Eastern Areas Exploration Annual Report
EL10115 / EL10108

13 October 2005 – 13 October 2006
1 Executive Summary

Exploration licences were granted to GEMCO for EL 10115 and EL 10108 on the 13 October 2000 in the region of Groote Eylandt known as the Eastern Areas.

In the first year, an exploration program was undertaken to collect raw data on the potential deposit. This involved aerial photography, ground reconnaissance, upgrading of access tracks, preparation of grid lines and reverse circulation drilling. The drill program intersected between 0.5-4.5m of sub-economic siliceous and medium grade lump manganese in 16 of the 30 holes drilled. From October 2001 to October 2002, the activities focussed on sample preparation and analysis of the samples generated from the RC drilling program in Year One, enabling preliminary data analysis and interpretation of the eastern areas.

During 2003, a broad-based review of all available data was conducted and maps required for target generation were digitised into Vulcan. Investigation commenced on a replacement database and accompanying management system for improved validation and interpretation on the Eastern Area drilling information.

In the fourth year, between October 2003 and October 2004, drill hole data in the GDHS database was converted to a new GBIS database, an outcrop mapping and sampling program was undertaken to assist in identifying potential drill targets and the 1991 GEOTEM data was re-analysed and modelled by BHBP Geophysicists in Brisbane, indicating weak to moderate conductivity of manganese ores and clays. In addition, different EM survey techniques were investigated to differentiate manganese ores from clays.

From October 2004 to October 2005, activities involved compilation of all historical exploration data for review, delineation and target generation, planning of a reverse circulation drilling program, gridline clearing and drill pad preparation to provide access for the drilling rig, and site visits with the traditional land owners to define areas of sacred significance.

Following an aborted drill program during the 2005 dry season, GEMCO completed a total of 138 RC drill holes for 3,038metres during this reporting period. Drilling confirmed the presence of massive (lump) siliceous manganiferous material, however no assay results have been returned at the time of reporting. Preceding the drilling re-establishment of access, grid lines and drill pads was also completed.

GEMCO plan to compile assay results from the 2006 drill program and complete geological modelling and a resource estimate to determine the prospectivity of this area. A small program of diamond drilling is also planned to assist with the determination of dry bulk densities.

2 Location

The Eastern Areas are located approximately 6km SE of GEMCO’s southern most mining operation (D Quarry), and approximately 16km SSE of the Angurugu community.

Access into EL10115 is obtained via Emerald River road to D Quarry and then east on a sandy access track. Access into EL10108 is via Emerald River road south to Emerald River, then east onto the King’s Crossing Track approximately 1km south of Emerald River. There is one track connecting the two leases.

Refer to Figure 1 below: Location of Eastern Lease Exploration Areas (Eastern Areas).
Regional Geology

The geology of the region, including the exploration leases, consist of the Mullaman beds which unconformably overlays a “basement” of Middle Proterozoic quartz sandstones up to 600 m in thickness named the Groote Eylandt Beds.

Within the mining leases (located 16km NNW of EL10108 and 6km NW of EL10115), manganese ores, which are either exposed or at shallow depth, were deposited in several sedimentary environments in early Cretaceous. The ore occupies a series of WNW trending, joint controlled, partly in filled depressions between elongate inliers of the Groote Eylandt beds (F3, AS, B & D Quarries). Elsewhere within the mining leases, ore lies directly on broad terraces cut into the basement quartzite (C and F1 Quarries). The westerly part of the orebody, form a mostly continuous sheet-like body (ES, ICI, C-West and Pole 80 areas) which has been deposited in a beach environment lapping onto palaeo-basement highs or island structures.

In the mining leases, the concentration of manganese within the stratum varies from massive oxides, through mixtures of oxides with kaolinitic clays and quartz sands, to disseminated oxides in a sandy clay matrix. The manganese ore minerals are chiefly pyrolusite and cryptomelane, with minor amounts of manganite. Lateritisation, probably of Tertiary age, has altered most of the surface sediments. Where lateritisation has truncated the ore horizon, a
A variety of supergene rock types is common, including manganiferous spherulites, concretions and dendrites, and massive layers of secondary manganese oxides.

