

**Spitfire Global Pty Ltd**  
**Northern Territory Dogfight Project**  
**E27400 Final Report**  
**12<sup>th</sup> January 2012 to 26<sup>th</sup> of March 2013**

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**GDA94**

**1:250,000 Mapsheets-** SE5207

Limbunya, SE5211 Birrindudu,

**1:100,000 Mapsheets-** 4863 Limbunya,  
4862 Inverway, 4962 Mount Barton, 4961

Styles

**Commodities-** Base Metals

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Spitfire Global Pty Ltd

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### 1. Abstract

The Northern Territory Dogfight project is located approximately 600km South/South-West of Darwin and comprises the granted tenement EL27400 that covers 790 square kilometres.

The area is highly prospective for base metal mineralisation due to its unique geology; the interaction of the Cambrian aged Antrim Plateau volcanics and the underlying Limbunya group lithologies as well as the vesicular nature of the upper volcanic flow. This is combined with both local and regional faulting in the area which could allow fluid movements between lithologies. Due to this the area has been the focus of numerous reconnaissance and explorative activities in the past and present.

## **2. Copyright**

The owned information acquired by Spitfire includes all information under *the previous work by Spitfire* and *work during reporting year* sections; mainly chemical assay results stated and the aerial magnetics images. The rest of the information has been sourced from open reports and data through the Department of Resources – Minerals and Energy. The Minister has authority to publish the copyrighted information accordingly.

## **3. Regional location**

The Northern Territory Base Metals project is centrally located approximately 600km South/South-West of Darwin just across the border from Western Australia. The licence is located over a number of pastoral leases in the Victoria Daly shire. It sits on freehold land.

## **4. Tenure**

The project comprises of the following the granted tenement

<b>Licence</b>	<b>Date Granted</b>	<b>Area (square km)</b>
E27400	13/01/10	790.13

