

# **Typhon Minerals Pty Ltd**

## **EL32089 Indiana Project**

Partial Relinquishment report for the period:

7 October 2019 to 16 November 2021

**Target Commodities: Cu, Co, Ni, PGE's, Au, Ag**

Illogwa SF5315 and Huckitta SF5311 (1:250,000)  
6051 Brahma, 5951 Quartz, 6052 Jinka, 5952 Dneiper (1:100,000)

Prepared by Typhon Minerals Pty Ltd  
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### **Abstract**

- EL32089 (Project) is located approximately 170km ENE of Alice Springs.
- Typhon assessed the potential of the relinquished areas for Basil-style Cu-Co sulphide deposits, Ni-Cu-PGE sulphide mineralisation associated with mafic and ultramafic intrusions, as well as bedrock and alluvial Au deposits.
- A total of 125 sub-blocks were relinquished from the Project on 16 November 2021, leaving 125 sub-blocks.
- Work on the relinquished blocks was limited to reviews of previous exploration activities and publicly available remote sensing and geophysical datasets, as well as geological reconnaissance.
- This work suggested that the relinquished blocks have low potential to host economic mineralisation.

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## 1. Introduction

EL32089 is located ~170km ENE of Alice Springs (Figure 1) and extends across portions of Ambalindum, Indiana, Huckitta and Jinka Stations.

The Project can be accessed from the north via the Plenty Highway and station tracks, or from the south via the Ross Highway and station tracks.

All maps in this report are shown using the GDA94 Geographic datum in MGA94 using the Zone 53 projection.

## 2. Tenure

The Project was granted for a 6 year period commencing on 7 October 2019 and originally covered 250 sub-blocks.

A total of 125 sub-blocks were relinquished from the Project on 16 November 2021, leaving 125 sub-blocks (Figure 2).

## 3. Geology

The Project lies within the Cambrian aged Irindina Province and the Proterozoic Aileron Province of the south-eastern Arunta Inlier (Figure 3). The Irindina Province comprises the Harts Range Group, a volcanosedimentary succession that was metamorphosed to granulite facies during the Ordovician Larapinta Event (~475-460 Ma). Litho-stratigraphical and geochronological data indicate that the Harts Range Group correlates with Neoproterozoic to Cambrian sediments of the adjacent Amadeus and Georgina Basins. Therefore, the Harts Range Group was probably deposited in a basin contiguous with, and possibly linking, the Amadeus and Georgina Basins.

While the Harts Range Group was metamorphosed to granulite-facies, sedimentation is interpreted to have continued in the Amadeus and Georgina Basins. Structural and lithological evidence suggest that the Larapinta Event was extensional, with very deep burial required for the measured metamorphic conditions (30-35 km). Such an event was probably associated with mantle melting. The numerous mafic and ultramafic units found throughout the Irindina Province, although their timing is poorly constrained, may have intruded during the Larapinta Event. These intrusions are considered prospective for Ni-Cu-PGE sulphide deposits.

The Harts Range Group and Amadeus and Georgina Basins were structurally inverted and brought to the surface during the mid-Palaeozoic Alice Springs Orogeny (450-300 Ma). Seismic traverse 09GA-GA1 shows that faults in the region form part of a major, north-dipping mid-crustal detachment that separates Irindina Province rocks the Aileron Province (Figure 4).

The Riddock Amphibolite Member contains variably deformed metagabbro intercalated with amphibolite and minor metapsammopelitic rocks.

Exploration in the general region of the Project has identified significant sulphide-hosted Cu-Co mineralisation at the Basil Deposit (Inferred Resource of 26.5 Mt @ 0.57% Cu and 0.05% Co), as well as orthomagmatic Ni-Cu-PGE sulphide mineralisation at Blackadder and Baldrick Prospects (drill intercept of 9m @ 0.48% Ni and 0.37% Cu).

The Basil Cu-Co deposit is located within a 10 km-long zone of hydrothermal alteration containing zones of massive, stringer and disseminated pyrite, pyrrhotite and chalcopyrite within the Riddock Amphibolite. The genesis of the Basil deposit is not well understood due to extensive metamorphic overprinting. The two most likely options appear to be: 1) a metamorphosed orthomagmatic system; or 2) a metamorphosed volcanic-hosted massive sulphide system (e.g. Sharrad et. al., 2014).

