



# **CASTILE RESOURCES PTY LTD**

## **FINAL SURRENDER REPORT**

**EL26527**

**18 April 2012 to 23 July 2014**

**Compiled by:  
Robert J. Burke  
July 2014**

**CASTILE RESOURCES PTY LTD**  
**wholly owned by**  
**METALS X LIMITED**

**FINAL SURRENDER REPORT 2014**

**EL26527**

**Operator:** Castile Resources Pty Ltd  
**Tenement Holders:** Lassact Pty. Ltd  
**1:250,000 Sheet:** Mount Rennie SF52-15  
**1:100,000 Sheet:** Ehrenberg 4951; Yingurru 4950  
**Datum:** GDA94  
**Projection:** MGA  
**Zone:** 52  
**Report Type:** Final Surrender Report  
**Report Period:** 18 April 2012 to 23 July 2014  
**Author:** Robert Burke  
**Tenement Holders:** Castile Resources Pty Ltd  
**Distribution:** Department of Resources; and Castile Resources Pty Ltd /  
Metals X Limited

## **ABSTRACT**

### **Location**

The tenement is within the Warumpi Province of the Haasts Bluff Aboriginal Land Trust, and is approximately 300km west of the Alice Springs Township. It occupies an area of 286 graticular blocks, and forms part of Castile Resources Pty Ltd ("Castile") Warumpi Project.

### **Geology**

The project is located within the Western Springs area of the Warumpi Province that was originally considered the southern margins of the Arunta Inlier. EL26527 straddles the boundary between the northern Warumpi Province and the southern Amadeus Basin and comprises both Paleoproterozoic rocks of the Haasts Bluff Domain of the Warumpi Province and Neoproterozoic rocks of the Amadeus Basin. The eastern portion of the tenement is almost entirely blanketed by recent alluvial cover and extensive sand dune development whereas the western portion has significantly less alluvial cover and increased bedrock exposure interpreted to be rocks from the Haasts Bluff Domain. The contact between the two provinces is obscured by recent sediments, but can be inferred from recent aeromagnetic data as well as increased sand dune development. Previous work completed by the NTGS in the late 1990's to early 2000's resulted in new Proterozoic ages for the Warumpi Province, defining it as being formed during a crucial period of development of the Australian continent. Deposits as Broken Hill, Mount Isa and McArthur River share similar ages to the newly defined Warumpi Province.

The area is interpreted to also have potential for a similar style of mineralisation as AngloGold's newly discovered Tropicana deposit (5M+ oz Au). Potential for mineralisation associated with the interaction between the basement Haasts Bluff Domain and the overlying Amadeus Basin is also considered high as seen in other prospects to the east (Stokes Yard Zn-Pb-Cu-Ag prospect and the Ulpuruta Pb-Zn prospect). The province has seen little to no previous modern exploration work, and is considered to have high potential for economic mineralisation

### **Work Completed**

Exploration for the period of 18 April to 2012 – 23 July 2014 included detailed heritage surveys over the western portion of the ground followed by regional 1km x 1 km lag sampling and prospecting.

### **Results / Conclusions**

Numerous desktop studies and detailed analysis of geochemistry of regional lag programs in the western portion returned discouraging results, with no anomalous regional highlight. Field observation stated that the region consisted of significant amounts of transported material increasing to the east. As a result the eastern portion, which is located in the Amadeus Basin, was not believed to be prospective for economic mineralisation and not heritage surveyed; therefore no on ground work was completed in the east. Subsequently Castile Resources have opted to surrender this tenement.

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## **1 INTRODUCTION**

EL26527 is located approximately 300km west of Alice Springs in the Northern Territory and is the southernmost tenement of Castile's Warumpi Project within the Haasts Bluff Aboriginal freehold land.

The Warumpi Project area lies in the Warumpi Province, a newly defined geological province, with bedrock ages ranging from 1690-1610Ma. The Warumpi Province shares similar ages to that of the Broken Hill Block, Mount Isa Block and the McArthur Basin, which all host world class deposits.

To date limited mineral exploration has been completed including remote sensed data acquisition and processing and interpretation of publicly available data. However, limited to no on-ground work has been completed. Exploration efforts by Castile in the region for the 2012 year concentrated regional and prospect-scale geochemical profiles on cleared portion of granted tenement to the north. The area is still considered to be highly prospective for base metals and gold-copper mineralisation.

### **1.1 Location and Access**

EL26527 is the furthest southern tenement of the Warumpi Project and is located approximately 300km west of the Alice Spring Township. The project area consists of three additional granted tenements (EL10379, EL6732, and EL6861) and multiple other tenements on application within the Aboriginal freehold lands of the Haasts Bluff Land Trust.

Access to the project area is via the Stuart Highway, 20km north of Alice Springs, then northwest along the Tanami Road for approximately 118km until the Kintore Road is reached. Travel 195km west along Kintore Road passing the communities of Papunya and Mount Liebig, until the project area is reached, approximately 35km south along the Central Petroleum access track.