Table 1 – Licence details

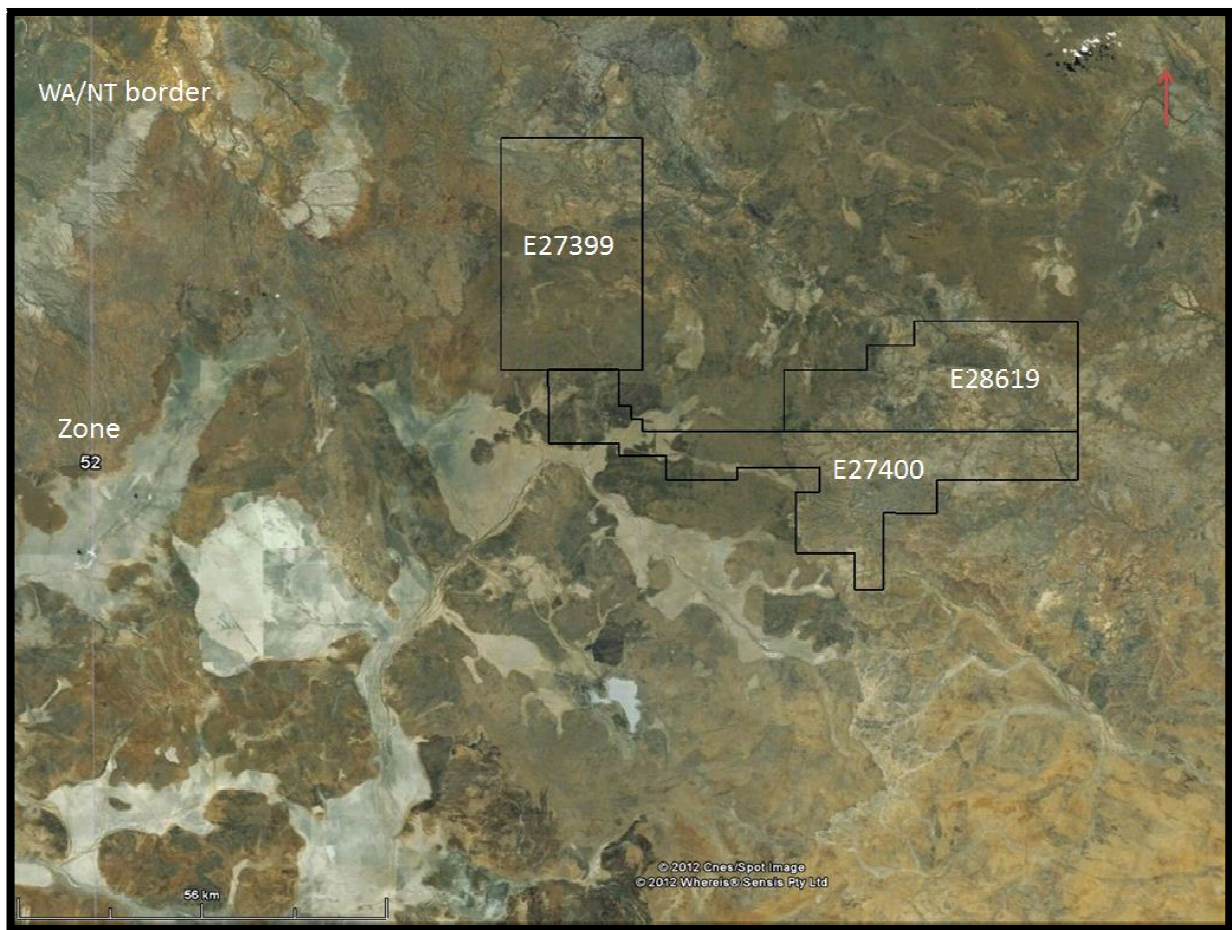


Fig 1- Northern Territory licence Location Map

## 5. Location and access

The licence is mainly accessed via road from the Buntine highway via Duncan Road from WA. From the highway existing station and public tracks are used to access further into the licence areas. Licence EL27400 is located across the Riveren and Inverway pastoral leases.

## 6. Topography

Topography over the three licences is generally similar involving flatter, lower lying alluvial areas moving into elevated mesas of varying heights.

## 7. Regional geology

Regionally the project sits mainly in the Proterozoic aged Birrindudu basin with basement being the Archaean aged Inverway metamorphics. The pre-Cambrian Limbunya group is broadly composed of sandstones, siltstones, dolomites and volcanic tuffs. It is overlain by the Proterozoic Victoria basin sediments which contain the Wattie and Auvergne groups, composed of sandstones, conglomerates and dolomites. The target Antrim plateau volcanics of the Lower Cambrian Wiso basin overlie and interlie with the two sedimentary groups below and are overlain partially by remnant Cretaceous sediments in some areas with Tertiary cover composed generally of black soils and alluvium.

There is a regional anticlinal fold present is orientated to the East and has localised domal structures of uplifted upper Limbunya and lower Victoria basin sediments present along the anticline. Two main faults run through the area in the South, the NW-SE trending Limbunya and NE-SW trending Neave faults with several parallel off shoots and lineaments present.

## 8. Local geology

The Inverway basement is only present through thin sections of uplift in the regional anticline. which is mainly expressed off licence through surface veining and schists through the Stirling sandstone, the base member of the Limbunya sediments which are the main local lithological units (see table 2 below). Black shales which can occur within the Limbunya sediments are the targets for base metal accumulation.

The antrim plateau volcanic flows are composed mainly of massive fine grained thoiiletic basalt at depth with vesicular basalt and agglomerates present at flow surfaces which both over and interlie the Limbunya sediments dominante E27400. The project area is covered by Tertiary black soils and alluvium surrounding elevated mesas of laterite and exposed basalts. The Neave fault, which runs NE-SW, is likely to be a main feeder for the antrim volcanics and crosses through EL27400 with several offshoot faults and lineaments also present.

