



**MITHRIL**  
**RESOURCES LTD**

**INDIANA PROJECT**

**ELs 24194, 24427, 24739**  
**ANNUAL TECHNICAL REPORT**  
**FOR PERIOD**  
**1st February 2010 to 30<sup>th</sup> January 2011**

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MAP REFERENCE:  
Illogwa Creek 250K Sheet SG53/15  
Huckitta 250K Sheet SF53/11

## **SUMMARY**

This report summarises work completed on Mithril Resources Indiana Project Exploration Licences (ELs 24194, 24427 and 24739) for the year ending the 30<sup>th</sup> January 2011.

The project area is located approximately 220km northeast of Alice Springs, south of the Plenty Highway.

Work completed over the tenement area during the reporting period includes the following:

- Rockchip sampling and mapping
- Reassessment of VTEM anomalies and of the project
- Relinquishment of EL24739
- 50% reduction of EL24194

This work has resulted in four targets being generated for drill testing in the first half of 2011.

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Table 2: Current 2011 Tenement Details

### APPENDICIES

Appendix 1: Tenement assessment report (internal)

Appendix 2: Rockchip Assay Results

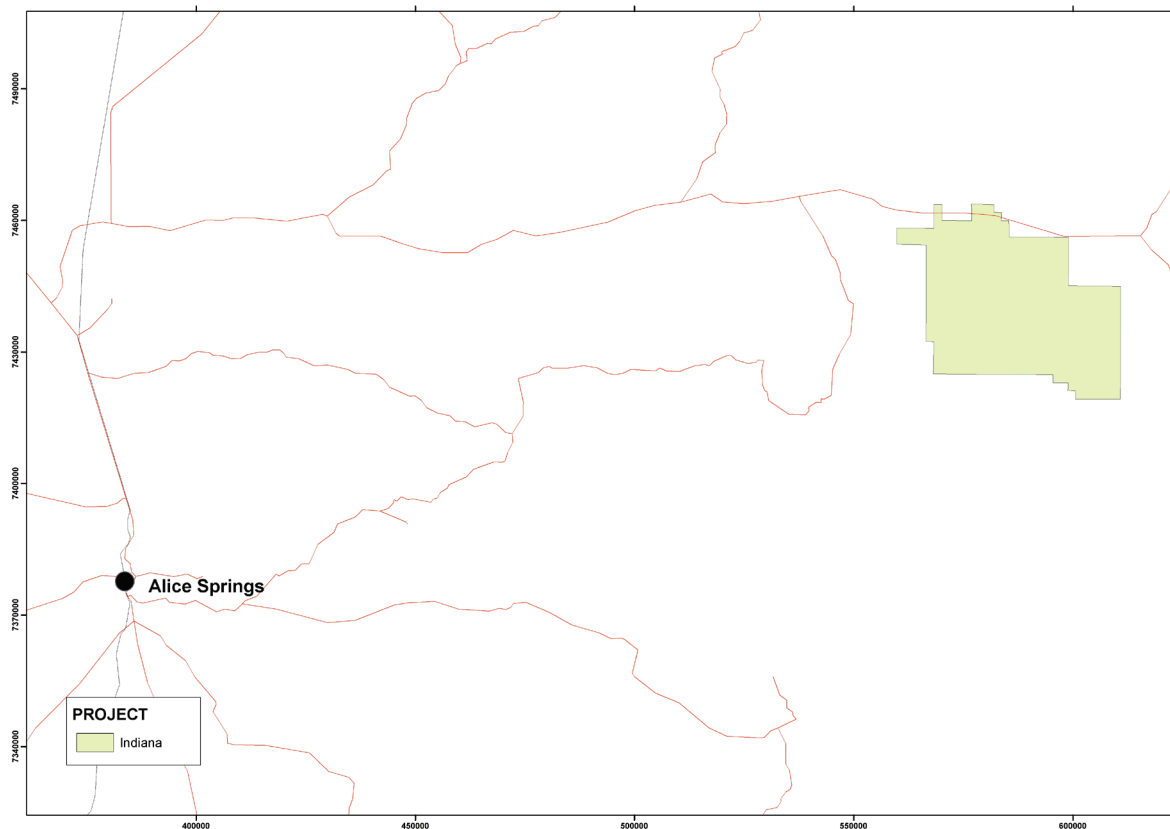
Appendix 3: Petrology Report

## 1.0 Introduction

This report summarises work completed on Mithril Resources Indiana Exploration Licences (ELs 24194, 24427, 24739) for the year ending 1<sup>st</sup> February 2011. Joint reporting status for the project was granted in June 2008.

