EL29801 – PANNIKAN DAM WEST

ANNUAL AND FINAL TECHNICAL REPORT

For the Period

4 September 2013 to 2 April 2015

Compiled by

Jim McKinnon-Matthews

MAP REFERENCE: Alice Springs 250K - Sheet SG53-14
Target Commodities: Copper, Gold, Lead & Zinc

Report submitted 6 May 2015
All data provided is of GDA94 Datum, Zone 53.

All enquiries to Jim McKinnon-Matthews
Phone: 08 8378 8200
jimm@mithrilresources.com.au
ABSTRACT:

Location: The EL is located within the Harts Range province of the eastern Arunta block in the Northern Territory, approximately 100km northeast of Alice Springs.

Geology: The project lies well within the Harts Range metamorphics of the Eastern Arunta Block, in a belt of metamorphosed sediments that are now biotite-sillimanite schists and gneisses. Several large scale pegmatite systems cross-cut the gneissic layering. These pegmatites these have been historically worked for mica and possibly contain uraniferous Rare Earth Element (REE) minerals. Carbonate alteration, often associated with mineralisation and destruction of magnetism, is extensive.

Work Done: Work consisted of a complete review of historical work over the EL and generating targets for follow-up.

Results: A number of historic rock chip samples are elevated in copper and/ or gold and lie along strike of the historic Copper Queen Prospect. These required follow up but due to financial constraints the company relinquished the licence before this work took place.

SUMMARY

The project area is located within the Harts Range province of the eastern Arunta block in the Northern Territory, approximately 100km northeast of Alice Springs.

It lies well within the Harts Range metamorphics of the Eastern Arunta Block, in a belt of metamorphosed sediments that are now biotite-sillimanite schists and gneisses. Several large scale pegmatite systems cross-cut the gneissic layering. These pegmatites these have been historically worked for mica and possibly contain uraniferous Rare Earth Elements (REE) minerals.

Carbonate alteration, often associated with mineralisation and destruction of magnetism, is extensive.

A data review of all historic work was completed and a number of targets were identified for ground truthing.
1.0 INTRODUCTION

EL29801 lies within the Harts Range province of the eastern Arunta block in the Northern Territory, approximately 100km northeast of Alice Springs (Figure 1).

Mithril Resources was granted EL29801 on the 4th September 2013 and covers 6 blocks.

Only minor exploration has been completed over the tenement area itself with most previous explorers focussing just to the west on the copper king and copper queen mineral occurrences and further to the east at the Oonagalabi deposit.

Location

The Project lies within the eastern Harts Ranges in the Northern Territory, approximately 100km east-northeast of Alice Springs, on the Alice Springs 1:250,000 map sheet (Figure 1). Access is via the Plenty Highway, turning south onto station tracks (Riddoch Station) after crossing the Sandover River. The journey from Alice Springs is about four hours and is sealed for 150km, then becomes 4WD station tracks.

Figure 1: Location of EL29801 with 250K topography

While access to part of the lease is by station tracks from the Plenty Highway, the tracks access only the northern portion of the lease. Off-road driving or walking is required from the tracks, which access Pannikin dam and the historic Copper Queen workings to the west of the lease. Relief in the southern portion of the lease is made up of a series of sharp ridges of granitic gneiss running east-west through the lease and constructing vehicular access would be extremely difficult.
2.0 TENURE

Tenure of the Pannikan Dam West Tenement is summarised in Table 1.

<table>
<thead>
<tr>
<th>Name</th>
<th>EL</th>
<th>Holder</th>
<th>Blocks</th>
<th>Area km²</th>
<th>Grant Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pannikan Dam West</td>
<td>29801</td>
<td>Mithril Resources</td>
<td>6</td>
<td>34.73</td>
<td>4 September 2013</td>
</tr>
</tbody>
</table>

TENEMENT STATUS

The EL29801 lease was one of a large number of tenements Mithril holds in the Arunta region of the Northern Territory. Mithril was granted the licence on 4th September 2013 for a period of 6 years. Mithril relinquished the licence on 2nd April 2015.

3.0 GEOLOGY

Various academic and government sources have developed a stratigraphic framework for the Proterozoic rocks of the Harts Range area based on classing the older units into Division 1 rocks and the younger units into Division 2 rocks. Both Division 1 (Strangways Metamorphic Complex, SMC) and Division 2 (Harts Range Group, HRG) have been further sub-divided into formations and informally into members. This broad, historical subdivision has been modified in many areas due to additional age dates becoming available from research.