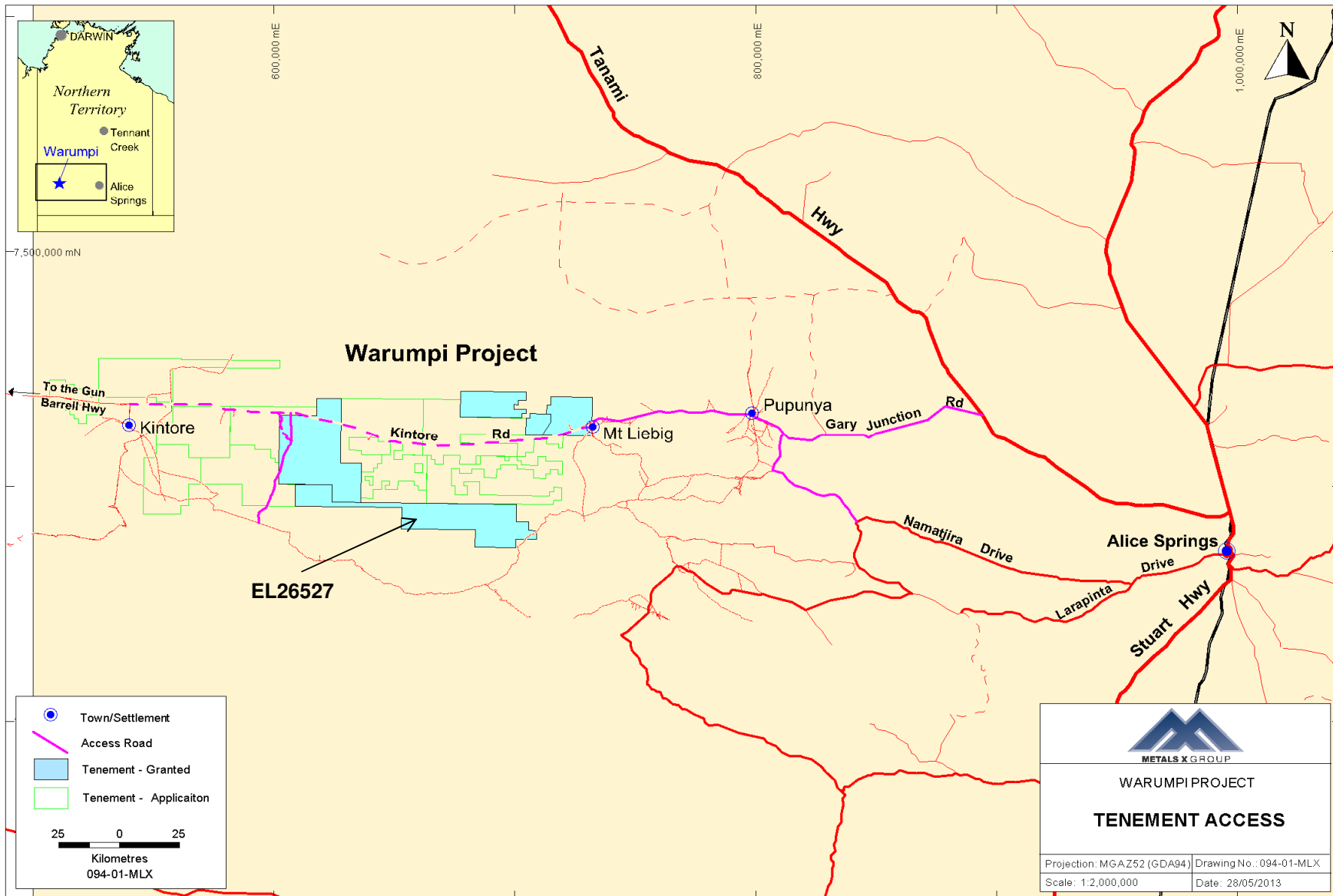


Figure 1: Tenement access map showing relative positions of tenement with Alice Springs and other communities

