Annual Report

EL22349 “Mount Sainthill”

May 17 2015 – May 16 2016

Map Sheets:	1:250k – HUCKITTA SF5311
	1:500k – JINKA 6052
Project Operator:	MOLYHIL MINING PTY LTD
Author:	R Bradey (rbradey@thormining.com)
Date:	July 15, 2016
Target Commodity:	Tungsten, Molybdenum

Contents

SUMMARY

This annual exploration report covers EL22349 for the period 17 May 2014 to 16 May 2015. EL22349 comprises 118 graticule blocks and includes ML 23825, over the Molyhil tungsten, molybdenum deposit. Further tungsten resources are being sought to supplement a proposed mining and treatment operation at Molyhil. Prospective geological settings are likely to exist blanketed under transported cover in the vicinity of the deposit. Planning, design and permitting of a bedrock geochemistry program has been completed to test identified targets. Although no on-ground exploration work was carried out during the reporting period, over $320,000 was spent by Thor Mining on metallurgical test work, feasibility and permitting on the Molyhil Project which lies within EL22349. The company is actively seeking funding to resume planned exploration activities.

INTRODUCTION

This report covers all exploration completed on EL22349 “Mount Sainthill” for the period 17 May 2015 to 16 May 2016. Exploration licence EL22349 covers the Molyhil Mining Leases ML23825, ML24429 and ML25721 over the Molyhil Tungsten Molybdenum deposit area. Exploration Licence EL22349 was originally comprised of 259 graticule blocks (829 km^2) and was granted to Imperial Granite and Minerals Pty Ltd on May 17, 2002.

EL22349 was transferred to Tennant Creek Gold (NT) Pty Ltd on 26 March 2004. In 2005 the Molyhil Tenement Package (EL22349, MLA23825 and MLA24429) was transferred 100% to Sunsphere Pty Ltd. In 2007 Sunsphere Pty Ltd had a name change to Molyhil Mining Pty Ltd.

The tenement was reduced in size to 118 graticule blocks (374.0 km2) by surrendering the western half at the end of Year 8. On July 25, 2013 the tenement was again reduced by voluntary partial surrender to 72 blocks comprising a total area of just over 228 square km as shown in Figure 1.