Refer to Figure 2 below: Groote Eylandt regional geology.
4 Exploration Activities

4.1 Initial Program Reconnaissance & Preparation

Following an aborted drill program during 2005, initial field reconnaissance of both exploration leases was conducted at the commencement of the 2006 Drill Program. As a consequence of the preceding ‘wet season’ significant re-growth of the vegetation had taken place through the area.

Originally approximately 200 Reverse Circulation or RC drill holes were planned for the two tenements. Field checking of the area reduced the total number of planned holes for several reasons including:

- Holes located adjacent to basement outcrop;
- Holes located within culturally sensitive areas.

Re-establishment of access roads, grid lines and drill pads was undertaken by a Caterpillar 824C wheel dozer over a 5 day period prior to drilling. No other clearing was undertaken in the Eastern Areas, effectively minimising any additional environmental impact.

4.2 Reverse Circulation Drilling

The 2006 drill program was designed to infill the existing sparse drilling down to a 250metre by 250metre or a 250metre by 500metre grid spacing. RC drilling in the Eastern Areas commenced on 26 August and was completed on 19 September 2006. A total of 138 drill holes were completed for 3,038 metres. Refer to table 1 below for a summary of the relevant drill statistics.

All holes were drilled vertical and dry using an Ingersoll Rand T3 model reverse circulation drill rig. Holes were logged to capture all relevant geological and stratigraphic information. The area is dominated by lumpy massive siliceous manganese material with minor manganiferous sandstone intersected overlying the basal sandstone unit.

<table>
<thead>
<tr>
<th>Lease</th>
<th>Hole ID Range</th>
<th>Number of Holes</th>
<th>Total Metrage (m)</th>
<th>Total Ore Samples</th>
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<tr>
<td>EL10108</td>
<td>RC11750 – 11833</td>
<td>84</td>
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<td>318</td>
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<tr>
<td>EL10115</td>
<td>RC11834 – 11887</td>
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<td>138</td>
<td>3,038</td>
<td>529</td>
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</table>

Table 1 - RC drill summary

Drill holes were selectively sampled at 0.5metre intervals. All samples were bagged for transport to the onsite laboratory for whole sample preparation and assay (ie the whole 0.5metre interval is processed). The laboratory utilises an XRF technique to determine a suit
of major elements including: Mn, Fe, SiO₂, Al₂O₃, P, Na₂O, MgO, K₂O, CaO, SrO, BaO and TiO₂. At the time of reporting no assay results had been returned from the laboratory. Figure 3 below presents a flow chart diagram of the sample preparation process. All samples are split to enable the determination of a head and product grade. The wet screen process is designed to simulate current practice through the concentrator. A product Yield is calculated from the dry and wet weights following wet screening.

**Figure 3 - sample prep flowchart**

Survey pickup of the drill collars is also yet to be completed.

## 5 Cultural Aspects

### 5.1 Instruction in Aboriginal Culture

As per clause 20.1 and Annexure G of the exploration agreement, GEMCO ensured that all employees, contractors and consultants engaged in the work program, were given
appropriate instruction in Aboriginal traditions and culture. Prior to entering the Eastern Areas, personnel were given cross-cultural instruction, which included the following:

- Permit requirements for off-lease areas;
- Alcohol restrictions and policy;
- Conduct whilst on Aboriginal land;
- Basic understanding of Aboriginal culture;
- Significance of Aboriginal sacred sites;
- Listing of Aboriginal organisations and community structures.

6 Expenditure

Many of the costs associated with exploration on the eastern lease areas were shared costs with exploration and infill drilling within GEMCO’s mining leases. The total cost for the period between 13 October 2005 and 13 October 2006 is shown in the Appendix.

7 Future Exploration Activities

The next stage of exploration will focus on proving up a resource in the Eastern Areas through:

- Finalise RC drill program (collar survey and sample preparation and analysis).
- Complete small diamond drill program to assist with determinations of dry bulk density.
- Review of drill results, including QAQC of assay data.
- Geological interpretation, including domaining and geostatistical analysis.
- Resource modelling and generation of reserve estimates.
- Further test work and analysis to determine if areas can be handed back to the Traditional Owners.

Planned expenditure for future exploration activities for the 2007 period is $125,000 in EL10115 and $275,000 in EL10108.
Appendix A – Expenditure Report for EL10115_2006
Appendix B – Expenditure Report for EL10108_2006