

EL24524 "EAST ARNHEM" **GEMCO Project**



ANNUAL EXPLORATION REPORT **For the Period Ended 19 APRIL 2017**

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South32 Australia Manganese

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EXECUTIVE SUMMARY

East Arnhem Land is Aboriginal-owned land, as granted under the *Aboriginal Land Rights (NT) Act 1976 (ALRA)*. The Groote Eylandt Mining Company Pty Ltd (GEMCO) has its obligations defined in various lease documents. Exploration by GEMCO within the tenement targeted Manganese (Mn) mineralization and is based on historically reported Mn occurrences and previous exploration campaigns. During the reporting period, work completed consisted of desktop reviews and planning for a proposed geophysical survey. Future work planned will involve the execution of the proposed trial geophysical and review of results.



INTRODUCTION

The Exploration Licence (EL) 24524 was applied for by BHP Billiton Minerals Pty Ltd (BHPB) on 17 December 2004. This application is located within Aboriginal Freehold Land and consequently were lodged under the Aboriginal Land Rights (NT) Act 1976 (ALRA). Although the original application covered a much larger area, the Northern Land Council (NLC) gave consent only to only parts of the application. As a result, four new ELs were established to cover the non- contiguous consent areas.

Since this time, a partial surrender of EL 24524 has occurred. This report summarised the activities for the retained portion of EL24524 during the reported period.





TENURE

LAND STATUS

Aboriginal Freehold Land – Northern Land Council

TITLES

EL24524 was granted to the Groote Eylandt Mining Company (GEMCO) on the 20th April 2009. The lease was renewed in April 2015 at which time 15 of the original 48 blocks were retained, details are given below in Table 1. Variation of expenditure request was submitted on the 31st May 2016 for reporting 20 April 2015 to 19 April 2016. A renewal application was submitted in April 2017 for a further two years.

Table 1: Tenement details

Tenement	Owner	Grant Date	Expiry Date	Number of blocks
EL 24524	South32 GEMCO	20 April 2009	19 April 2019	15

PREVIOUS EXPLORATION ACTIVITIES

Previous exploration over this area is described in Report 13 of the Northern Territory Geological Survey (Ferenczi, 2001).

In the mid 1960's, BHPB (then BHP Ltd) explored parts of the eastern Arnhem Land area for sedimentary-diagenetic Mn after the discovery of the Groote Eylandt deposit. A variety of exploration campaigns were completed by BHPB in the 1960's, including helicopter reconnaissance work, regional mapping, pitting and regional drilling at some prospects (e.g. Caledon Bay, Peter John River, Lake Evella).

The Peter John River prospect extends over an area of about 10 sq km straddling EL24524 (S32 100%) and EL4171 (RTX). In 1965, a total of 33 exploration pits were dug. Subsequently 11 holes were drilled to various depths to test the manganese potential. However, no significant manganese mineralisation occurrences were identified at this prospect.

Between July and September 2009, BHPB Minerals Exploration (MinEx) completed a drilling program in EL24524. The programme involved the drilling of 27 shallow Reverse Circulation (RC) holes and establishment of access tracks (~ 27 km) to reach the drill sites. The drilling concluded in August 2009 and all the drill sites and access tracks were rehabilitated in the following month prior to closure of the field camp and withdrawal from the project site.

Due to a shift in exploration focus by BHP Billiton, MinEx did not conduct any exploration on the East Arnhem Project during the 2011 dry season.

During 2012 BHPB Manganese Australia (Mn Australia) completed three diamond drillholes in EL24524, again to establish stratigraphic control in the area. The holes were planned along the existing Mata Mata Road requiring only drill pad construction.

A follow up infill drill program was conducted in 2013. A total of 39 aircore holes for 1,803m were drilled from which 461 samples were collected for analysis. Results indicated that a deep chemical weathering profile where iron oxides are prevalent affects most of the target horizon. Some grades at very low yields were found to be preserved in areas of deeper cover. An additional two diamond holes were drilled to support the stratigraphic model.