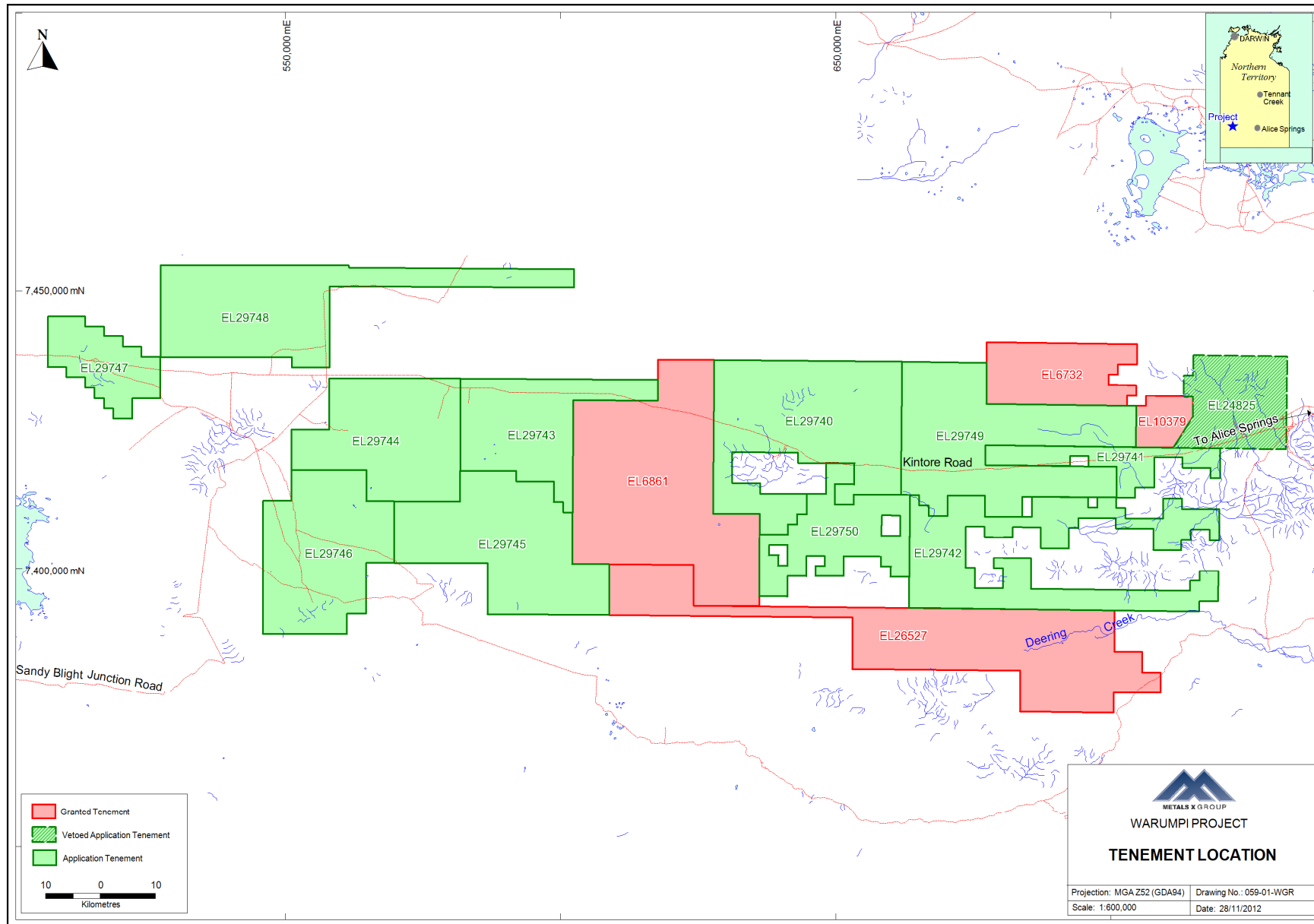


Figure 2 : Tenement Location Map

## 1.2 Tenement Details

The tenement was granted, on 18 April 2012 and exploration activities are governed by the negotiated Deed of Exploration with the Central Land Council on behalf of the traditional Aboriginal owners. EL26527 is 100% own by Lassact Pty Ltd.

In March 2012, Castile, a wholly owned subsidiary of Metals X Limited agreed to enter into a joint venture agreement with Lassact Pty Ltd to explore the tenements of the Warumpi Project and has the right to earn up to 80% equity in the tenement. To date Castile has passed stage two of the agreement and has earned up to 51% with the option to continue to earn up to the 80%.

Table 1: Tenement Details

Lease	Project	Granted Area	Application Date	Grant Date	Surrender Date
EL26527	Warumpi	286 Blocks	26-Sept -07	% -5 df-%&.....	23-Jul-14

## 2 GEOLOGY

### 2.1 Regional Geology

The Warumpi Project lies within the Western Spring area, which is entirely located in the Warumpi Province. This area was in the past considered to be the southern margins of the Arunta Inlier. It wasn't until 1999 when the NTGS processed high resolution aeromagnetic data over central Australia that the Warumpi Province was identified as a separate entity from the Arunta Inlier. Further mapping and age dating of the Mount Rennie and Mount Liebig area that lie within the Warumpi Province produced dates ranging from 1690-1610Ma giving further evidence that the Warumpi was part of a crucial period of the development of the North Australia Craton (NAC). This 500km east-west exotic terrain is hypothesised to have Grenville-aged architecture, thrusting it up onto the southern margins of the Arunta inlier during the Liebig Orogeny (1640-1630Ma).

Two high grade domains of the Warumpi Province and the younger intracratonic basin of the Amadeus Basin dominate the Warumpi Project area. The two high grade domains of the Warumpi Province are the Yaya Domain; located in the northern portion dominating EL10379, EL6732 and approximately 75% of EL6861 and the Haasts Bluff Domain located in the south, accounting for the remaining portion as well as the southern portion of EL6861 and western portion of EL26527. The Yaya Domain (1660-1640Ma) consists of psammites, pelites, calc-silicates, felsic migmatites and cordierite mafic granulites all of which have been intruded by various granite suites of the Papunya Igneous Complex. The Haasts Bluff Domain (1690-1660Ma) consists of rhyolitic volcanic, metasedimentary schists, amphibolites, orthogneisses, and various suites of granitoid intrusive. The remaining eastern portion of EL26527 overlays the Amadeus Basin comprising of dominantly younger sedimentary rocks including limestones, siltstones, sandstones, quartzites, and conglomerates.