A recent Geoscience Australia study highlighted the significant Ni-Cu-PGE potential of the mafic-ultramafic intrusions in the general application area (Duffer et al., 2016, GA Record 2016-001; see also Meixner and Hoatson, 2003, GA Record 2003/29).

Approximately 80% of the relinquished area is covered by a veneer of aeolian and colluvial sand and gravel.

The Project is considered prospective for;

- Ni-Cu-PGE mineralisation associated with mafic and ultramafic intrusions
- “Basil type” Cu-Co semi-massive sulphides
- Vein-style REE-Th mineralisation
- Uranium mineralisation

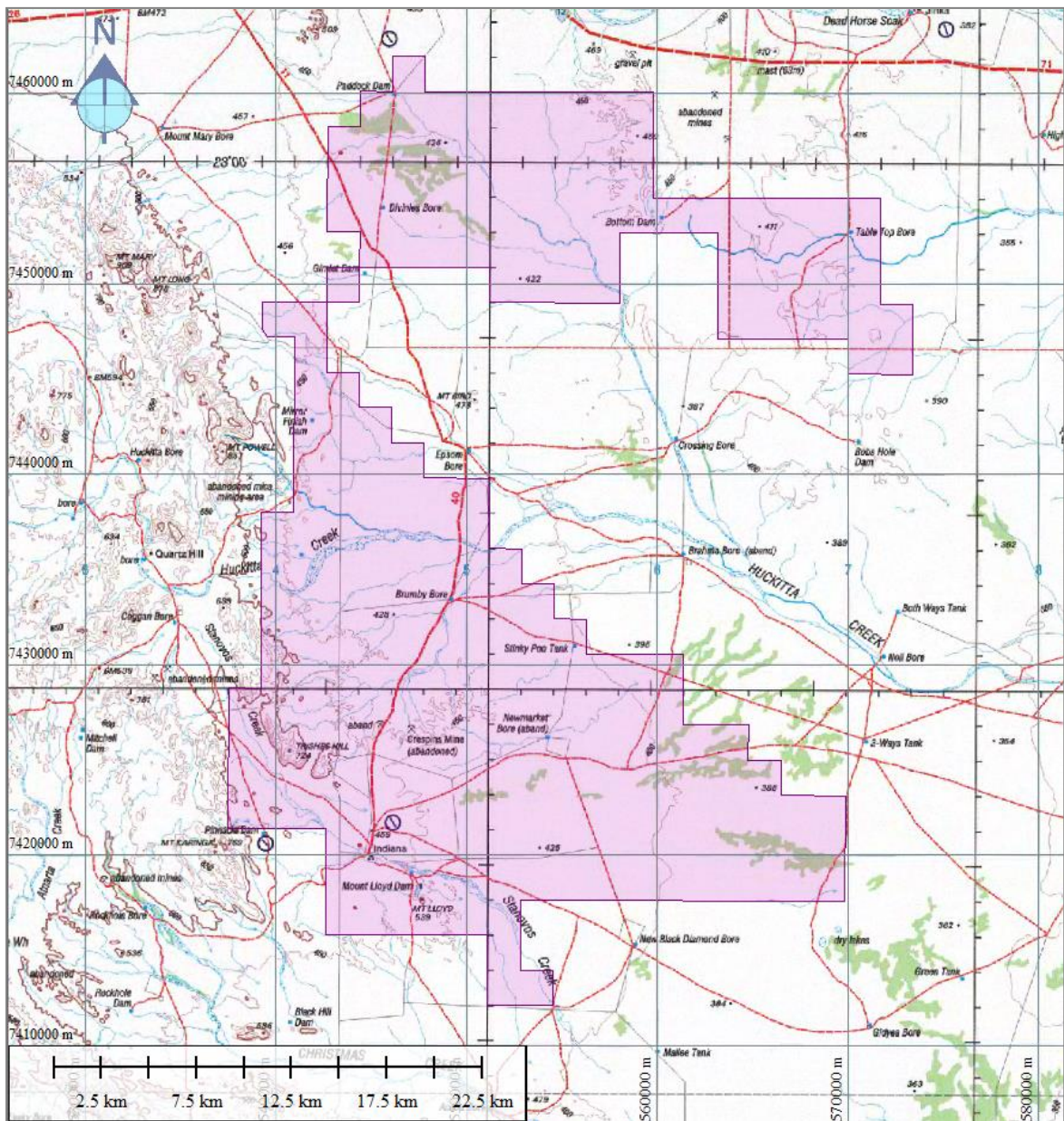
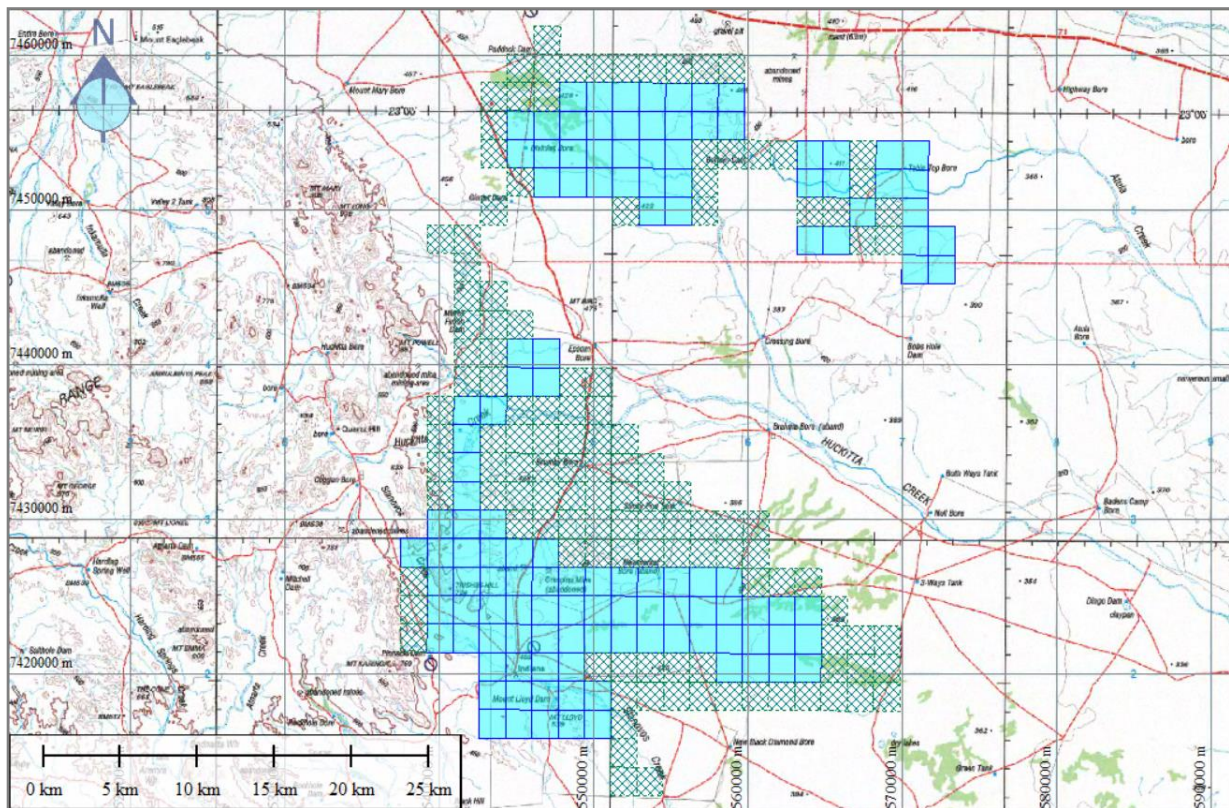