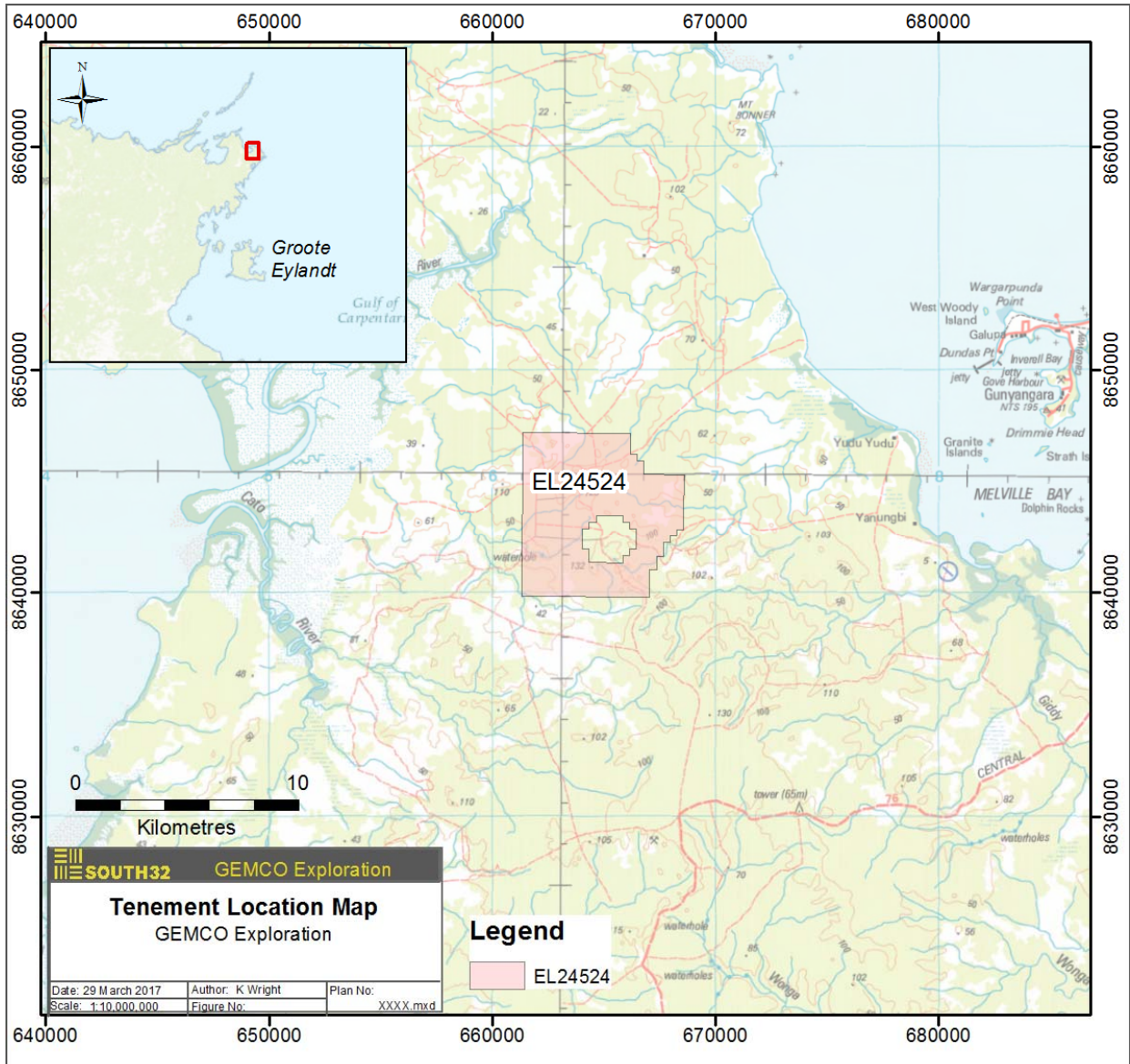


Figure 1: EL24524 Tenement Location Map



EXPLORATION ACTIVITIES

Work completed during the 2016-2017 reporting period consisted of:

- Desktop reviews for internal strategic decisions,
- Desktop reviews of geophysical survey proposal for cost reductions,
- Tenure reporting including previous period annual reports, renewal request and variation of expenditure request.
- Minor field reconnaissance as part of adjacent tenure exploration planning.