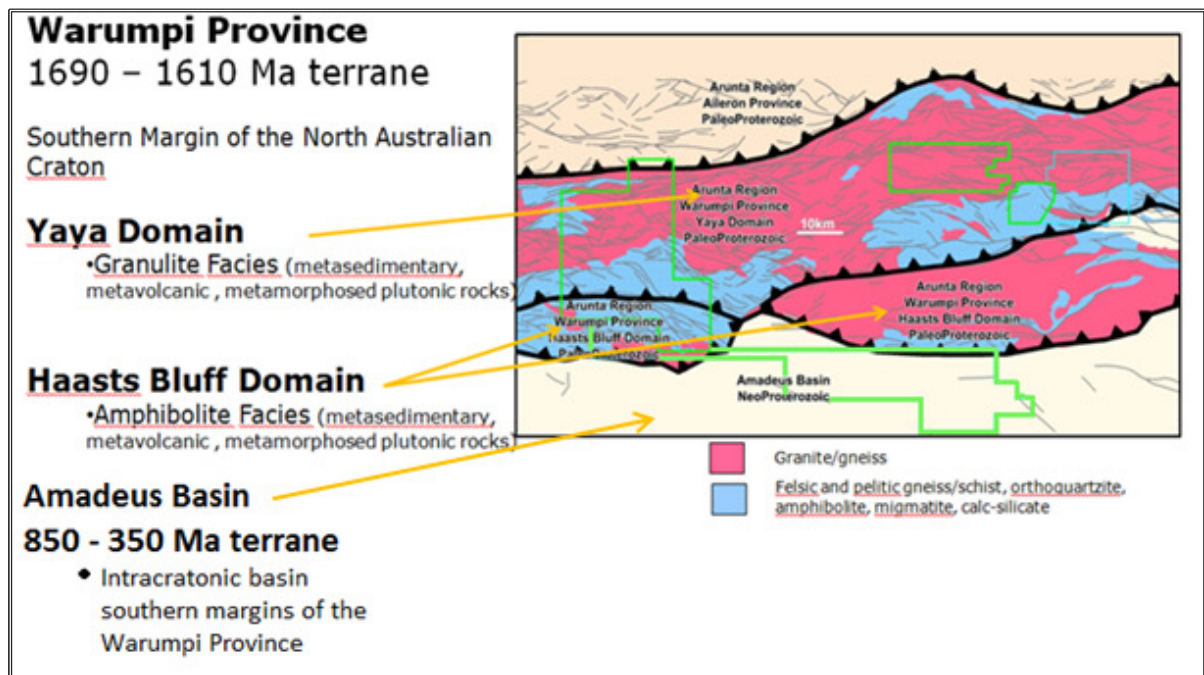


Figure 3: Geological Domains in the Warumpi Project area of the Warumpi Province

The Yaya Domain (1660-1640Ma) consists dominantly of high grade metamorphic migmatites intruded by volumous felsic and mafic rocks of the Walwiga Suite (1640-1630Ma) conformably overlain by the Yaya Metamorphic Complex (1660-1650). The Yaya Metamorphic Complex is composed of four stratigraphic units:

- Spears Metamorphics Generally mapped in the east portion of the Warumpi Province, although observed throughout the Mount Liebig area. They consist of augen gneisses, felsic gneisses, metapelites, and amphibolites.
- Inyalinga Granulites Dominantly in the northern portion of the Yaya Matamorphic Complex. Similar lithologies to the Spear Metamorphics with massive cordierite granulites.
- Alkipi Metamorphics Mapped throughout the eastern portion of the Warumpi Province and not seen on the project area. They consist dominantly of homogenous quartz-rich metasediments.
- Liesler Metamorphics Forms near the Davenport Hills in the far west Yaya Metamorphic Complex and consists of metapelitic migmatites.

The Haasts Bluff Domain (1690-1660Ma) makes up the southern portion of the Warumpi Province in the project area and are some of the oldest rocks in the region. It consists of dominantly metasedimentary schists, orthogneisses, and various suites of granitoid intrusives with minor rhyolitic volcanics. An upper amphibolite metamorphic event during the Liebig Orogengy (1640-1635Ma) affected the region while the Iwupataka metamorphics were unconformably being deposited.

Numerous units compose the Iwupataka Metamorphics. However, only two are observed throughout the southwest portion of Warumpi Project area.

- Lizard Schist Biotite-muscovite-quartz schist interlayered with muscovite quartz-rich psammite layers.
- Nugman Metamorphics Lower Amphibolite metasedimentary rocks near the Mount Rennie area composed of biotite muscovite schists and minor mafic amphibolites

The Amadeus Basin (850-350Ma) makes up the remaining portion of the Warumpi Project constituting the southern boundary of the Warumpi province and comprises the youngest rocks within the project area. The basin is an east west trending elongated basin covering approximately 170,000km<sup>2</sup>. The basin margins are well defined to the north and south by igneous and metamorphic rocks of the Musgrave and Warumpi Provinces. The stratigraphy reflects a basal Upper Proterozoic succession of shelf, lagoonal, continental, and shallow marine sediments including carbonates and evaporates overlain by Cambrian-Ordovician marine sediments - all unconformably overlain by continental Devonian-Carboniferous sediments (Ozimic *et al*, 1986).

