EL26552
Helen Springs Project

Annual (Year 5) & Final Technical Report
2 September 2008 to 31 July 2013

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Target Commodity: Manganese

Date of report: 19/08/2013

Datum/zone: GDA94 MGAz53

250k mapsheet: Helen Springs SE 53-10
100k mapsheet: Helen 5661

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Any information included in the report that originates from historical reports or other sources is listed in the "References" section at the end of the document. I authorize the department to copy and distribute the report and associated data in accordance with department procedures.
Abstract

An aeromagnetic and radiometric geophysical survey was undertaken in year one and reprocessed in year two. Regional mapping (1:20,000 scale) was undertaken in year two mapping stratigraphy, structure and alteration on the areas immediately adjacent to EL26552, on both the Renner Springs and Helen Springs Project areas.

Activity in year three included a trial soil geochemistry survey undertaken by Neil Scriven and repair of the station tracks in years three and four to access both Renner Springs and Helen Springs Project areas.

There was no exploration activity in year 5.
# Contents

ABSTRACT ............................................................................................................................................................................. 2

CONTENTS ............................................................................................................................................................................. 3

ELECTRONIC FILE LIST .................................................................................................................................................... 4

1 INTRODUCTION ............................................................................................................................................................. 5
  1.1 LOCATION AND TENURE .............................................................................................................................................. 5

2 GEOLOGY ......................................................................................................................................................................... 6

3 EXPLORATION ACTIVITY ............................................................................................................................................... 7
  3.1 2008/2009 (YEAR 1) ................................................................................................................................................... 7
  3.1.1 Aerial Geophysical Data ................................................................................................................................... 7
  3.1.2 Aerial Photography ......................................................................................................................................... 10
  3.2 2009/2010 (YEAR 2) ............................................................................................................................................... 11
  3.2.1 Geological Mapping ....................................................................................................................................... 11
  3.3 2010/2011 (YEAR 3) ............................................................................................................................................... 11
  3.3.1 Geochemical Trial .......................................................................................................................................... 11
  3.4 2011-2013 (YEARS 4-5) ............................................................................................................................................ 13

4 CONCLUSIONS AND RECOMMENDATIONS .................................................................................................... 13

5 REFERENCES ................................................................................................................................................................. 13
## Electronic file list

<table>
<thead>
<tr>
<th>File Name</th>
<th>File type</th>
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<td>Appendix 1- GPX Bootu Creek North (Mag &amp; Rad)</td>
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<td>Aeromagnetic and radiometric data</td>
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</table>
1 Introduction

1.1 Location and tenure

Exploration Licence (EL) 26552 was granted on September 2nd, 2008. The licence is held jointly by OM (Manganese) Ltd (50%) and Neil Henry Scriven (50%).

The licence is located approximately 40 km to the northwest of the Bootu Creek Manganese Project area, is bisected by the Stuart Highway and is accessed by various station tracks. The original licence area covered 240 blocks at grant and formed a bridge between the OMM ‘Helen Springs Project’ to the east and the ‘Renner Springs Project’ to the west.

The grant area of EL26552 initially consisted of 240 blocks and was subsequently reduced by 60 blocks at the end of year two, 90 blocks at the end of year three and further 45 blocks at the end of year four (Figure 1). The remaining 45 blocks were surrendered on 31/07/2013.

Figure 1. EL26552 location plan showing subsequent block reductions
2 Geology

The exploration licence dominantly hosts rocks of the Mesoproterozoic aged Renner Group with minor occurrences of Cambrian aged Helen Springs Volcanics (both the volcanic lithofacies and the Muckaty Sandstone Member) and Cretaceous sediments. The published geological map for the licence comprises Figure 2.

The potential prospective Proterozoic rocks are also covered in part by Cenozoic alluvium, colluvium and aeolian sand. There are no identified manganese outcrops on the exploration licence.

Figure 2. Geological map showing the location of known outcrop and the extent of recent cover over the original grant area for EL26552. Surrounding exploration licences are as at time of grant. Geological data from the published NTGS Helen Springs 1:250,000 geology map sheet. (Hussey et al, 2001)
3 Exploration Activity

3.1 2008/2009 (Year 1)

Exploration activities conducted during the first year of tenure consisted of an aeromagnetic and radiometric survey covering the entire tenement, as well as tenements to the east and west of EL26552, with lines spaced 150m apart.

1:20,000 scale aerial photo surveys on either side of the tenement – one over the main Renner Springs project area, the other over the combined Helen Springs and Bootu Creek project areas. The individual aerial photos in each area were ortho-recitified and amalgamated into a seamless mosaic.

3.1.1 Aerial Geophysical Data

GPX Geophysical Exploration Services were contracted to acquire both radiometric and aeromagnetic data across all of OMM's tenement holdings. The total survey parameters are shown in Table 1.

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<td>Survey line spacing</td>
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<td>OM (Manganese) Limited</td>
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Table 1. OMM 2008 Geophysical survey parameters
Radiometric Data

GPX Surveys supplied the final dataset as a located data file (.dat) as well as several ER mapper grids (.ers) and located image files (.tif) for K, U, Th, total count and ternary image.