The Indiana Project is located approximately 300 km northeast of Alice Springs. Access to the area is via the Plenty Highway, which passes east-west north of the project area (Figure 1).

The area under licence was targeted for magmatic Ni/Cu/PGE sulphides associated with mafic and ultramafic rock types, which have previously been identified in the western portion of the of the licence area and further west including the Hammer Hill Prospect. Tectonically the project is located on the interpreted southern edge of the North Australian Craton within the Irindina Province of the Arunta Region between the Georgina and Amadeus Basins.



**Figure 1:** Location of the Indiana Project (at beginning of reporting period) relative to Alice Springs, major roads and railway.

## 2.0 Tenure

Leasing details as they stood at the beginning of the reporting period are detailed in Table 1 below. All tenements were granted for a period of six years. During the reporting period EL24739 was relinquished in its entirety and EL24427 was reduced by 50%. This is the current status of the tenements and is detailed in Table 2.

EL	Original Area (sqkm)	Date Granted	Current Covenant	Current Area (sqkm)
24194	809	24/1/2005	\$75,000	404
24427	578	26/5/2005	\$100,000	398
24739	50	2/2/2006	\$40,000	50

Table 1: Tenement Status at commencement of reporting period

EL	Date Granted	Current Covenant	Current Area (sqkm)
24194	24/1/2005	\$75,000	404
24427	26/5/2005	\$100,000	119

Table 2: Current Tenement Status

### 3.0 Geology

#### 3.1 Regional Geology

The Arunta Block has been divided into 3 tectonic areas: - Central, Southern and Northern (Shaw and Freeman 1985). The Central Tectonic Zone consists of an accumulation of sedimentary and volcanogenic rocks deposited in an east – west trough. With time the trough broadened to include the Northern and Southern Tectonic Zones and the composition of the sediments being supplied to the basin matured.

An early tectonic event during the mid-Proterozoic metamorphosed and dislocated the rocks into numerous fault-bounded blocks. A later orogenic event, the Carboniferous Alice Springs Orogeny, reactivated many of these faults.

Sedimentation in the Georgina Basin began during the Neoproterozoic (i.e. Adelaidean equivalent) with deposition of argillites, arenites, glauconitic sediments and carbonates along the southern margin of the basin. Sediments deposited after the Neoproterozoic sequence consist primarily of carbonates and arenites (Shaw et al, 1982).

#### 3.2 Project Geology

The Arunta Region within the project consists of biotite gneiss, garnet-biotite gneiss, calcareous rocks, amphibolite and quartzofeldspathic gneiss. The tenements fall within a poorly understood region of the Arunta known as the Irindina Province consisting of highly metamorphosed Cambrian aged rocks. Much of the tenement is under a thin veneer of Quaternary alluvial and aeolian sands and gravels. Significantly there are multiple outcrops of Tertiary laterite, which may be indicating the weathering product of the targeted mafic and ultramafic rocks.

## **4.0 Exploration Work Completed**

### **4.1 Historical Exploration**

Reviews of historical exploration found that the majority of exploration was conducted by BHP Minerals and Poseidon Gold Ltd and are the only two companies to have completed any exploration of significance.

Summaries of their exploration are described below:

#### **BHP Minerals (1992)**

BHP explored the area for base metals (Cu, Pb, Zn) using broad spaced stream sediment sampling, rockchip sampling, ground geophysics (EM and magnetics) focussing on magnetic anomalies within major north-west trending structures interpreted from the magnetics. Limited RC percussion drilling was completed over a few of these magnetic targets which identified anomalous levels of Au, Pt, Pd, Ni, and Cu. These anomalous results were not followed up by BHP Minerals.