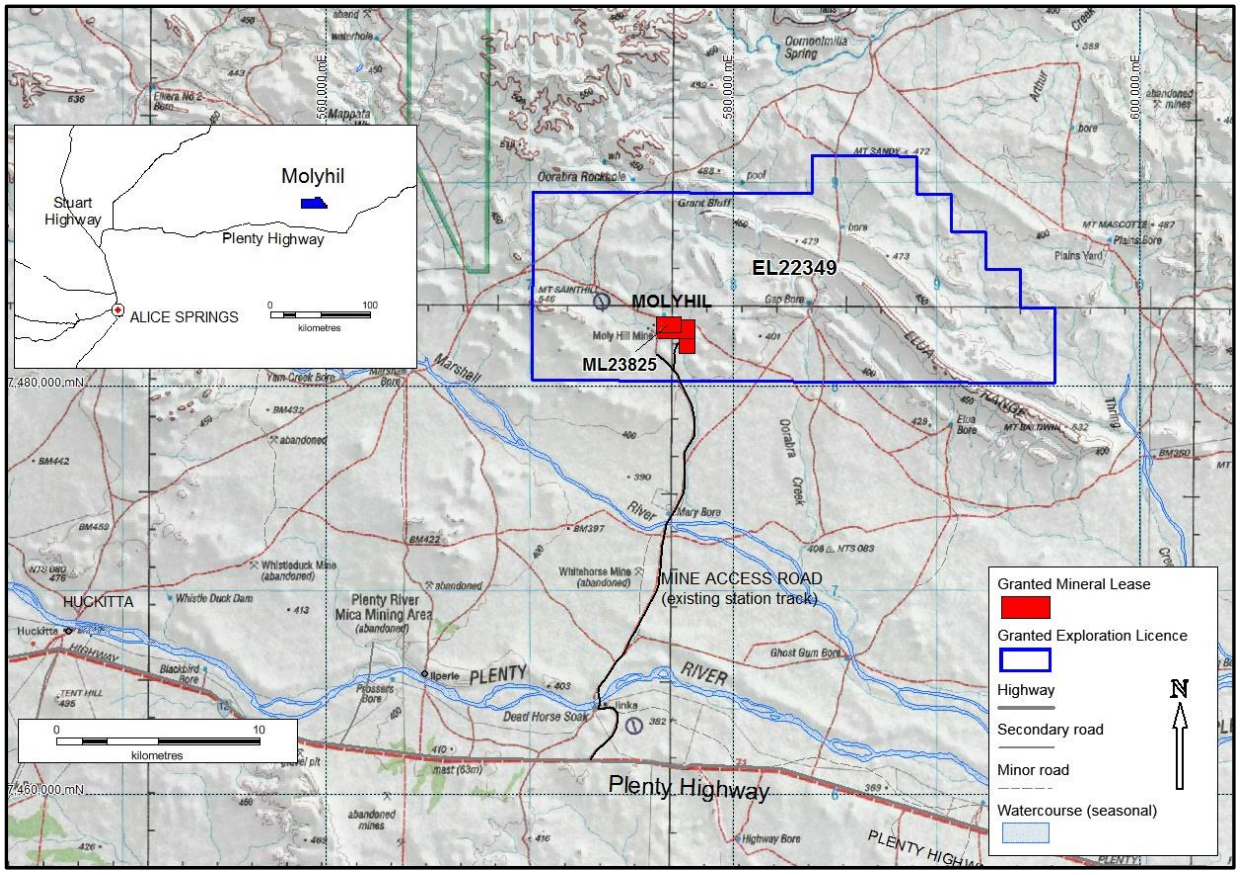

Figure 1: Mount Sainthill (EL22349) location

LOCATION AND ACCESS

EL22349 is located on the Huckitta 1:250,000 map sheet (SF53-11) 330km northeast of Alice Springs. Access is via the Stuart Highway for 70km north of Alice Springs, then east for 230km along the Plenty Highway until the turnoff to Jinka Station is reached. The unsealed station road leads north for approximately 30km to the Molyhil mine site located on the southern boundary of the licence. The area of the licence is well served by station roads and tracks (**Error! Not a valid bookmark self-reference.**).

NATIVE TITLE AND SITE CLEARANCE

A Tripartite Deed exists between Molyhil Mining Pty Ltd (Thor), Central Land Council (CLC) and the Traditional owners. A mining agreement exists between the parties. The location of aboriginal sacred sites was investigated during exploration work undertaken in the area in 2003.

The Authority Certificate from the Aboriginal Areas Protection Authority was issued on 20 March 2012.

A search of the Australian Heritage database was undertaken for the project with the co-ordinates -22°40'—22°50' and 135°40'— 135°50'. No sites were identified within the search area. The Dulcie Ranges, listed as an indicative place on the Register of National Estate, is located northeast of the licence area and will not be impacted by the project. The licences are substantially covered by the area of the Site of Conservation Significance Area 51, Dulcie Ranges and Surrounds (Figure 2).

