06BE01 to 06BE12. Significant base metal mineralisation was intersected including: 06BE04 - 59 to 111m - 52m at 2.3%Cu, 0.5%Pb, 0.3%Co, 0.2% Ni, 65g/t Ag 06BE06 - 64 to 78m - 14m at 2.5%Cu, 2.9%Pb, 0.3%Co, 0.3% Ni, 34g/t Ag

During late 2006- 2007, several programs were undertaken and employed both RC and diamond drilling methods. All RC sampling was carried out using a cyclone and sample splitter. Wet samples which could not be split were treated by hand. Diamond core was cut in half using a diamond saw. The samples were sent to ALS Chemex for analysis. Samples were 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. Samples with higher uranium values (>150ppm U) were re-analysed by XRF for U and Ti. Radioactivity was measured for each sample with a GR 110 scintillometer or a SPP2 scintillometer on site. Holes with anomalous radioactivity were surveyed with an Auslog slimline natural gamma probe within the drill rods.

Due to the difficulties encountered with high water inflows during the early part of 2006, it was decided to concentrate on diamond drilling during the remainder of 2006. To this end five diamond drillholes were completed (06BE013-06BE18) using a Longyear LF90 drill rig owned by Underdale Drillers Pty. Ltd.

Three RC holes were also successfully drilled at the end of 2006 when the water table was at its lowest (06BE019-06BE21). These holes were drilled by H2O Pty Ltd utilising a T3 RC drilling rig with 1200/360 onboard air. Two diamond holes were also completed to obtain PQ core samples for metallurgical testwork (M06BE001 and 002).

Drilling recommenced in the area on 29<sup>th</sup> May 2007 and 20 RC holes were completed up to the end (September 2007) of the last reporting period (07BE01-20). These holes were drilled by H2O Pty Ltd utilising a T3 RC drilling rig with 1200/360 onboard air.

During the 2010 reporting period HNC undertook remodelling (database validation, block modelling, preliminary pit designs) of the sulphide and oxide deposits on ERL 146 to recalculate grades and tonnes based on 2010 metal prices.

Electromagnetic, magnetic and gravity data was reprocessed as part of the planning for the surveys that were underway at time of writing the 2010 report.

During 2011 a detailed airborne electromagnetic/magnetic survey along with a heli-assisted ground gravity infill survey were both carried out. The airborne survey consisted of 100m E-W flight lines over the entire ERL while the ground gravity survey was designed to infill existing survey points and was spaced at approximately 500m grid points over most of the ERL. A portion of the tenement was excluded in the SE as it was a sensitive Aboriginal area.

A total of 111.5 line Km of electromagnetics/magnetics was flown and 33 gravity data stations were acquired.

During 2012 the following was completed from HAR and Territory Iron **HAR** 

Hole Type	Hole Number Range	No of Holes	Total Metres
RC	12BD05-15	11	1008.3
DD	12BD05-15	11	630.7
Total	-	11	1639

Table 1: Drilling Summary

The drilling portion of the program was completed in September 2012 (4 days after the end of the reporting period, so all available data was included in this report) and due to the reactive nature of the sulphides within the core, it was immediately packed and stored in refrigerated containers. As a result no assaying had taken place at time of reporting.

# **Territory Iron**

Geological mapping within the Yarram Project Area of ELR 146 was carried out over the period 23rd to 26th January 2012 by an independent geological consultant. The intention of the mapping was to assist in the interpretation of previous results that have been obtained in earlier drilling programs, and to recommend further exploration targets. The mapping indicated that mineralisation occurs in a series of brecciated siltstone, shale and dolostone horizons in the Coomalie Dolostone Formation. The breccias are composed mainly of goethite/limonite and are frequently cored with lenses of hematite. The mineralised zones appear to be associated with faults trending approximately southwest.

# **HAR**

During 2012-13 this tenement was subjected to a regional airborne FALCON gravity survey. This survey included not only gravity but also acquired magnetics and LIDAR high resolution elevation data.

The line spacing was approximately 200m and has been processed and divided into individual tenements. The data for these surveys has been submitted to the department. Approximately 54.5 line km of data acquisition fell on this tenement.

During this reporting period a large scale scoping study was also undertaken to assess the potential of an underground sulphide mining operation. The study consisted of resource modelling, stope design and underground engineering, flotation studies and existing plant redesign.