Anomalous rockchip samples (up to 0.33% Cu) were recorded from “a Tertiary and siliceous ferruginous cap rock of limited extent.” These samples were not followed up.

#### **Poseidon Gold Ltd (1995)**

Although Poseidon Gold acquired the lease targeting epigenetic gold mineralisation they attempted to replicate the anomalous Ni/Cu/Pt/Pd results obtained by BHP Minerals by drilling 29 RAB holes on four traverses. No significant results were returned and the licence was relinquished.

### **4.2 Mithril Resources Historical Exploration Activities**

#### **4.2.1 Interpretation and Evaluation of Historical Exploration**

A review of the historical exploration found that no systematic exploration had been completed over the project area. The few explorers that have been in the area previously focussed their exploration on base metals and gold. Although they identified anomalous geochemistry associated with siliceous and iron-rich cap rocks they seem to have failed to make the connection that this could be related to magmatic sulphides associated with mafic / ultramafic rocks.

#### **4.2.2 Mithril 2005 Work**

The bulk of Mithril's work in 2005 consisted of stream sediment sampling. Results from this survey showed a coherent NW trending Ni/Cu/Cr anomaly southwest of the main drainage area and is coincident with the anomalous areas defined by historical work. This anomaly is also coincident with a NW trending magnetic anomaly.

#### 4.2.3 Mithril 2006 Work

Mithril completed a magnetic lag sampling and Ground EM program in 2006. This program identified significant Ni-Cu anomalous samples and a ground EM conductor. This work confirmed the prospectivity of the area and it was recommended that an airborne EM program be flown to help identify multiple drill targets.

#### 4.2.4 Mithril 2007 Work

During 2007 a number of exploration activities were completed over the project area. These included an extensive VTEM survey, ground verification of targets generated followed by ground EM surveys over multiple targets. From this a number of high quality drill targets were identified for drill testing over targets IVT040, IVT017 and IVT020.

Many of these targets were followed up on the ground to determine if the source of the anomaly could be located. Due to the extensive sand cover in the area many of the anomalies are unexplained. Rockchip samples were taken at a number of locations with a number of them returning elevated nickel and/or copper and/or chrome values.

#### 4.2.5 Mithril 2008 Work

During 2008 exploration activities completed included ground electromagnetics, heritage surveys and diamond drilling.

An extension to the ground EM surveys conducted in November and December of 2007 and January of 2008 was completed during the reporting period to follow-up some of the remaining high priority VTEM targets.

Two heritage surveys were completed during the reporting period over the project. Although the priority areas were cleared for drilling a very large Exclusion Zone was determined by the traditional owners, largely within EL24427. This has limited exploration within this licence area.

Two diamond drillholes were completed for a total of 360.3m over anomaly IVT040 targeting two of three ground electromagnetic anomalies identified during the last reporting period. Both drillholes intersected significant intervals of up to 50% pyrrhotite > pyrite > chalcopyrite mineralisation associated with amphibolites and calc-silicate rocktypes with grades averaging 0.2%Cu. These sulphide abundances adequately explain the anomalies.

#### 4.2.6 Mithril 2009 Work

Work completed in 2009 consisted of rehabilitation of the drillholes and drillsites from the previous year and rockchip sampling and geological mapping. The mapping and sampling confirmed the presence of new ultramafic bodies.