Formation	Thickness	Lithologies
Fraynes Formation	- 120 m -	silty dolomite, siltstone, dolomite massive chert.
Campbell Springs Dolomite	- 300 m -	Stromatolitic dolomite, dolomite conglomerate.
Blue Hole Formation	- 150 to 300 m -	Silty dolomite, stromatolitic dolomite, siltstone
Farquharson Sandstone	- 40 to 165 m -	Grey and brown quartz sandstone, siltstone.
Kunja Siltstone	- 60 m -	Siltstone, silty dolomite
Mallabah Dolomite	- 15 m - 100 m -	Pink-buff dolomite siltstone, shale
Amos Knob Formation	- 50 m -	Dolomite, siltstone shale, sandstone.
Pear Tree Dolomite	-+105 m -	Brown dolomite, dolarenite, chert stromatolitic chert
Margery Formation	- 120 m -	Siltstone, claystone, minor dolomite and chert
Stirling Sandstone	- 120 m -	Brown quartz sandstone grit, conglomerate.

Table 2 – Limbunya group stratigraphy (Geopeko,1993)

## **9. Exploration rationale**

Basic exploration model is focused on the interactions of the Antrim plateau volcanics and underlying Limbunya sediment groups in numerous ways:

- Direct interaction due to contact metamorphism and hydrothermal fluid alteration leading to the formation of base metal sulphides/oxides within the sediments when encountering sulphur/oxygen.
- Depletion of the volcanics by sulphur sinks within the sediments such as shales which concentrate base metals precipitation
- Indurated brines formed by compressional forces with the Limbunya sediments, containing mobile base metals leached from country rock, rising and travelling via structures and precipitating in porous and permeable layers of the volcanic flows

The models being used which follow these forms are:

- Michigan-style Copper Deposits within the Antrim Plateau Volcanics
- Magmatic Sulphide-Rich Nickel-Copper Deposits within the Antrim Plateau Volcanic
- Stratiform Zinc-Lead-Silver Deposits within the Birrindudu and Limbunya Groups

## **10. Previous Work before February 2011**

### **10.1 Previous work by other companies**

Geochemical stream sampling undertaken in the area by other explorers has mainly covered central E27400. While analysis determined some anomalous values of gold, copper and zinc present, it did not lead to any significant discoveries through attempts to trace back to the source.

Ausquest drilled a diamond hole, ANTD003, at coordinates 566927 E, 8028309 N to a depth of 342.5m with the full log available in CR2004088. No substantial base metals were encountered.

### **10.2 Previous work undertaken by Spitfire**

The helicopter reconnaissance and rock chip sampling program was designed around public regional magnetics, local geology and structures in the target areas. The samples underwent a XRF multi-suite analysis (SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, CaO, Fe, K<sub>2</sub>O, MgO, P, S, TiO<sub>2</sub>, Mn, Ba, Zr, V, Cr, Zn, Cl, Co, Ni, Cu, As, Sn, Sr, Sb<sub>2</sub>O<sub>3</sub>, Na<sub>2</sub>O, Pb) and fire assay for gold, platinum and lead. The outcome was possible detection of anomalous base metals elements based on natural element levels which would assist with refining targets. The laboratory used internal QAQC standards and duplicates to test accuracy and kept residues and pulps of the test work in storage.

The aerial magnetic surveys were devised to refine existing magnetics with the anomalies determined as a result assisting with targeting. Reconnaissance was undertaken over the central section of E27400 with a Marston consultant present. Numerous field observations and interpretations were made and rock chip samples taken from areas of interest.



In-situ surface rock chip samples were taken in the target areas during the reconnaissance. The full set of results is in the appendix. No anomalous base metal values were detected. They were collected before the partial relinquishment of E27400 as such sample SNT006 is no longer applicable.

Sample Number	GDA 94 - UTM 52K coordinates	
	Northing	Easting
SNT006	8020223	647143
SNT007	8024929	620353
SNT008	8021884	620461
SNT009	8017111	621615

