# GEORGINA BASIN PROJECT

## GR240/11

### GROUP REPORT FOR THE PERIOD

**9 JANUARY 2012 TO 8 JANUARY 2013**

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<td>EL25982 Horse Creek, EL25983 Halfway Dam, EL26380 Lucy Creek</td>
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<td><strong>Group ID</strong></td>
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<td><strong>Target Commodities</strong></td>
<td>Manganese, Base Metals</td>
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<td><strong>100,000 Map Sheet(s)</strong></td>
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1. EXECUTIVE SUMMARY

The Georgina Basin Project includes eleven Exploration Licenses located in the southern Georgina Basin. The Project area is prospective for base metals, manganese and phosphate mineralization.

During the reporting period, exploration activities within the Reporting Group GR240/11 tenements consisted of an airborne electromagnetics survey and the completion of a RC drilling programme.

Previous exploration activities had identified a priority base metal exploration target within EL26380. The priority target was associated with a northwest trending basement structures, positive magnetic anomalism (basement high) with a coincident gravity high, anomalous geochemical trends (including manganese anomalism), and a disconformity at the base of Cambro-Ordovician Tomahawk Formation (Delamerian Orogeny).

An airborne electromagnetic survey was flown over the priority target area. The survey identified a series of linear features associated with a deeper weathering profile over faults. Three of the electromagnetic anomalies with stronger depth signatures, suggestive of increased conductivity zones at the Tomahawk Formation disconformity, were further evaluated by RC drilling. No significant base metal mineralisation was intersected.

The Project tenement package was reduced in size by relinquishment and/or partial reduction, the areas retained being those considered prospective for near-surface manganese mineralization.
2. **INTRODUCTION**

Auvex Manganese Ltd operates eleven Exploration Licences located in the southern portion of the Georgina Basin. The tenements are held by Auvex Georgina Pty Ltd (a subsidiary of Auvex Manganese Ltd) and South Boulder Mines Ltd. The Project area is prospective for base metal, manganese and phosphate mineralization.

During the reporting period, exploration activities within the Reporting Group GR240/11 tenements consisted of an airborne electromagnetics survey and the completion of a RC drilling programme.

No significant base metal mineralisation was identified by the exploration works.

The Project tenement package was reduced in size by relinquishment and/or partial reduction.

3. **LOCATION AND ACCESS**

The Georgina Basin Project area is situated approximately 400 kilometres east north-east of Alice Springs, in the southern Georgina Basin (Figure 1). Access to the Project area is gained via a network of station tracks and fences extending from the Plenty Highway.

The Georgina Basin Project Reporting Group GR240/11 includes three Exploration Licenses:

- EL 26380 – reduced to 160 blocks, granted 23/4/2008
- EL 25982 – relinquished 31/1/2013
- EL 25983 – relinquished 31/1/2013
4. REGIONAL GEOLOGY

The Project tenements cover the central southern portion of the Georgina Basin (Figure 2).

The basement stratigraphy is poorly understood, thought from geophysical data to consist of relatively undeformed Paleoproterozoic mafic and intermediate intrusives and younger non-magnetic granitoids assigned to the =1800Ma Altjawarra Domain.

Overlying the basement are sedimentary rocks assigned to the Neoproterozoic-Devonian Georgina Basin. Up to 1200m in vertical thickness, the sediments are folded in an open syncline (with dips generally less than 5°) about a west-northwest trending axis. Units present include (from oldest to youngest):

- Red Heart Dolostone – Lower Cambrian dolostone;
- Thorntonia Limestone – Middle Cambrian limestone with organic-rich black shale interbeds;
- Arthur Creek Formation – Upper Cambrian lower unit of organic-rich black shale, overlain by an upper unit of phosphatic and dolomitic siltstones;
- Steamboat Sandstone – Upper Cambrian quartz sandstone;
- Arrinthrunga Formation – Upper Cambrian dolostone and limestone;
- Tomahawk Formation – the predominant unit outcropping through the Project area, the Ordovician Tomahawk Formation consists of sandstones deposited in a shallow marine platform environment;
- Kelly Creek Formation – quartz sandstones of Ordovician age.