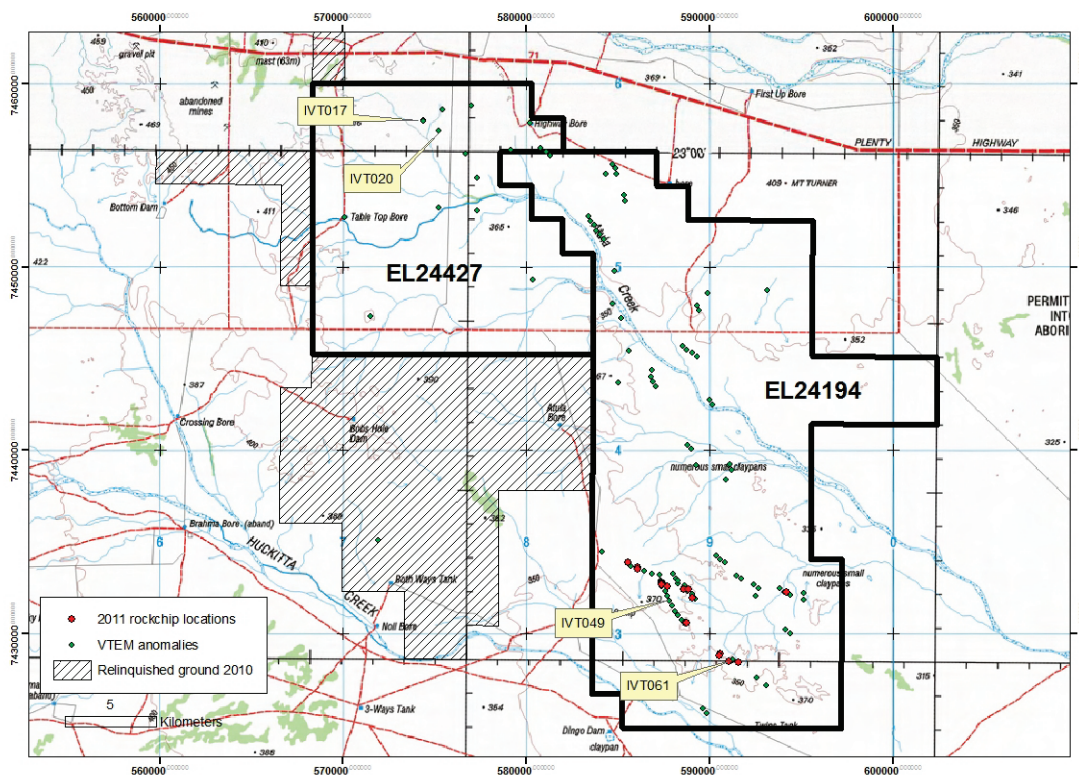
### 5.0 Exploration Work Completed 2010

Exploration activities this year focussed on a review of the prospectivity of the tenement and field checking of extensive linear VTEM anomalies identified

previously by Mithril in the southern half of EL24194 (Figure 2) . These linear anomalies were previously placed as a lower priority due their extensive nature but the discovery of the Basil Cu-Co sulphide mineralising system just to the south resulted in a rethink as to the priority of these conductors.

A review of the project resulted in highlighting a number of areas requiring further work as a priority. This is summarised in report form in an internal memorandum as Appendix 1.

A total of 20 rockchips were collected (Figure 2) and sent to ALS laboratories in Alice Springs for preparation and then to Perth for analysis. Samples were submitted for 36 elements using the ICP-MS61 method and FA25 was used for Pt, Pd and Au. In addition two samples were sent for petrographic examination. Iron and manganese rich float was identified at a number of locations proximal to VTEM anomaly IVT049 with assays returning up to 0.19%Cu and over 0.2% Ni. However manganese was highly elevated and the anomalous metal values may be attributed to scavenging. No graphite was noted in the field or in the petrology samples (taken from near IVT049). All assay data can be found in Appendix 2 and the petrology report is contained in Appendix 3.



**Figure 2:** Project area showing 2010 sample locations, 2011 drill targets and relinquished ground in 2011.



## **6.0 Planned Work**

Significant field work is planned for the first half of 2011 with planned aircore drilling over VTEM anomaly IVT049. In addition to this a drill rig has been secured to RC percussion drill test ground EM anomalies at targets IVT017, IVT020 and IVT061 (Figure 2).

## **7.0 References**

Shaw, R.D., Freeman, M.J., Offe, L.A., and Senior, B.R., 1982. Geology of the Illogwa Creek 1:250,000 sheet area, Central Australia – Preliminary data, 1979-80 surveys. *Bureau of Mineral Resources, Record 1982/23* (unpublished)