Desktop studies

In late April (outside reporting period), a peer review technical workshop was held involving internal South32 geoscientists, business planners and management. The preparation for the workshop involve historical data reviews and revision of forward planning. As a result of this revision the proposed geophysical surveying planned for the reporting was postponed due to impending exploration activities on adjacent tenure. Total cost of the proposed survey was also reviewed to better align with South32 GEMCO Exploration strategy and priorities.

Renewal request

A renewal document was prepared in April 2017. It recommended retaining all 15 sub-blocks on the basis of identified mineral prospectivity on adjacent tenure with planned 2017 exploration. The mineralised horizon identified in historical drilling on the EL, was found to be best preserved where thick overburden has masked the effect of the chemical weathering surface (Figure 2).

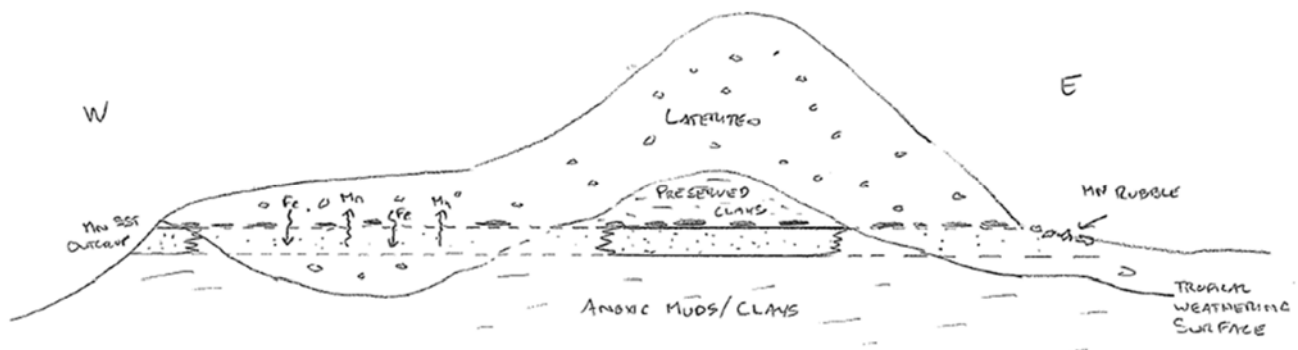


Figure 2: Mineralised sandstone model

Although the mineralised area within EL24524 is of limited economic interest on its own, GEMCO views the lease as important to understanding the mineral potential of the region as a whole. Exploration drilling is planned for adjacent tenure (EL24389) in 2017 to test for continuity of mineralisation under thicker overburden to the southeast of the tenement (Figure 3). The continuity of mineralisation intersected in the adjacent tenure has the potential to upgrade the economic interest of the EL24524 mineralised area and will directly impact the future business case for exploration in the region.

FUTURE WORK PROGRAM

Further work is planned for the lease to test alternative exploration methods over the known occurrence in order to refine future programs in the area and determine the best geophysical survey methods to delineate the presence or absence of sandstone hosted manganese mineralisation. A multi-disciplinary ground geophysics program has been designed to test the known responses of the mineralised horizon specifically over known drillhole intercepts (Figure 4). The current proposed survey will be revised and reviewed based on new information expected through 2017 exploration drilling on adjacent tenure. The results of drilling will directly impact the design and scope of the proposed geophysical surveying. This

will allow calibration of multiple methods to apply across the entire area of interest within the lease areas. The current plan involves:

- Approximately 340 line km of Sub Audio Magnetics (SAM) in 3 separate grids,
- A 1km X 1km Gradient IP grid with 25m station spacing and 100m line separation,
- Approximately 3 line km of Dipole Dipole IP,
- Approximately 3 line km of Electrical Resistivity Imaging (ERI)