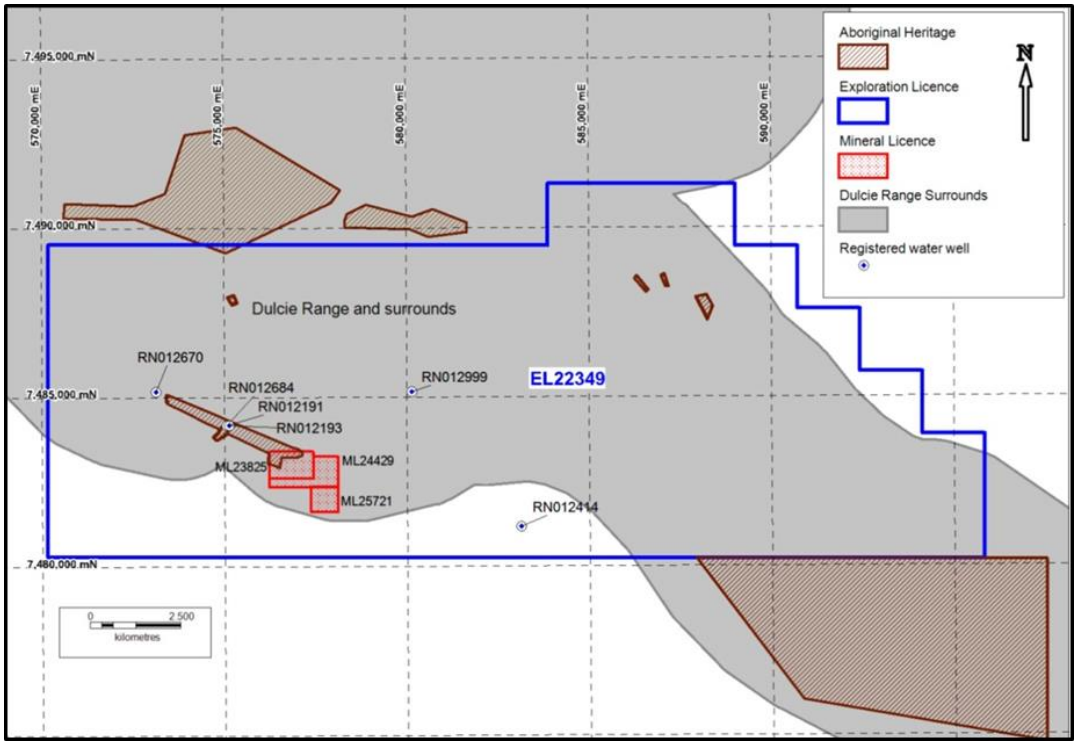

Figure 2: EL22349 and Area 51, Dulcie Ranges and Surrounds

GEOLOGY

The Mount Sainthill tenement covers Early Proterozoic rocks with high magnetic relief along the Delny-Mt Sainthill Fault, a feature developed within a wide west-north-west tectonic zone. This structure was active during the 1800Ma Strangways Event, which affected the entire Arunta Orogenic Domain.

A second dominant east-north-east trending fracture zone (Oomoomilla Fault) intersects the west-north-west fracture west of Molyhil. This intersection has been the locus for repetitive granite intrusion, including the Marshall and Jinka Granites (Figure 3). Faults within this tectonic zone have been periodically reactivated with a major remobilisation during the Carboniferous Alice Springs Orogeny.

Magnetic rocks are variously metamorphosed up to granulite facies and polyphase granitoids intrude Arunta Division One and Two mafic and felsic volcanogenic sequences hosting proportions of pelitic and calcareous sediments.

The basement rocks are unconformably overlain by Adelaidean and Palaeozoic marine and terrestrial sedimentary sequences of the intracratonic Georgina Basin.