Regional Geology

Structure

The Project area is situated in the SE of the Arunta Inlier. Of Proterozoic age, this inlier is a complex of high grade metamorphic sedimentary and igneous rocks, located at the southern margin of the North Australian Craton. The contact with the Central Australian Craton is overlain by the Neoproterozoic Amadeus Basin.

The Arunta Inlier merges with the Palaeoproterozoic Granites-Tanami Block to the NW and is bounded on all other sides by Palaeozoic Basins i.e. the Canning, Wiso, Georgina and Eromanga Basins.

The Arunta complex is transected by a series of regional and local scale east-west and northwest-southeast trending faults, which have been the loci of multiple phaser-south thrusting during the Proterozoic and later the Carboniferous Alice Springs Orogeny. This orogeny was responsible for retrograde metamorphism along the east-west structures, more widespread in the Harts Ranges than in the Central Province where it is intensely focussed on these structures. Metamorphic grades range from greenschist to granulite in the Northern Province and from amphibolite to granulite in the Central and Southern Provinces, with greenschist grades being associated with the retrogression in the south and central provinces.

Stratigraphy

Stratigraphy is largely overprinted by the structural thrusting and the division of the Inlier into structural provinces, but there are divisions of groups based on age dating and relationships. The older basement rocks have been considered to be the Strangways...
Metamorphic Complex, but age dating by AGSO suggests the Weldon and Aileron Metamorphics in the Napperby area to the west may be older.

The Harts Range Group in the south eastern Arunta is essentially a pelitic and calcareous metasedimentary assemblage, metamorphosed predominantly to amphibolite facies. The basal unit, the Entia Gneiss, has attained granulite facies but has been retrogressed to amphibolite facies and affected by the Palaeozoic Alice Springs Orogeny. The bulk of the Harts Range Group, the Irindina Gneiss and the younger Brady Gneiss, show little evidence of having exceeded amphibolite facies and are clearly younger than the Entia. The Bruna Gneiss, a felsic intrusive, or less likely a part-extrusive porphyroblastic rock, has been dated at 1750Ma but this date only puts a minimum age to the sequence. Studies at Adelaide University suggest the dominant metamorphism within the Harts Range Group is related to the Alice Springs Orogeny.

Post-orogenic platform cover sediments are sporadically distributed throughout the Arunta Inlier. At least three age groups were named but the Hatches Creek Group (1830–1800Ma) and the Reynolds Range group (1820-1780Ma) are now both considered SMC equivalents. The Simpson Gap Metasediments of the Iwupataka Metamorphic Complex (1660Ma) are truly cover.

The youngest sediments are the neo-proterozoic Amadeus Basin to the south and the Ngalia Basin in the centre which cover substantial portions of the Inlier and have little enough deformation to be significant oil and gas reservoirs.

Igneous Intrusives

The Arunta Inlier has a complex and virtually continuous history of igneous activity. There are at least six major recorded felsic igneous intrusive episodes. Of these the Ngadarunga Granite (1880Ma), the Napperby-Huckitta-Jervois Granites (1780-1760Ma) and the Yarangunyi Granite (1600-1570Ma) are the most extensive and geologically most important. Other recorded igneous events, of relatively small areal extent, are the Andrew Young's Igneous Complex (1635Ma), Mordor Igneous Complex (1200Ma), Stuart (mafic) Dyke Swarm (1050Ma), Gum Tree Granite (990Ma), Mud Tank Carbonatite (730Ma) and the Harts Range Pegmatites (520,400Ma).

Project Geology

The Harts Range region has undergone repeated and substantial crustal reworking between Proterozoic and Palaeozoic times, and is now thought to represent an ancient and strongly altered/metamorphosed version of a continental collision zone. Much work was done in the 1990's on the Harts Range region by Arnold and Fogly et al and Mawby (1996) of the University of Adelaide, with the assistance of PNC.

The two key findings by the Adelaide workers in the Harts Range region are as follows:

- Crust south of the Illogwa Shear Zone dates from between 1500-1250Ma compared to 450–300Ma in the Harts Range area, i.e. the Illogwa Schist Zone is a major crustal scale tectonic feature.

- The Harts Range Group amphibolite facies metamorphism is Alice Springs Orogeny age and, unlike the Entia Dome sequence, there is no evidence for an earlier metamorphic event.
The key features of the Harts Range structural map, in order of interpreted age, are:

- The Entia Dome, a pre-1850Ma feature which forms basement to the Irindina Supracrustal sequence.