## **2.2 Local Geology**

EL26527 straddles the Haasts Bluff Domain of the Warumpi Province in the west and the Amadeus Basin in the east. The tenement is dominated by the Amadeus Basin constituting approximately 75% of the total tenement area. It consists of a sedimentary sequence ranging from siltstones and sandstones throughout the tenement area (Figure 4). The Ngumen Metamorphic of the Haasts Bluff Domain make up the remaining 25% of the tenement in the west and consists of dominantly quartzites and muscovite-quartz schists. The Kuwalki thrust fault separates the two domains and can be traced anastomosing through the Warumpi Province.

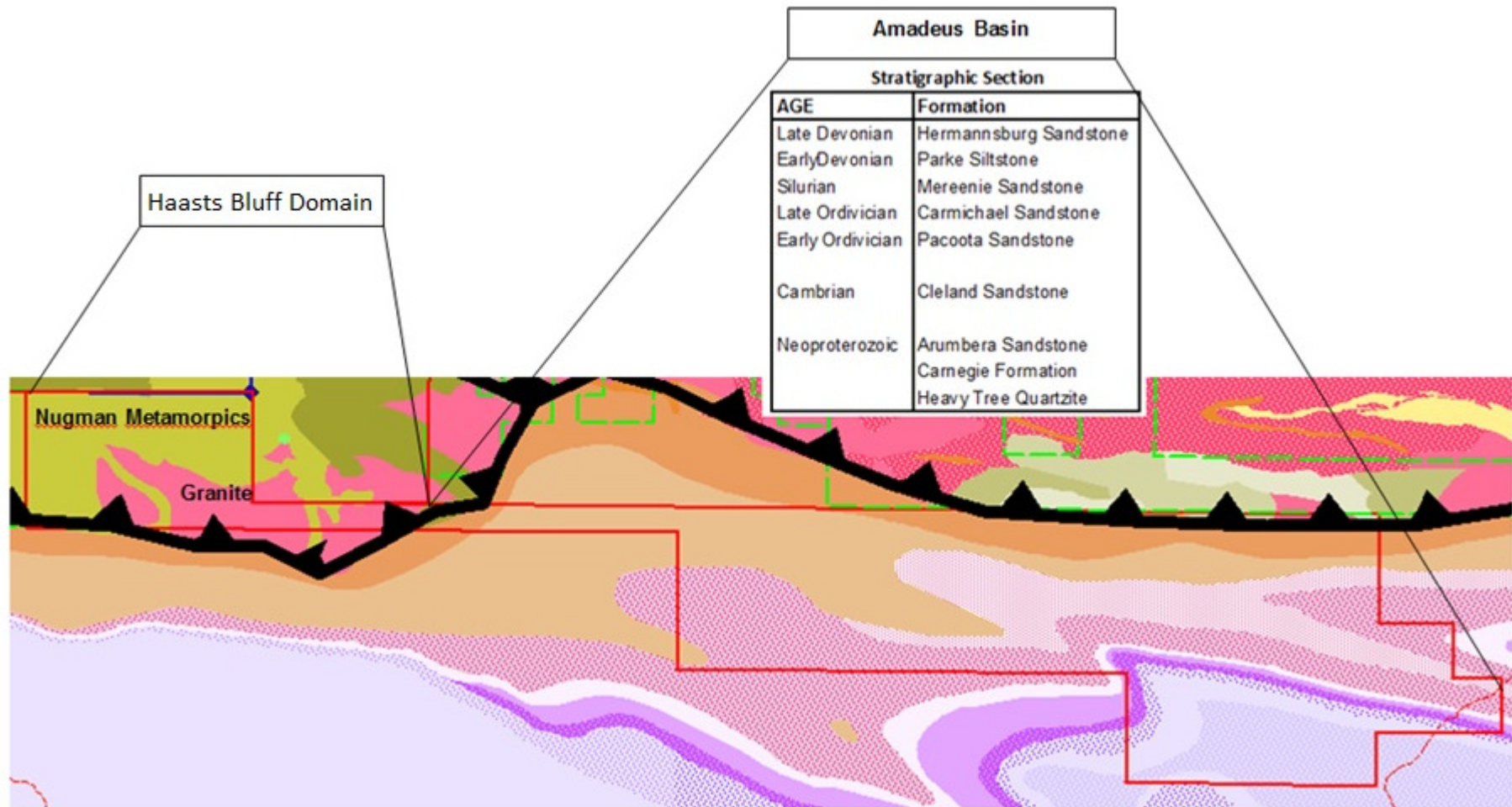


Figure 4: EL26527 Bedrock geology highlighting the two domains found throughout the tenement along with stratigraphic section of rock types interpreted on the tenement of the Amadeus Basin

\*\* Younging direction of the Amadeus Basin is toward the south from the northern contact of the Haasts Bluff Domain.