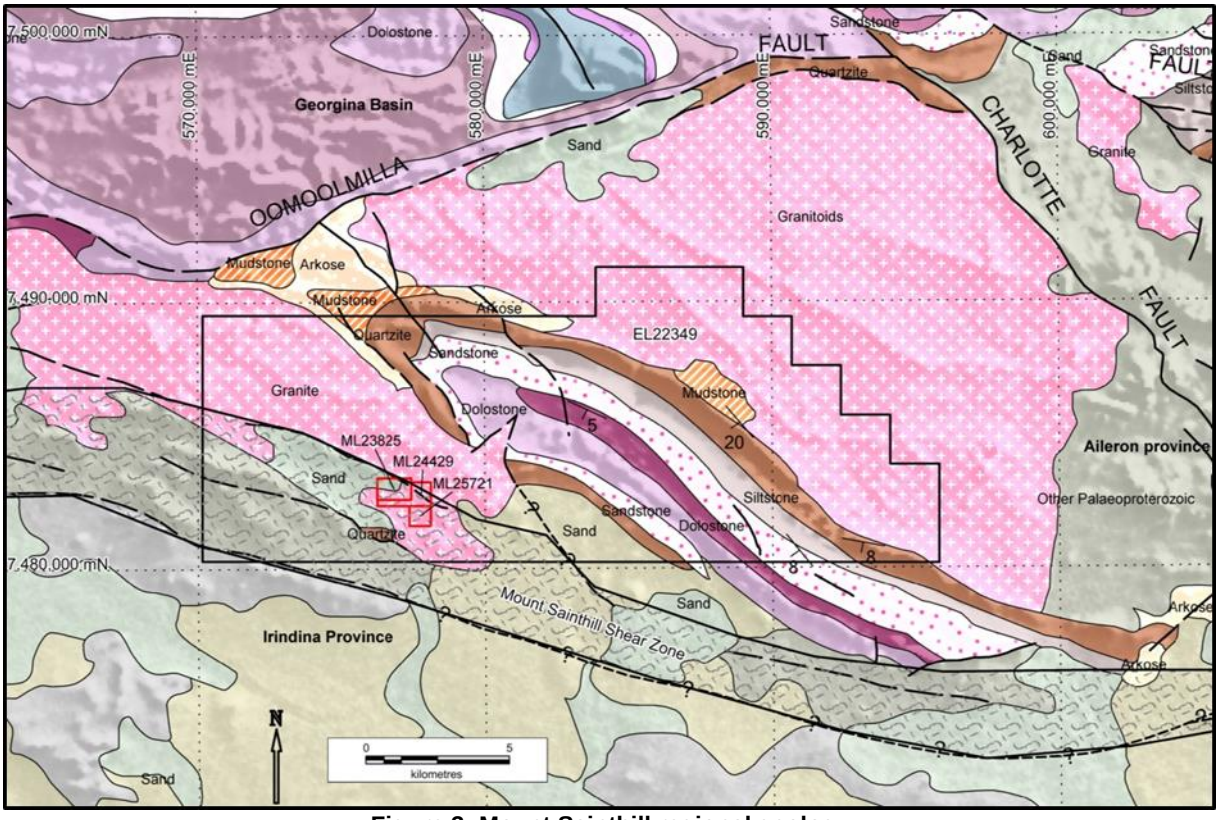

Figure 3: Mount Sainthill regional geology

Mineralisation is widespread within the Huckitta 1:250 000 sheet with past production from the Jervois deposits (Cu, Pb, Zn, Ag, Bi) the Molyhil "skarn" (Mo, W, Cu) and numerous other Cu and W vein deposits. Resources of barite-fluorite have also been established within huge quartz (carbonate-haematite) veins ("Oorabra Reefs") cutting the Jinka Granite and other basement rocks. These veins also appear to penetrate the basal Adelaidean sedimentary sequence.

The area was subjected to deep weathering and laterisation during late Mesozoic to Miocene time. Most of this old surface has been eroded away with small remnants preserved at the top of Mt Sainthill.

The area was uplifted during the Late Tertiary and erosion continues to the present day. Extensive outwash fans have developed at the base of hills and obscure the basement rocks. A return to arid conditions during the Pleistocene produced sand plains, and loess was deposited throughout the hilly areas. The combination of the effects of deep weathering and extensive younger sedimentary deposits provide for a difficult environment for effective surface geochemical sampling.

EXPLORATION HISTORY

Exploration prior to 2012 is detailed in previous annual technical reports for this tenement and has not been included in this report.

By February 2012 exploration focus changed from the Molyhil project to the broader Mount Sainthill tenement area. Although this tenement has been in the possession of Thor Mining since 2005, with the complete change of Thor staff since 2010, exploration of this tenement commenced from the basics. The initial work has comprised the consolidation and review of existing data predominantly available from NT DME.

A geophysical consultant was commissioned to consolidate, review and where appropriate reprocess the existing geophysical data sets to identify exploration targets and determine what additional work should be undertaken for future reconnaissance work.

A block of hyperspectral data was purchased from Hy-Vista Corporation which was flown in March 2012 covering the area of the mining leases ML23825, and ML24429. Remote sensing consultants Agarss provided advice on the application of hyperspectral imagery for tungsten targeting on the tenement. Hand specimens were scanned to determine the likely hyperspectral signature for potential tungsten targets and a series of targets were identified. Subsequent surface soil – XRF geochemistry over the identified targets failed to locate anomalous tungsten.

Reconnaissance soil XRF geochemistry surveys were undertaken in May 2012. This work targeted known occurrences of tungsten mineralisation to the east of the tenement that had not been commercially mined in an attempt to determine if a specific geochemical signature could be identified for the tungsten occurrences. Initial findings are that aside from tungsten and molybdenum in the immediate vicinity of the mineralisation outcrop, elevated calcium may be a potential indicator.

On the basis of MODAT mineral occurrence distribution relative to aeromagnetic data (Figure 4), future tungsten exploration efforts will be focussed on the south west region of the tenement.