The ternary image comprising Figure 3 displays four dominant feature sets/colour zones, vis: the bright pink, the light blue/cyan, the red/yellow, and the dark zones. The areas can generally be attributable to the Namerinni Group, the Renner Group, the Helen Springs volcanics and associated clays/sediments, and aeolian sand cover respectively.

![Figure 3. Ternary image compiled from the K, U, and Th radiometric data acquired in 2008](image-url)
Aeromagnetic Data

The aeromagnetic data was supplied as a located data file (.dat) as well as several ER mapper grids (.ers) and located image (.tif) files for TMI, TMI1VD, TMI2VD, TMIRTP, and RTP1VD.

The dominant feature in all of the variations of the gridded magnetic data is shallow anomaly created by the Helen Springs volcanics. While large areas of this and other adjacent licences are under recent aeolian cover, drill testing of this magnetic signature on EL25593 and also on EL22428, both near Bootu Creek, has shown the rock to be a volcanic rock of fine to medium grain size and of intermediate composition (andesite?).

Figure 4. TMI magnetic image over EL26552, north-south high intensity magnetic feature associated with Helen Springs volcanics
3.1.2 Aerial Photography

In April 2009 United Photo and Graphic services collected aerial photography over selected OMM tenement areas at a nominal scale of 1:20,000 (approximately 0.5m pixel size) for use in geology mapping, at that scale, on adjacent tenure.

The data was passed on to Survey Graphics in Perth for processing. Alternative frames were ortho-rectified using 50 metre DEM and the frames were colour balanced and mosaicked seamlessly. Figure 5 shows the imagery over EL26552.

Figure 5. Aerial photography over EL26552
3.2 2009/2010 (Year 2)

Exploration activities conducted during the second year included review of historical open file reports and collation of the data within them, and field mapping.

Detailed field mapping at 1:20,000 scale, along the western and eastern edges of EL26552, was undertaken by Tim Blake of Micraster Geological Services. Tim paid particular attention to structure and alteration (including mineralisation) and the relationship to stratigraphy.

Digitisation of the data was completed in mid-February 2010 with results and subsequent interpretation presented to OMM in March 2010. No manganese outcrops or favourable geology were located on EL26552.

The aeromagnetic data was sent to Vector Research for reprocessing using the TargetMap algorithms, though output was not regarded as being that useful.

3.2.1 Geological Mapping

Contact prints made from the previous year’s aerial photography were used as base maps for a regional mapping project at 1:20,000 scale across the Renner Springs and Helen Springs projects, including small portions of EL26552 along its eastern and western edges. The mapping was undertaken in late winter to mid-spring 2009 and the geologist, Tim Blake of Micraster Geological Services, was asked to pay particular attention to structure and alteration (including mineralisation) and their relationship to stratigraphy. The digitisation of the data was completed in February 2010 and the results of the subsequent interpretation of findings presented to OMM in March 2010.

The MapInfo layers generated by Blake were included in the EL9975, EL9998, EL23459 & EL23624 Renner Springs Project 2010 annual technical reports.

No manganese outcrops were found on EL26552.

3.3 2010/2011 (Year 3)

Activity on EL26552 for year three was restricted to a trial soil geochemistry survey undertaken by Neil Scriven over an area of potential manganese mineralisation, and repair of pastoral station tracks for access to the adjacent Renner Springs and Helen Springs Project areas. No significant manganese mineralisation was identified.

3.3.1 Geochemical Trial

In October 2010 Neil Scriven, 50% owner of EL26552 conducted a geochemical soil sampling trial centred over a mapped NTGS possible Mn location.

The program consisted 35 sample points with an A Sample (-2mm +80#) and C Sample (-200#) taken from each point. The sample program consisted of three lines radiating out to the east, north and WNW from a point located at 7969130mN and 372775mE at 20m intervals.

The samples radiated out from The Renner Group – Gleeson Formation into flat laying Quaternary sediments consisting of either sand or sandy loam (see Figures 6, 7). Both sets of samples were analysed for Au, Ag, Ba, Bi, Co, Cu, Mn, Ni, Pb, Zn in ppm and Fe%. No significant anomalism or trends were observed in data from either sample size fraction.
Individual element plots and survey comments attached as electronic files.

Figure 6. Satellite image of soil sampling trial area

Figure 7. NTGS Regional Geology and sample location (Mn).
3.4 2011-2013 (Years 4-5)

Activity on EL26552 for year four was restricted to repair and maintenance of the access tracks to the adjacent Renner Springs and Helen Springs project areas.

Further exploration activity on EL26552 was dependent on the extension of prospective areas being explored on the adjacent Renner Springs and Helen Springs Project areas. The extension of prospective areas failed to eventuate and there was subsequently no exploration activity in Year 5.

4 Conclusions and Recommendations

EL26552 was applied for with the intent of exploring and assessing the ground located between the OMM Renner Springs and Helen Springs Projects.

Subsequent aeromagnetic and radiometric surveys, 1:20,000 scale geological mapping of the eastern and western margins of the two adjacent project areas and geochemical assessment of the only NTGS area identifying possible manganese mineralisation failed to identify any manganese outcrop/float or potential manganese hosting Namerinni Group sediments.

EL26552 had been reduced from the original 240 blocks granted in 2008 to 45 blocks by 2012. It was concluded that the remaining 45 blocks were no longer considered prospective for manganese mineralisation and were recommended for surrendered prior to end Year 5.

5 References