# **Territory Iron**

Territory Iron carried out reconnaissance work along with collecting 17 rock chip samples. Amendments to the current MMP were also submitted in regards to a planned drill program for 2013-14.

# 2014

The data for the airborne FALCON gravity survey carried out during the writing of last years' report was received and passed on to the department. The data has been modelled and processed and is being incorporated into a large regional data modelling package at the time of writing this report. The modelling will incorporate all of the previous EM, IP, MAG and gravity data into one complete package.

# WORK COMPLETED THIS YEAR HAR

We have been incorporating all of the geophysical survey data into a broad regional data set to model suitable targets for exploration drilling. There may be an opportunity to drill some of the targets generated from this exercise later in the year. A ground IP survey is currently underway on this tenement at time of reporting.

# **Territory Iron**

Within the reporting period, Territory Iron Pty Ltd drilled a total of 28 RC drill holes for a total of 1,774 m. One thousand, six hundred and eighty-six samples were selected for geochemical analysis. All data pertaining to drilling including collar location, survey information, assay data and lithology are located in Appendix I.

### RECOMMENDATIONS AND CONCLUSIONS

The current modelling of the geophysical data has shown some encouraging targets and is showing a much higher degree of resolution detail. The gravity processing has generated some very high resolution preliminary images. The limited IP work has shown some promising anomalies at depth appearing to correspond with some previous EM targets and those that have been calibrated against the known deposit at the mine site. We will be looking to generate some additional quality anomaly targets for follow up with infill geophysical surveying and drill hole targeting in the coming year. Part of this is currently underway.

### **PLANS FOR 2015-16**

We are currently incorporating all of the geophysical survey data into a broad regional data set to model suitable targets for exploration drilling. There may be an opportunity to drill some of the targets generated from this exercise early in the 2016 field season. IP surveying is currently being carried out which will be reported in the next reporting period. Some of the preliminary IP results are showing some potentially drill ready targets in the northern part of ELR146.

There may also be some additional testwork carried out on the copper ore from ELR146.

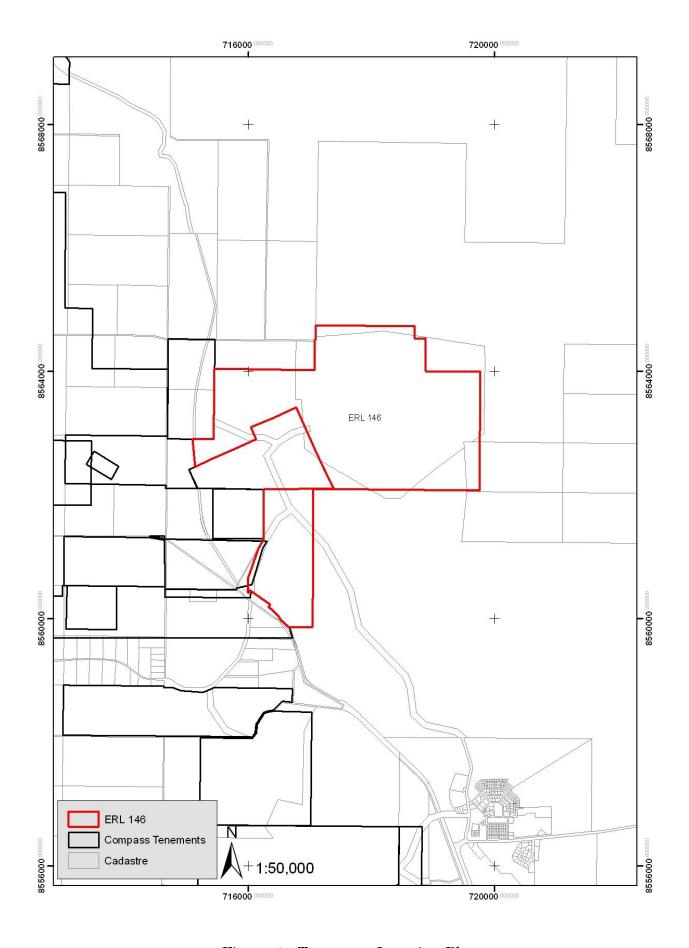


Figure 1. Tenement Location Plan