Table 4 – Coordinates rock chip samples EL27400

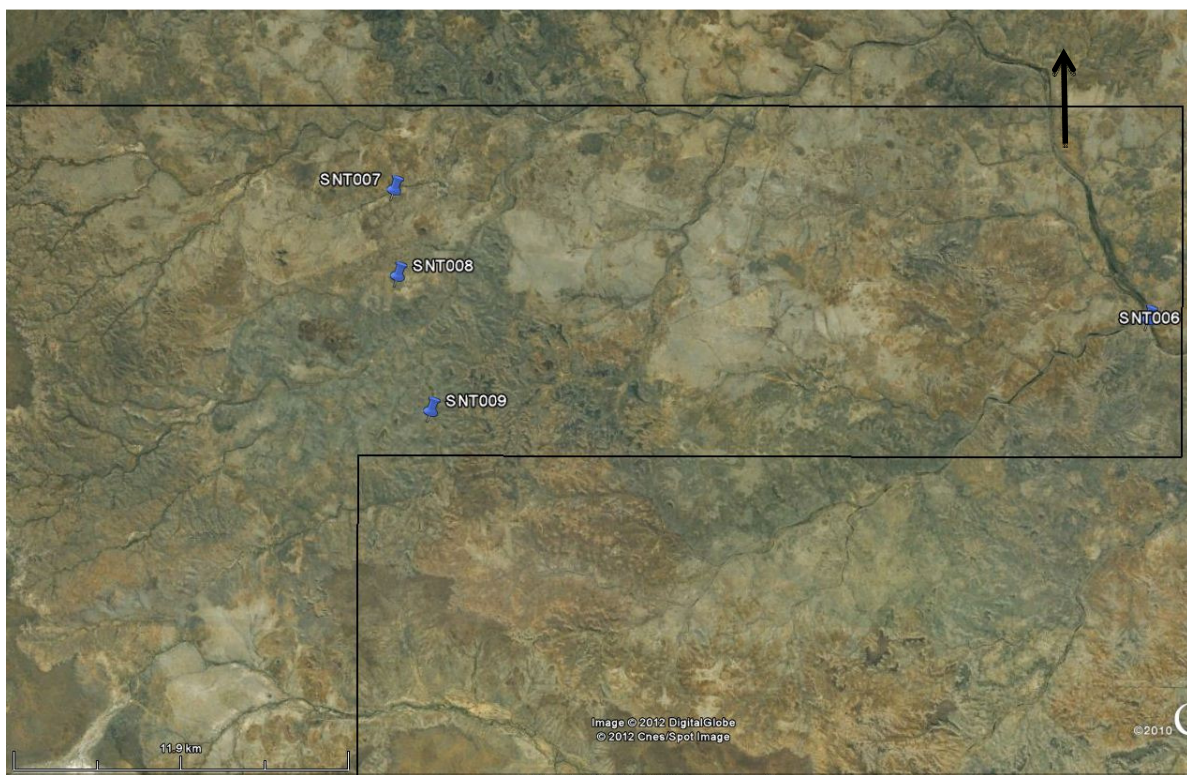


Fig 2- Rock chip sample locations E27400 pre relinquishment boundary (GDA94/ Z52)

### 10.3 Geophysical survey EL27400

Based off reconnaissance and assay results, an aeromagnetic and radiometric survey was targeted and flown by Daishsat geodetic surveyors in late November 2011 over a specific corridor of interest (see figure 4 below). The survey lines were run at 90 – 270 degrees with 100m line spacing, 1000m tie separation and 40m terrain clearance, covering a distance of 2378 line kilometres. See digital appendix for all survey imagery. Anomalies detected indicate a higher than normal magnetic reaction to the survey, in this case geologically they have been interpreted to potentially constitute base metal mineralisation within the Antrim plateau volcanics.

