

# EL27243 – MALLEE BORE

# YEAR 3 ANNUAL REPORT

For the Period

6 November 2012 to 5 November 2013

**Compiled By** 

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MAP REFERENCE: Illogwa Creek 250K - Sheet SF53/15

Target Commodities: Nickel and Copper

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#### SUMMARY

This report presents work completed during the fourth year of tenure on the Mallee Bore Tenement (EL27243), granted to Mithril Resources Ltd (Mithril) on 6 November 2009.

EL27243 is centred approximately 185 km east, northeast of Alice Springs. The tenement area has been held by numerous other companies who have explored for gold, base metals, industrial minerals and Uranium.

Mithril first applied for the ground with a view to explore for Nickel sulphide deposits whilst remaining open minded to opportunities provided by other commodities.

Work completed during the reporting period included:

- High resolution aeromagnetic survey (6564.5 line km)
- Geological mapping
- Field reconnaissance for drill access
- Heritage survey
- Drilling (9 RC holes)

# CONTENTS

1.0	INTRODUCTION	1
2.0	TENURE	1
3.0	GEOLOGY	1
3.1	Regional Geology	1
3.2	Project Geology	2
4.0	HISTORICAL EXPLORATION WORK COMPLETED	3
4.1	Work Completed During 2011-2012	3
5.0	WORK COMPLETED DURING THE REPORTING PERIOD	3
5.1	Aeromagnetic survey	3
5.2	Heritage Surveys	4
5.3	Field Reconnaisance	5
5.4	Drilling	5
5.5	Rehabilitation	7
6.0	CONCLUSIONS AND PLANNED WORK 2012-13	7
COPY	RIGHT – AUTHORISATION OF PUBLICATION	7

## FIGURES

Figure 1: Location of EL27243 (Mallee Bore)	1
Figure 2: Geology of EL27243 (from published geology map sheet)	3
Figure 3: Flight lines and tie lines for aeromagnetic survey over EL27243.	4
Figure 4: Reduced to the pole magnetic data over EL27243.	4
Figure 5: Heritage clearance areas over EL27243	5
Figure 6: Location of RC drill holes drilled in October/November 2013.	6

## TABLES

Table 1:	EL27243 (Mal	lee Bore) te	enure1	
1 4010 11				

# APPENDICES

Appendix 1:	Drill hole collar locations Digital file: EL27243_2013_A_02_DrillCollars.txt
Appendix 2:	Drill hole lithology data Digital file: EL27243_2013_A_03_LithoLogs.txt
Appendix 3:	Drill hole downhole geochemical data Digital file: EL27243_2013_A_04_DownholeGeochem.txt
Appendix 4:	Drill hole downhole survey data Digital file: EL27243_2013_A_05_DownholeSurvey.txt

- Appendix 5: Drill hole downhole QAQC data Digital file: EL27243\_2013\_A\_06\_DownholeQAQC.txt
- Appendix 6: Logging codes data Digital file: EL27243\_2013\_A\_07\_LoggingCodes.txt
- Appendix 7: Airborne Magnetics report by Fugro Airborne Surveys (all locations) Digital file: EL27243\_2013\_A\_08\_AirborneMagneticReport.pdf
- Appendix 8: Airborne Magnetics data Folder file: EL27243\_2013\_A\_09\_AirborneMagneticData
- Appendix 9: File listing information Digital file: EL27243\_2013\_A\_10\_FileListings.txt

## 1.0 INTRODUCTION

This report presents work completed on the Mallee Bore Tenement (EL27243) by Mithril for the fourth reporting year, ending 5 November 2013.

EL27243 is located approximately 185 km east, northeast of Alice Springs (Figure 1). The tenement can be accessed from the north via the Plenty Highway and station tracks or the east via the Ross Highway and station tracks. Station tracks provide for reasonable access to much of the tenement area.



Figure 1: Location of EL27243 (Mallee Bore).

Mithril initially targeted the area for Ni-Cu-PGE sulphide deposits associated with mafic and ultramafic magmatic rocks. This style of mineralisation has been identified on adjacent tenements. However, recent exploration on the adjacent licence (EL26942) has identified significant sulphide hosted Cu-Co mineralisation at the Basil Prospect. Drill intersections at the Basil prospect include 59.1m @ 0.63% Cu and 0.07% Co in LB035DD; and 29.0m @ 0.66% Cu and 0.07% Co in LB027DD.

## 2.0 TENURE

Mithril Resources Limited (ACN 099 883 922) was granted exploration license EL27243 for a six year period due to expire 5 November 2015.