## 2.3 Exploration History

Limited to no mineral exploration has been completed throughout the region due to its relative inaccessibility, harsh arid environment, lack of water sources and poor grazing conditions.

Geologically the area has been poorly understood due to limited outcrops, weathered profile and a thin veneer of aeolian sands masking vast areas of the region. Recent work by the NT Geological Survey, including outcrop mapping, broad-scale aeromagnetics and limited geochemical sampling to the direct east of the tenements was undertaken in 1999.

## 3 MINERALISATION AND POTENTIAL

No reported occurrences of any mineralisation have been recorded on the project tenements; however low-level anomalous results in NTGS stream sampling occur in the eastern most tenement (EL24825) and further to the east.

The Warumpi province is considered to have high potential, based upon appropriate rock types and structural settings. This potential is supported by the newly defined bedrock ages, 1690-1610Ma, which are similar to the Broken Hill Block (1690), Mount Isa Block (1654) and McArthur River Basin (1640) which all host world class orebodies.

Additionally, two major crustal feature confine and dissect the local geology. To the north the Central Australian Suture zone dips gently to the south, separating the Warumpi Province from the Arunta Inlier. This collisional boundary, which is interpreted to be Grevillian in architecture, can be traced through areas near AngloGold's Tropicana deposit, through to Albany, separating the South Australian Craton from the North and West Australia Cratons. This crustal-scale suture and its associated sub-parallel secondary structures could potentially significantly aid in the transportation and localisation of mineralised fluids as seen at Tropicana. Further, the clockwise rotation of this collision (Figure 5), folding and shearing seen throughout the Warumpi area have the potential to create dilatational zones which again aid in focusing and localising mineralised fluids (Aitken and Betts, 2008).

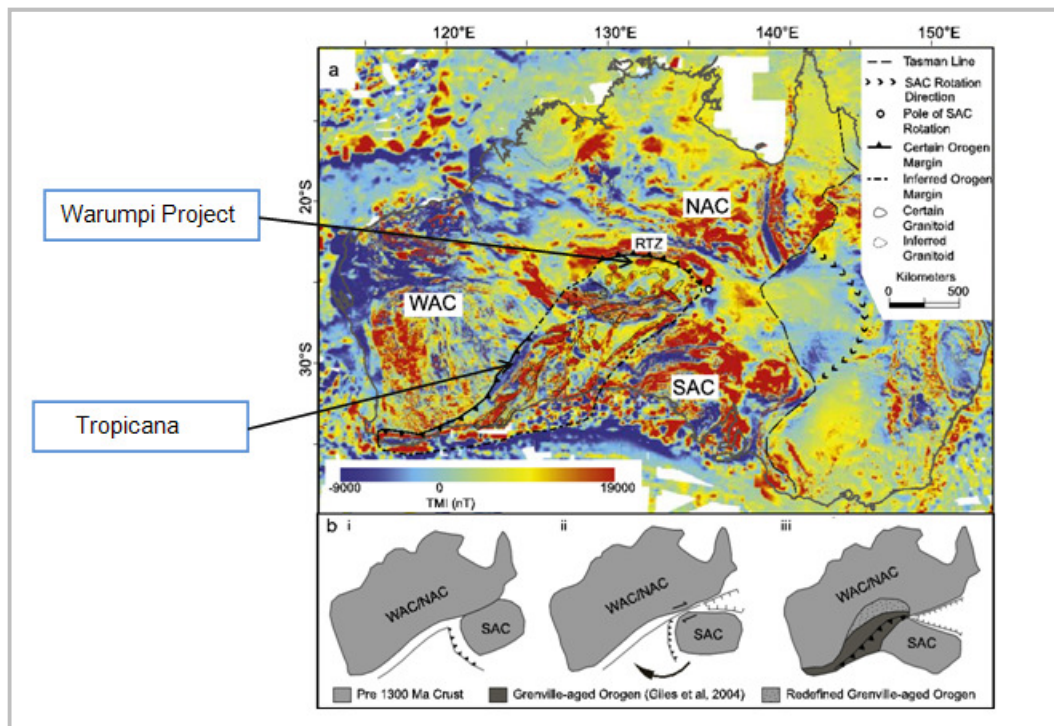


Figure 5: High resolution Magnetics of Australia with the reconstruction of the collisions between the WAC/NAC and the SAC (Aitken and Betts, 2008)

The second important crustal feature is the Yuwalki Fault, part of the Edward thrust complex of the Alice Springs Orogeny (450-300Ma). This fault separates the Yaya Domain in the north with the Haasts Bluff Domain in the south.

Mapping and magnetic interpretation have identified that both the Yaya and Haasts Bluff Domains have been through at least three orogenic events (Liebig Orogeny (1640- 1635Ma), Chewing Orogeny (1590-1560Ma) and the Alice Springs Orogeny (450-300Ma) (Scrimgeour et al, 2005). This is evident in the multiple zones of sub-parallel features that have been folded and cross cut by minor faults and shearing. This has resulted in recorded wide spread quartz veining and alteration throughout area.