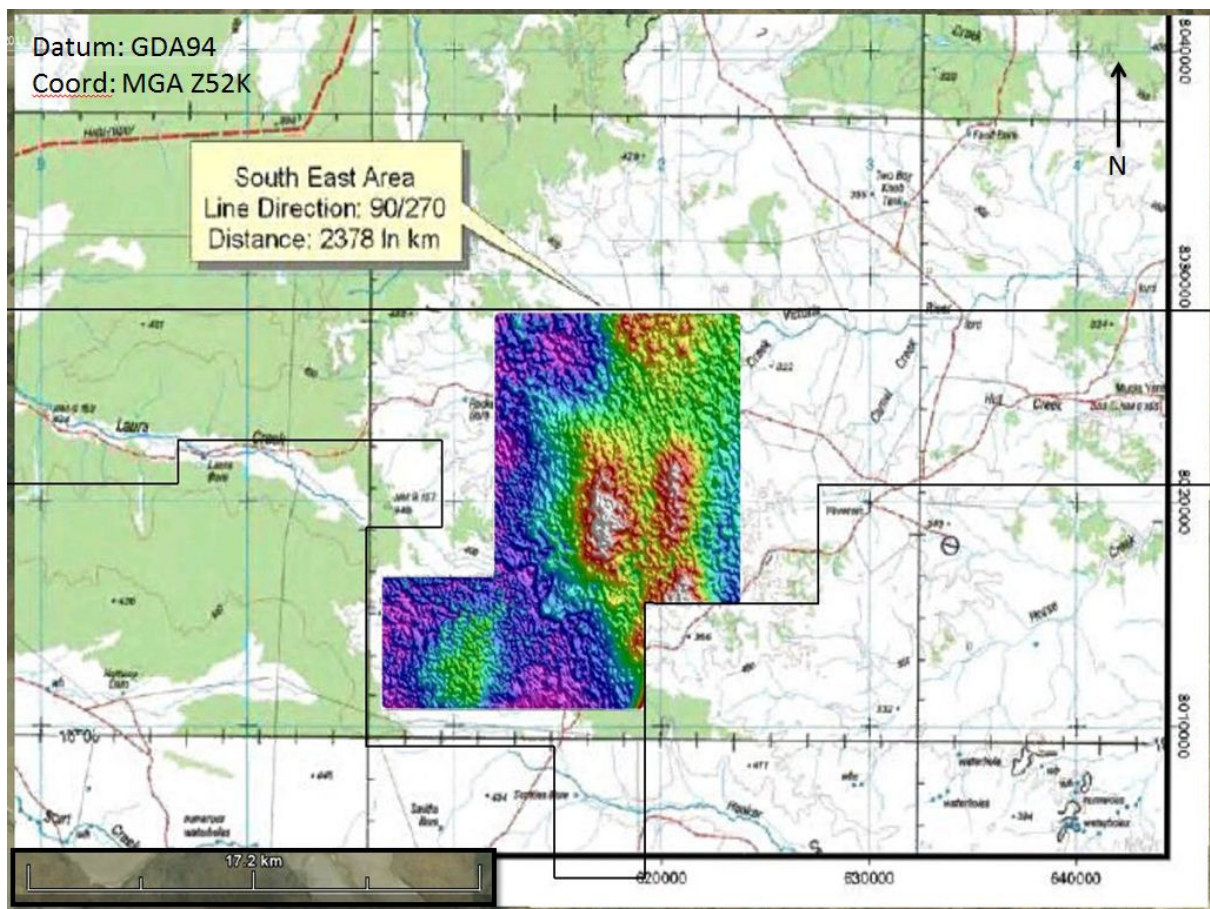


Fig.3 – E27400 survey boundary and processed aerial magnetic image

## 11. Work carried out within the current reporting period February 2013 – March 2013

No field work was carried out within the reporting period due to budget cut backs.

## 12. Conclusions and Recommendations

Based on the continued review of open and closed data, field observations and the aeromagnetic geophysical survey undertaken, Spitfire believes licence EL27400 continues to hold potential for base metal mineralisation.

It was recommended that Spitfire not renew the commitment on tenement EL27400 and this tenement was subsequently cancelled on 24<sup>th</sup> March 2013 due to economic reasons.



### **13. References**

‘EL7140 and EL7141 combined report on Exploration during the second tenure year ending January 1993’ (report CR19930144), Geopeko, 1993

‘Bigley Springs Project, NT EL’s 8307, 8308 and 8309 Annual Report for the period ending 22<sup>nd</sup> October, 1995’ (report CR19950072), Burdekin Resources NL, 1995

‘Antrim Project, Exploration Licences 22642 – 22645 and 2279 – 22751 Northern Territory Combined annual report for year ending 31/12/2003’ (report CR20040088), M Gole, J Ashley and A Meakins