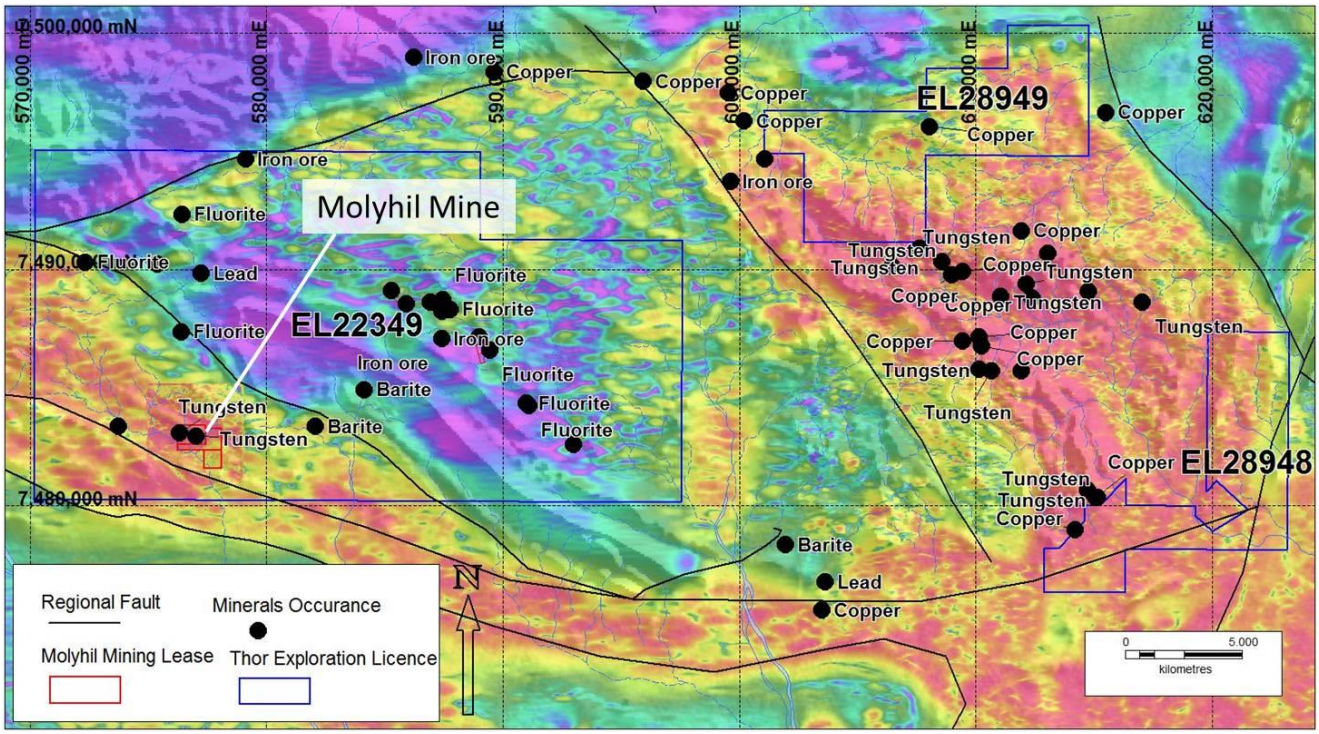

Figure 4: Regional MODAT mineral distribution over regional magnetics.

(EL22349 tenement boundary provided predates the July 2013 partial surrender)

Geochemistry

During 2012 a trial program of in situ XRF soil geochemistry was undertaken using an Olympus Delta field portable XRF analyser. The program comprised 1,237 multi-element determinations of the soil at the surface (results provided in 2012 ATR). The surveys covered a selection of targets generated from the earlier geophysical and hyper-spectral studies.

The trial soil geochemistry program appears to have been of limited value with the only areas of elevated response were found to be as a result contamination from earlier mining and processing activities. Further geochemistry is likely to comprise XRF analysis of auger or aircore drill cuttings to penetrate the transported cover.

Geology

In the aileron province of the eastern Arunta, Molyhil is the only known occurrence of tungsten mineralisation with a magnetite association. While magnetic targeting will continue to comprise an element of the ongoing tungsten exploration model, other targeting vectors must be considered.

The 1996 report by SB Warne for Roebuck Resources NL emphasises the importance of major structural framework in the positioning of the Molyhil tungsten deposit, in particular intersections with the Delny - Mt Sainthill fault zone.

Topographically the Mt Sainthill fault zone comprises flat plains with interspersed outcropping pinnacles of calcsilicate, Adelaidean sedimentary units, palaeo-proterozoic metamorphics and granites indicative of an intensely convoluted zone and potential host of

magnetic and nonmagnetic mineralisation. Pattern drilling to top of basement will be required across target areas to further evaluate this model.

EXPLORATION ACTIVITY 2015-16

Planning, design and permitting of the proposed bedrock geochemistry program has been completed and although no on-ground exploration work was carried out during the reporting period, over $320,000 has been spent by Thor Mining on metallurgical test work, feasibility and permitting on the Molyhil Project which lies within EL22349. This expenditure is reported for ML23825, ML24429 and ML25721.

PROPOSED EXPLORATION ACTIVITY

Implementation of the proposed bedrock geochemistry program is planned to be undertaken during the course of the 2016/17 reporting period.

Other exploration activities planned include the following;

- Regolith mapping – improving the understanding of types and distribution of regolith across the project area and integrating with subsequent geochemistry plans
- Indicator study for geochemistry – seeking to understand vectors may assist in locating mineralisation
- Identify broader alteration signatures (if any) of mineralisation that may be identifiable in hyperspectral data
- Explore potential for optimising existing geophysical data to help identify potential mineralising sites based on structure.
- Isolate lithological variation from radiometric data to potentially improve its value as a targeting tool.

CONCLUSION AND RECOMMENDATIONS

Work undertaken to date by Thor has improved understanding of the project area in terms of geology, mineralising potential and exploration methods required. Concerted on-ground exploration efforts are now required to follow up. It is recommended that the exploration activities listed above be implemented and findings integrated to further improve subsequent targeting and testing practices.