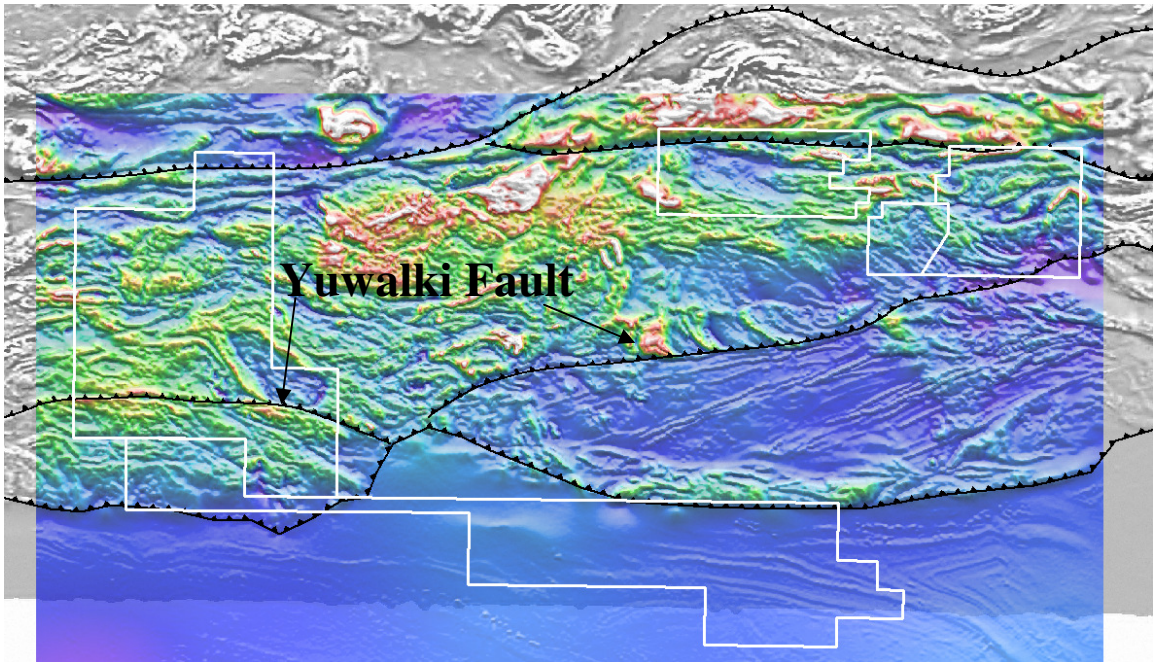


Figure 6: Magnetics displaying Yuwalki Fault and other Crustal Scale Structures

South of the Yuwalki Fault high-grade orthogneiss, rhyolitic volcanics, and metasedimentary schists of the Haasts Bluff Domain dominate, and to the north are high-grade metapelites (paragneisses), migmatites, and metasedimentary schists that have been intruded by Charnockites, granodiorites and granites of the Waluwiya Suite (1640-1630Ma) of the Yaya Domain. These are characteristic of the right ingredients and plumbing (Yuwalki Fault) that is seen in AngloGold’s Tropicana model (Figure 7).

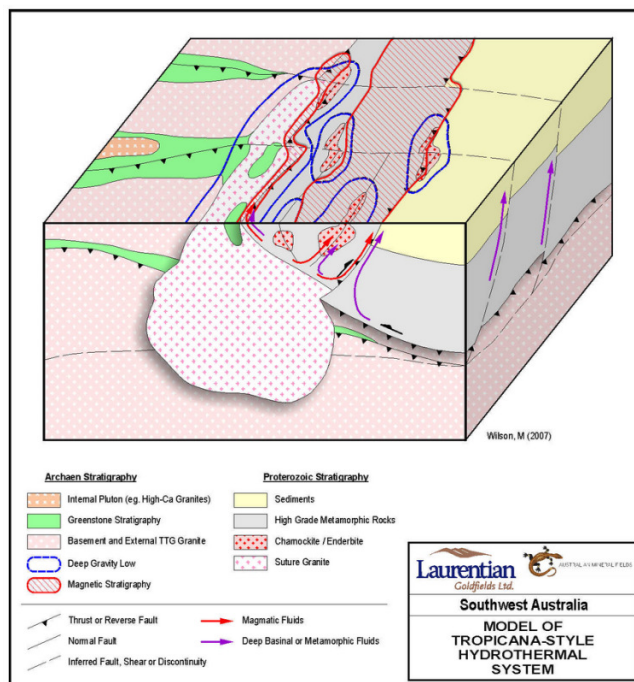


Figure 7: Tropicana model developed by AngloGold Ashanti (Laurentian Goldfields Ltd, 2009)

#### 4 WORK COMPLETED DURING PERIOD

Following a regional heritage survey throughout the western portion of the tenement, a 1km by 1km regional lag sampling program was carried out, collecting a total of 146 samples during the reporting period (Appendix 1). Numerous desktop studies using publically available data in conjunction with the multi-element analysis of the regional lag program were also completed in order to define any anomalous regions for follow-up work.