Of note is the disconformity separating the predominantly carbonate sediment Arrinthrunga Formation from the overlying clastic sediment Tomahawk Formation. This disconformity may have acted as locus for mineralising fluid-wallrock interaction. Within the Project area, the disconformity is thought to lie 200-300m below surface.

The basement Altjawarra Domain and the Cambrian rocks of the Georgina Basin are cut by a series of northwest and northeast trending faults, which may have acted as pathways for mineralising fluids. The intersections of these faults with the Arrinthrunga Formation-Tomahawk Formation disconformity represent possible sites of MVT-style base metal and manganese mineralisation.

Jurassic-Cretaceous sediments of the Eromanga Basin form isolated mesas across the Project area.

Much of the outcrop is masked by a thin layer of unconsolidated alluvial, eolian and colluvial sands of Cenozoic age.
Figure 2  Georgina Basin Project Geology
5. PREVIOUS EXPLORATION

Intermittent exploration was undertaken by several companies in the Georgina Basin Project area during the 1970’s, 1980’s and 1990’s, for phosphate minerals, uranium and base metals.

Manganese occurrences in the Lucy Creek area were investigated by Elkedra Diamonds Ltd in 1999-2002. Assays of 50.5% Mn, 0.44% Fe, 0.06% P, 6% SiO₂ and 0.71% Al₂ O₃ were reported from samples taken by Elkedra from the western part of tenement EL26380.

In 2008-09, Auvex Manganese Ltd purchased a 90% interest in the three South Boulder Mines Limited tenements EL25982, EL25983 and EL26380. Auvex Manganese Ltd subsequently acquired the remaining eight tenements comprising the Project.

Exploration activities undertaken by Auvex Manganese Ltd identified a priority base metal exploration target within EL26380. The priority target was associated with a northwest trending basement structures, positive magnetic anomalist (basement high) with a coincident gravity high, anomalous geochemical trends (including manganese anomalist), and a disconformity at the base of Cambro-Ordovician Tomahawk Formation (Delamerian Orogeny).

6. EXPLORATION ACTIVITIES 2012-2013

During the reporting period exploration activities consisted of an airborne electromagnetics survey and the completion of a RC drilling programme.

6.1 Airborne Electromagnetics Survey

The base metal priority exploration target was evaluated by a 300km² VTEM system helicopter-borne time domain electromagnetic survey flown by Geotech Airborne PL in May 2012 (Figure 3). The data was processed and reviewed by Southern Geoscience Consultants, with several northeast trending conductive units identified. The conductors were generally fairly wide (several hundreds of metres) and had strike lengths of up to several kilometres. The broad multi-peaked EM response profiles indicated the conductive units were flat, tabular and are either horizontal to near horizontal bodies, occurring at depths ranging from sub-cropping to greater than 200 metres vertical depth. The conductors were interpreted to reflect regolith/oxidation or perhaps lithological variations, although some of the conductors correspond with higher time constant values, which suggested weakly conductive mineralisation. No discrete responses indicative of highly conductive massive sulphide type conductors were identified in the VTEM data. The VTEM also highlighted thin northwest trending zones in the survey area, which were interpreted as possible fracture zones. These fractures potentially represented primary conduits for hydrothermal fluids. 23 conductive anomalies were identified, five of which were considered high priority due to their geological placement and stronger representation in mid to late time EM response (Figure 4).
Figure 3  Airborne Electromagnetics Survey Location Map
Figure 4  VTEM Targets over dB/dt CH35 NE Shade (LIN)
6.2 RC Drilling Programme

A RC drilling programme was completed to test three of the five priority VTEM targets (Figure 5).