The emplacement of the younger granites (1780Ma) which form the exposed Inkamulla and Huckitta Domes. The position of the (inferred/buried) Mt. Muriel Dome is uncertain but is assumed to be post Entia as it has apparently indented the SW margin of the Entia Dome.

The Magneto-Telluric data from a team consisting of Adelaide University and NTGS geologists (Selway et al, 2007) suggests the Entia dome system is a deep-crustal feature that can be shown extending to the mantle. All the major structures, their conjugate structures and the shear zones show evidence of reactivation and retrogression to varying degrees.

A very important point noted was that the presence of mixed igneous mantle types, the deep seated subduction structures, significant amounts of fluid alteration and veining (particularly in mafic material), the presence of Cu in carbonates and shear zones in the area and magnetite in pegmatites in the project area all indicate that the Harts Range is highly likely to be prospective for IOCG deposits. The age and radioactivity of the granites in the region suggest that if present, these IOCG deposits are likely to beuraniferous.

4.0 PREVIOUS EXPLORATION

Exploration History

Earliest work in the area was poorly recorded mica mining from the depression era, with re-opening of the mica mines allegedly using POW labour during the war. Many of the Italians who had worked here during the war may have returned in the post-war era, as the anecdotal evidence from prospectors and station managers in the area suggests this situation. Base metals exploration for copper, with ancillary Au, Pb, Zn, Pt, Ni etc was conducted primarily just to the west of the EL by various workers.

The small scale Copper Queen pit lies immediately west of the western boundary of the lease and much of the work has been in that area. Tanami Gold NL (Tanami) held the western part of the lease while exploring for vein hosted gold for a short period.

PNC explored the Harts Ranges in the Yambla area just east of the project for uranium from 1992.

Oneva commenced work on their White Lady lease EL25169 after it was granted in November of 2006. Their work included significant ground traverses, operating from aerial photographs and following up many of the sites of previous copper exploration to the west of the EL. The owners of Oneva had interests in the area prior to vending them into Tanami, who had subsequently let the lease lapse.

Newera came to site in April 2007 as part of a due diligence program before acquiring the lease from Oneva. Newera flew the tenement area with a VTEM survey and identified a number of anomalies that were field checked. This field verification failed to locate any compelling reasons for the anomalies and cited that thin magnetite bands may have been the source.
A more detailed review of the historic exploration is contained in Appendix 1.

5.0 WORK COMPLETED

5.1 2013-2014

The main focus of work during the first reporting period was to generate targets for field follow-up using the historic data obtained from the review of previous exploration activities. This field follow-up was to occur in the current reporting period but was delayed due to corporate decisions and will now take place in the 2nd reporting period. A number of historic rock chips samples elevated in Copper and/or Gold have been identified and these were to be the focus of field activities (Figure 2). It is important to note, that seem of these occurrences may be the strike continuation of the historic Copper Queen Copper Prospect (Figure 2 and 3).

Figure 2: Location of EL29801 on 250K geology. Rockchip samples highlighted in yellow require immediate follow up. Historic soil samples – pink circles; historic stream sediments - blue circles; historic rock chips – black circles; mineral occurrence – red star.
Figure 3: Location of EL29801 on TMI image. Rockchip samples highlighted in yellow require immediate follow up. Historic soil samples – pink circles; historic stream sediments - blue circles; historic rock chips – black circles; mineral occurrence – red star.

5.1 2014-2015

No work was completed during the second reporting period and the licence was relinquished in its entirety.

6.0 CONCLUSIONS AND RECOMMENDATIONS

A number of targets in the form of anomalous Cu and Au in rockchips from previous work have been generated and should be field checked.
REFERENCES

Drake-Brockman, J., Gee, G., Thevissen, J. and Vieru, C., March 1996. PNC Exploration (Australia) Pty. Ltd. HARTS RANGE PROJECT FINAL SURRENDER REPORT "HARTS RANGE PROJECT FINAL SURRENDER REPORT" for EL’s 7990, 7991, 7992, 7994, 8036, 8148, W0, 8675, 9031, 9032 AND 50% SURRENDER OF EL. 7967. NTGS open file report CR19960285.


COPYRIGHT - AUTHORISATION OF PUBLICATION

This document and its content are subject to the copyright of Mithril Resources Ltd and its subsidiaries and may not be published in whole or in part nor used in a company prospectus without the written consent of the company.

The report was compiled by Jim McKinnon-Matthews for submission to the Northern Territory Department of Mines and Energy as part of tenement reporting requirements in accordance with the Minerals Titles Act. All relevant authorisations and consents have been obtained. Authorisation is hereby given for the department to copy and distribute the report and associated data.