#### 5 RESULTS

Analysis of multi-element assays from the regional geochemistry did not highlight any anomalous regions for future follow-up work. Field observations identified a considerable amount of transported aeolian sands throughout the region, which may have masked any potential anomalies. Limited outcrop exposure also inhibited the understanding of the underlying bedrock geology throughout the cleared portion of the tenement. The Amadeus basin is interpreted to cover the eastern portion of the tenement and significantly downgrades its potential to host economic mineralisation.

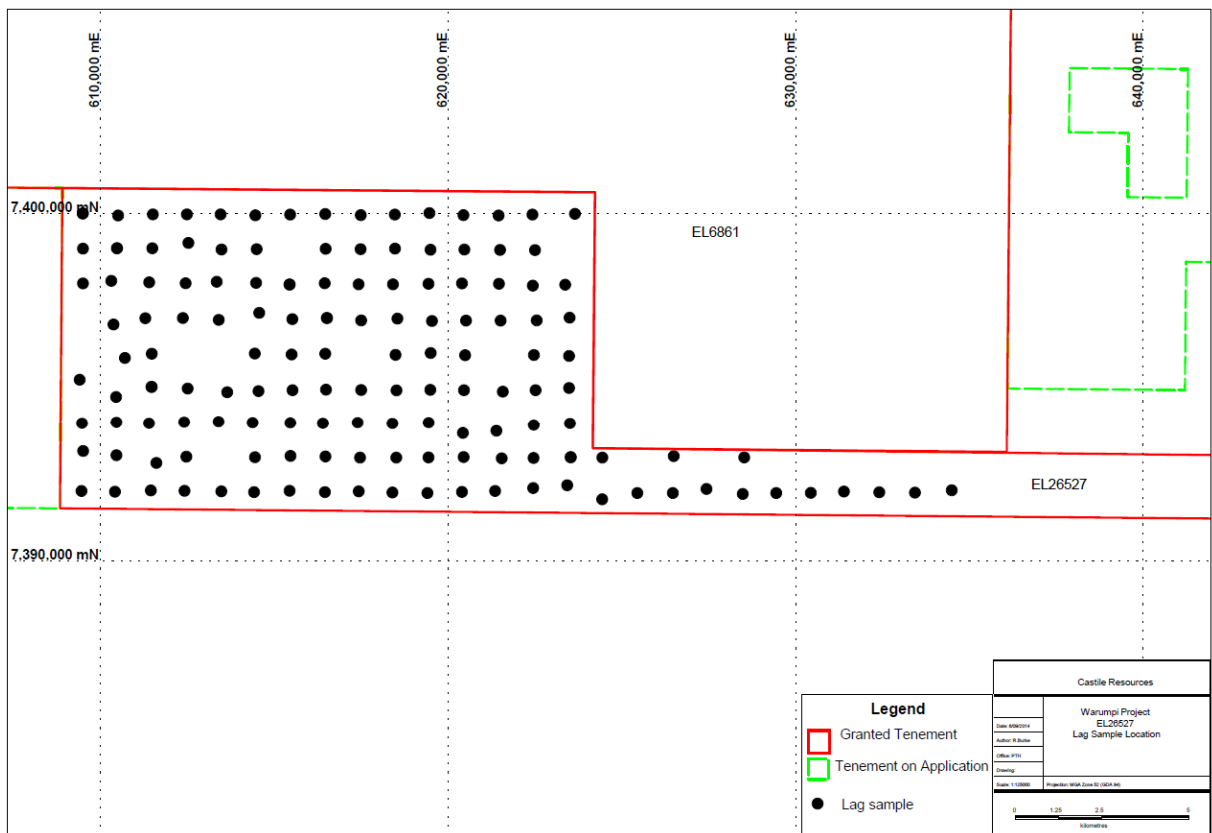


Figure 8: Lag sample location throughout the western portion of EL26527.

#### 6 ENVIRONMENTAL / REHABILITATION

No environmental rehabilitation has occurred during the reporting period as no ground-disturbing work was undertaken.

#### 7 CONCLUSION AND RECOMMENDATIONS

EL26527 lies on the southern portion of the Warumpi Province stretching nearly 100km east west along the boundary of the Proterozoic gneisses of the Haasts Bluff domain to the north and the late Devonian to Ordovician sediments of the Amadeus Basin in the south. Interpretation of the regional magnetics throughout the tenement, outline that only the

western third of the tenement has the potential for near surface mineralisation in the Warumpi Province. The remaining eastern two thirds of the tenement are located within the Amadeus basin with substantial depths to basement which significantly downgrades the mineralisation potential of the region.

Results of the lag program throughout the western portion of the tenement did not locate any anomalous regions for follow-up work. However, increase transported material may have masked any such anomaly. Castile has now focused its' exploration efforts on other regions throughout the Warumpi Province and as such has opted to surrender this tenement.

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## **Appendix 1: Regional Lag Samples Geochemistry**

Please see "Appendix 1" folder