Site preparations for the drilling included the clearing of approximately 15km of 4m wide access track, leading from the fenced corner boundary of the Lucy Creek / Manners Creek / Tarlton Downs pastoral leases, north to the proposed drillhole sites; the preparation of a 40m x 40m level drillpad clear of vegetation at each drillsite; and the excavation of a 5m wide x 5m long x 2m deep sump to contain any groundwater outflow at each drillsite.

Four RC holes were drilled:
AGRC001 (collar location 681375mE, 7534013mN (MGA94 Zone 53), total depth 250m, orientated -60/335) – testing VTEM target GB_VC 3;
AGRC002 (collar location 681417mE, 7533922mN (MGA94 Zone 53), total depth 250m, orientated -60/335) – testing VTEM target GB_VC 3;
AGRC003 (collar location 683480mE, 7533406mN (MGA94 Zone 53), total depth 300m, vertical) – testing VTEM target GB_VC 4;
AGRC004 (collar location 681315mE, 7529929mN (MGA94 Zone 53), total depth 233m, vertical) – testing VTEM target GB_VC 1.

Drill spoil samples were collected at metre intervals. Duplicate samples were collected at approximately 20 metre intervals. Blank samples were inserted into the sampling sequence at approximately 50 metre intervals.

Immediate rehabilitation works undertaken included the filling of sumps, the ripping of cleared tracks and drillpads, and the plugging of drillholes (hole AGRC003 was capped rather than plugged at the pastoralist’s request).

Selected samples from each hole were forwarded to ALS Alice Springs for Ag, As, Ba, Cu, Fe, Mn, P, Pb and Zn analysis by method ME-ICP61 (107 samples).

7. RESULTS

The priority VTEM targets were selected as possible areas of mineralisation but could equally be explained as areas of deeper conductive weathering or more conductive lithology such as silts, or clays.

The drilling to test the priority VTEM targets intersected sandstone and cherty sandstone, with minor siltstone units, assigned to the Tomahawk Formation.

A deep weathering profile, usually exceeding 100m vertical and stripped to upper saprolite, was present in all holes. The profile was characterised by narrow, sub-horizontal zones of iron/manganese oxide accumulation thought to represent paleo-watertable horizons.
Figure 5  
Drillhole Location Plan
The groundwater table was intersected at 70-80m vertical. Generally volumes were very low, with quantities insufficient to warrant extraction. AGRC003 produced water at a rate estimated to be 4L/s. Visual inspection, tasting and the smell of the water produced indicates it should be suitable for stock consumption. AGRC003 was capped, rather than plugged, at the pastoralist’s request.

Elevated element assays are associated with the iron/manganese oxide accumulations at or near the base of the upper saprolite. None of the analytical results received are considered significant or representative of basement mineralisation.

8. CONCLUSIONS AND RECOMMENDATIONS

The conductors identified in the VTEM survey are thought to represent weakly conductive regolith horizons associated with current groundwater table, within the deeply weathered profile over basement fault structures.

The targeted disconformity is thought to be present at depths exceeding 300m vertical in the drilling area.

No indicators of significant mineralisation were identified.

It is recommended that future exploration activities focus on the manganese occurrences northeast of Lucy Creek, and the associated northeast-trending manganese geochemical anomaly.

9. REFERENCES


Appendix 1   File Verification Listing


GR240-11_2012_A_01_DrillCollar.txt
GR240-11_2012_A_02_Litholog.txt
GR240-11_2012_A_03_DownholeGeochem.txt
GR240-11_2012_A_04_QAQC_Geochem.txt

GR240-11_2012_A_06_LithologyCodes.xls

AA1262_Auvex Manganese Ltd_Georgina Basin Project.dat
AA1262_Auvex Manganese Ltd_Georgina Basin Project.dfn
AA1262_Auvex Manganese Ltd_Georgina Basin Project.prj
Appendix 2  Drillhole Logs
Appendix 3  Assay Reports