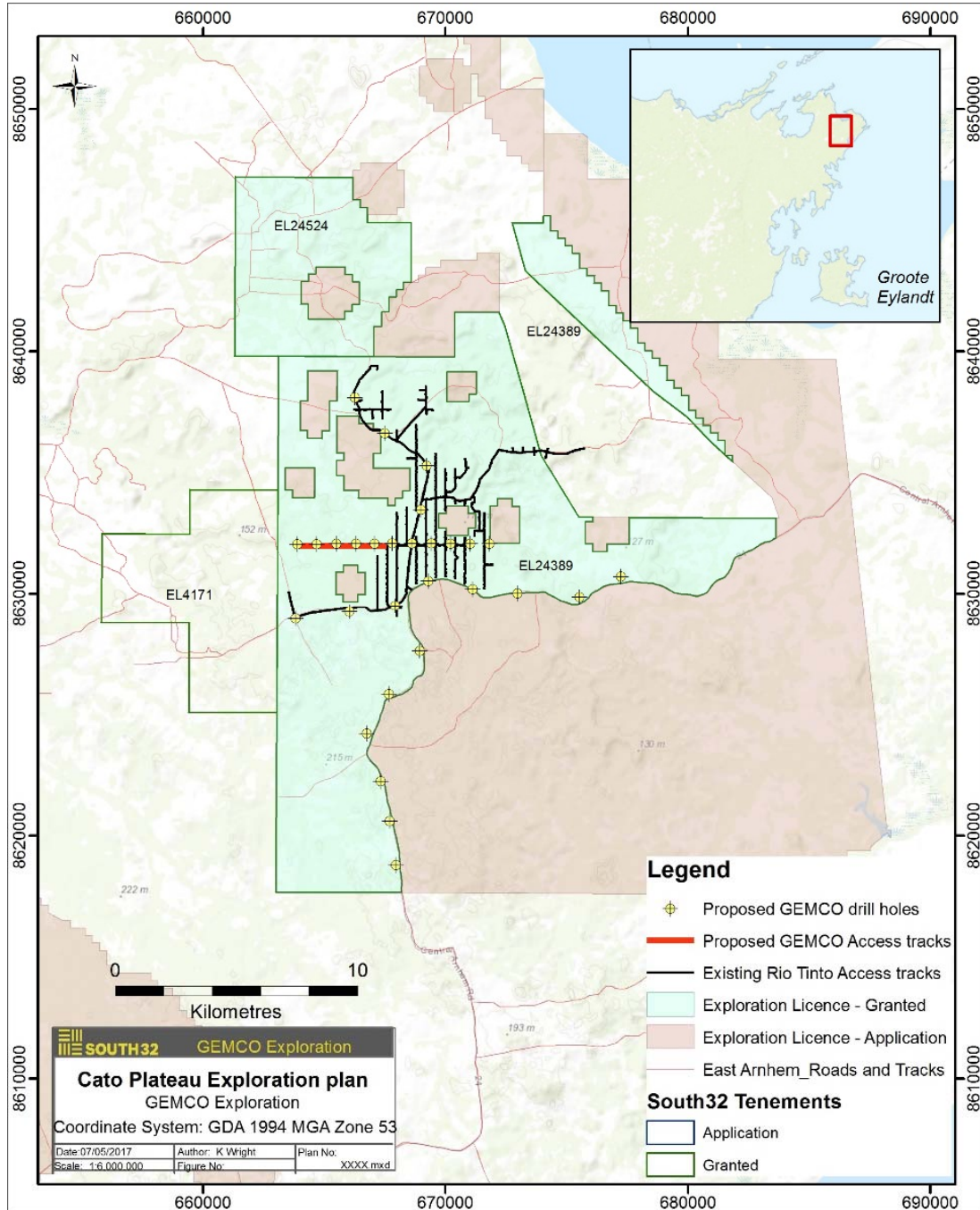


Figure 3: Proposed exploration drilling adjacent to EL24524

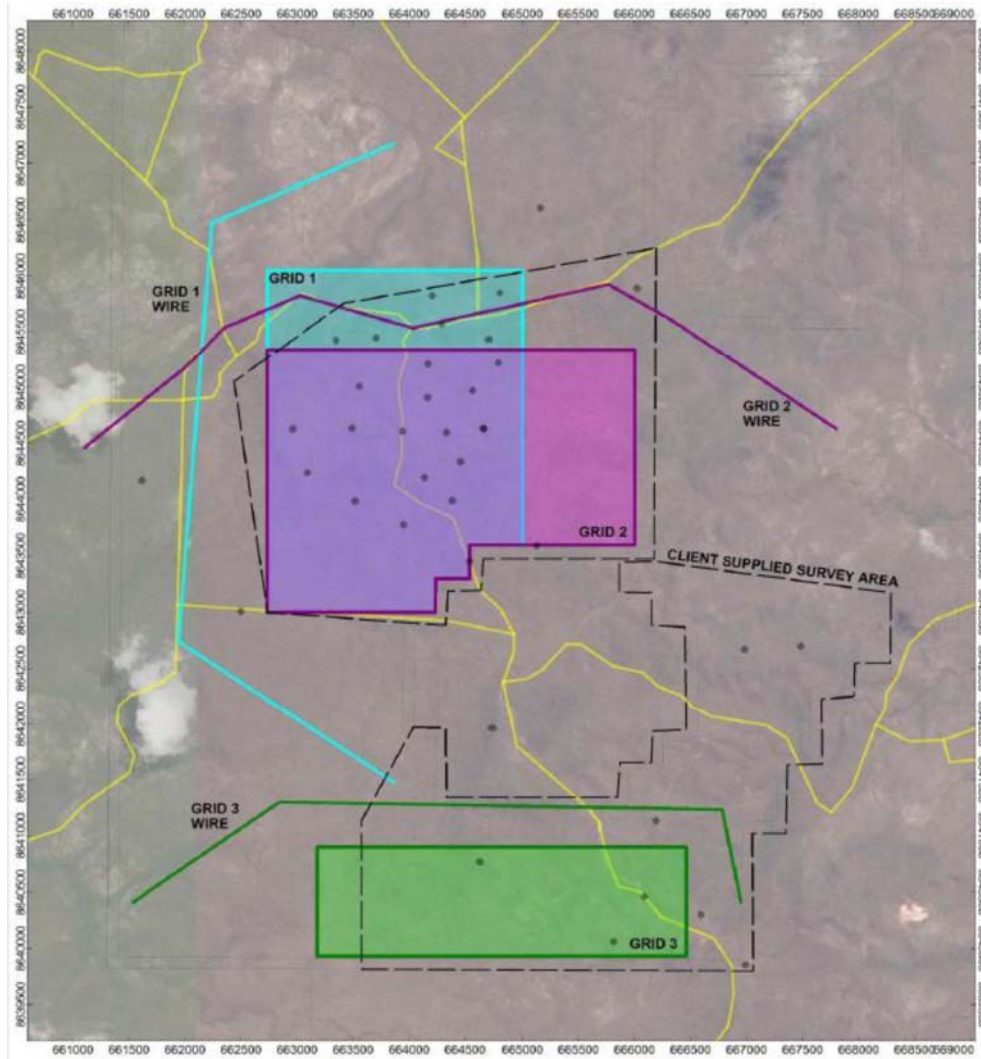


Figure 4: Proposed Geophysics Program



CONCLUSIONS AND RECOMMENDATIONS

The proposed multi-discipline geophysics program is expected to be completed post results of adjacent exploration activities. Survey expenditure across the tenement is expected to be \$50,000 - \$80,000 over the next 2 years. The planned program will be reviewed and revised based on new geological information obtained through the drilling and mapping on adjacent tenure, access conditions and seasonal weather conditions.

Year	Proposed activity	Expected expenditure	Timing
1	Review of drilling results for adjacent tenure in comparison to the known manganese enriched sandstone intersected on EL24524.	\$30,000	August – October 2017
	Review and redesign of proposed multi-discipline geophysical survey in light on new information.		November 2017 – April 2018
	Field reconnaissance of revised survey parameters.		November 2017 - April 2018
2	Conduct multidisciplinary geophysical survey	\$50,000	