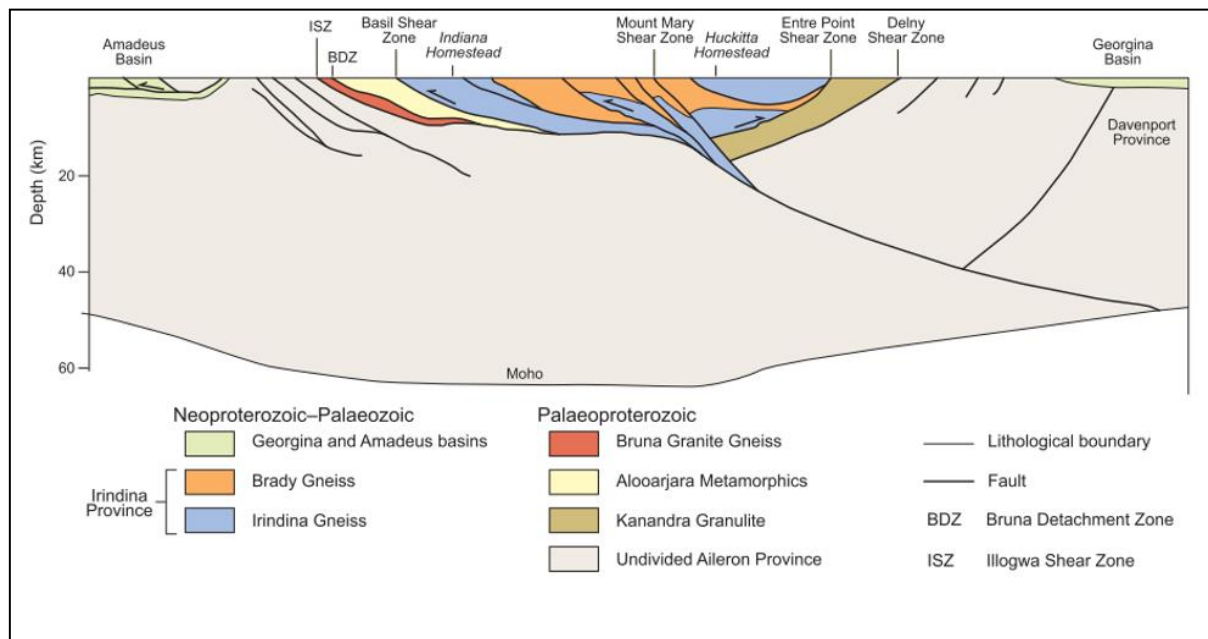
Figure 1: Location map showing the Project area at grant (MGA94 zone 53).



**Figure 2:** Tenement map showing areas retained (blue) and relinquished (green cross hatch) from the Project on 16 November 2021 (MGA94 zone 53).







**Figure 4:** Interpreted migrated seismic section from seismic line 09GA-A1 showing large scale crustal structures along the southern margin the Irindina Province (modified after Scrimgeour, 2011).

#### **4. Exploration history**

The area within and surrounding the Project has previously been explored by a number of companies including Mithril Resources, MMG, BHP, Red Metal and Western Desert. Previous work included mapping, stream sediment, soil and rock chip sampling, ground and airborne magnetic and electromagnetic surveys, and AC, RC and DC drilling. The work located multiple gabbroic intrusions with potential to host magmatic Ni-Cu-PGE sulphide deposits. The AEM/GEM surveys identified a number of mid- to late-time bedrock responses. Large tonnages of Cu-Co mineralisation were defined at the Basil Deposit.

#### **5. Summary of work undertaken**

The following desk-top review work was undertaken on the relinquished sub-blocks:

- Reviewed open-file company reports and other public domain documents (ASX announcements, company annual reports and presentations) and geological papers outlining historical exploration activities.
- Assessment of publicly available geophysical, Landsat, SPOT, ASTER and SRTM/GDEM data over the region.
- Assessment of potential mineralisation features and exploration targets.
- Geological reconnaissance.

#### **6. Conclusion and recommendations**

The geological review suggested that the relinquished sub-blocks have low potential to host economic mineralisation.

## **7. Confidentiality Statement**

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## 8. References

Scrimgeour, I.R. (2011). Geology and Mineral Resources of the Northern Territory, p 29.1-29.12.

Sharrad, K. A. et. al. (2014). The Basil Cu–Co deposit, Eastern Arunta Region, Northern Territory, Australia: A metamorphosed volcanic-hosted massive sulphide deposit. *Ore Geology Reviews*, 2014, vol. 56, pp 141-156.

Various open-file exploration reports.