Project	Tenement	Tenement	Application	Grant	Area	Grant	Grant
	Name	No	Date	Blocks	(km <sup>2</sup> )	Date	Period
Huckitta	Mallee Bore	27243	23/03/2009	96	288	6/11/2009	6 years

Table 1: EL27243 (Mallee Bore) tenure.

#### 3.0 GEOLOGY

#### 3.1 Regional Geology

EL27243 lies within the Irindina Province (also known as the Harts Range Metamorphic Complex) of the south-eastern Arunta Inlier. The Irindina Province comprises the Harts Range Group, a volcano-sedimentary 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 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).

## 3.2 Project Geology

EL27243 contains approximately 95% cover and 5% subcrop (Figure 2).

Where outcrop is available the dominant stratigraphic units are the Irindina Gneiss and the Riddock Amphibolite. The Irindina Gneiss is a quartz-feldspar-biotite +/-garnet gneiss with interbedded massive amphibolites with lesser calc-silicates and marble. The Riddock amphibolites are massive to compositionally layered amphibolite intervalated with garnet-biotite-feldspar-quartz gneiss and rare quartzitic units.

The area has been subjected to intense deformation and metamorphism (as outlined in regional geology above).

The area 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 2: Geology of EL27243 (from published geology map sheet).

## 4.0 HISTORICAL EXPLORATION WORK COMPLETED

Numerous companies and individuals have explored in the general area covered by EL27243.

A detailed synthesis of previous exploration work is contained in the first Annual Report.

## 4.1 Work Completed During 2011-2012

Work completed during the 2011-2012 reporting period included:

- Data compilation and review of exploration data by MMG Ltd who have entered into a nickel only joint venture on the tenement.
- Planning of a 100 m spaced magnetic survey over the entire EL area was planned to commence in November 2012 but this has been postponed at the request of the landholder until May 2013 due to the calving season.

## 5.0 WORK COMPLETED DURING THE REPORTING PERIOD

## 5.1 Aeromagnetic survey

In March-April 2013, 6564.5 line kilometres of high resolution aeromagnetic data were collected over EL27243 (Figures 3 and 4). The survey was flown with N-S flight lines with 50 m spacing and a nominal terrain clearance of 35 m and tie lines orientated E-W with 500 m line spacing (Figure 3) (report and data are included in the Appendix 7 and 8, respectively).

Aeromagnetic data were used to target mafic intrusions under cover within the eastern Irindina Province. Five magnetic anomalies were chosen for drill testing.



Figure 3: Flight lines and tie lines for aeromagnetic survey over EL27243.



Figure 4: Reduced to the pole magnetic data over EL27243.

## 5.2 Heritage Surveys

Heritage clearance was conducted over EL27243 covering the five magnetic targets and their access tracks (Figure 5).



Figure 5: Heritage clearance areas over EL27243.

## 5.3 Field Reconnaisance

During July 2013, helicopter based field reconnaissance was undertaken across EL27243 to ground check magnetic anomalies and to determine the location of tracks and drill pads for the planned RC drilling. Helicopter based geological mapping of isolated outcrops in the northern part of the tenement was also undertaken due to the difficult 4WD access.

## 5.4 Drilling

During October/November 2013, 9 RC holes for 900 m were drilled in the western portion of EL27243. These holes were designed to test several sub circular and/or remnant magnetic anomalies identified in the 2013 aeromagnetic survey (Figures 3, 4 and 6). Drill holes were designed as north trending fences with two south plunging drill holes. Drilling encountered approximately 10-15 m of cover consisting of Quaternary sands, gravels and clays below which relatively fresh basement was intersected. Mafic lithologies were the intersected in all 9 drill holes and are interpreted as the source of the targets magnetic anomalies.

Drill holes were sampled as 2 m composites from approximately 10 m above the basement cover interface to the bottom of the hole. Samples were then sent to ALS in Alice Springs for ME-MS61 & PGM-MS63 (Drilling and Assay data is contained in Appendix 1-6).



Figure 6: Location of RC drill holes drilled in October/November 2013. (top) satellite imagery. (middle) Zoom in of drill holes over the Analytical signal of the total magnetic intensity. (bottom) Half vertical derivative of the RTP.

#### 5.5 Rehabilitation

All drill holes have been capped and back filled around the collar. Rehabilitation of drill pads and access tracks is scheduled for early 2014.

#### 6.0 CONCLUSIONS AND PLANNED WORK 2012-13

Magnetic targets are sourced in foliated amphibolite that appears to be characteristic of Riddock Amphibolite that is ubiquitous across the region. The drilling did not intersect any lithologies that hit the target Lloyd gabbros that are host prospective Baldrick/Blackadder Ni-Cu-PGE mineralisation.

Recommendations for further work on EL27243 will be dependent on the results of 2014 exploration activities on several adjacent tenements.

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