

COMPETENT PERSON REPORT
South32 - GEMCO

COMPETENT PERSON REPORT FOR:

GEMCO

As at 30 June 2015

Including:

Mineral Resources and Ore Reserves.

Competent Persons for the report are:

| | Competent Person | Area of accountability |
|-------------------|-------------------------|-------------------------------|
| Resource 1 | David Hope | GEMCO |
| Resource 2 | | |
| Resource 3 | | |
| Resource 4 | | |
| Reserve 1 | Mark Bryant | GEMCO |
| Reserve 2 | | |
| Reserve 3 | | |
| Reserve 4 | | |

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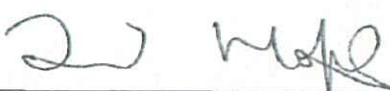

COMPETENT PERSON ACKNOWLEDGMENT


This Competent Persons Report, which provides supporting documentation for the Mineral Resource and Ore Reserve estimate for GEMCO for the year ending 30 June 2015 was prepared under the direction of the Competent Persons listed below.


These Competent Persons verify that:

- they have full knowledge of information contained in this report relating to the estimation of the Mineral Resource and Ore Reserve of the said deposit;
- the Mineral Resources and Ore Reserves (delete if necessary) are estimated in accordance with the relevant assessment criteria contained in Table 1 of the JORC Code;
- they are members of the AusIMM, AIG or approved RPO and have the relevant experience and competency required by the JORC Code;
- material issues are transparently disclosed on an 'if not, why not' basis;

this Competent Persons Report has been peer reviewed (Report included as *Appendix 10*) prior to submission by the person listed below.

| Mineral Resource Competent Persons / Exploration Results | Ore Reserve Competent Persons |
|------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| Signature:  | Signature:  |
| Date: 15/5/2015 | Date: 15/5/2015 |
| Name: David Hope | Name: Mark Bryant |
| Title: Manager Geological Services | Title: Principal – Bryant Mining |

| VP Planning and Development |
|------------------------------------------------------------------------------------------------|
| Signature:  |
| Name: Dawn Wilson |
| Title: VP Planning & Development. Date: 15 May 2015. |

| Peer reviewed by |
|-------------------------------------------------------------------------------------------------|
| Signature: |
| Name: A Ntalo (Mineral Resources) |
| Title: Chief Geologist, Mamatwan Mine |
| Date: 14 May 2015 |
| Signature:  |
| Name: DS Mathebula (Ore Reserves) |
| Title: Manager Production Planning, Wessels Mine |
| Date: 14 May 2015 |

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1. EXECUTIVE SUMMARY

Mineral Resources Summary

Mineral Resources as at 30 June 2015 in 100% terms reported in compliance with the JORC Code

| Ore Type | Measured Resource | | | Indicated Resource | | | Inferred Resource | | | Total Resource | | | Company Interest |
|-------------|-------------------------------|------|---------|-------------------------------|------|---------|-------------------------------|------|---------|-------------------------------|------|---------|------------------|
| | Millions of Dry Metric Tonnes | Mn % | Yield % | Millions of Dry Metric Tonnes | Mn % | Yield % | Millions of Dry Metric Tonnes | Mn % | Yield % | Millions of Dry Metric Tonnes | Mn % | Yield % | |
| Orebody-ROM | 106 | 45.2 | 48 | 29 | 43.4 | 47 | 35 | 42.6 | 49 | 169 | 44.3 | 48 | 60% |
| PC02Sands | | | | 13 | 20.8 | | 2.3 | 20.0 | | 15 | 20.7 | | 60% |

The ROM estimation is based on the methodology developed by Quantitative Geoscience (QG) in 2010. The model reported includes resource definition and exploration drilling completed as at the end of April 2014. Assigned bulk density values have been updated on the basis of density measurements from grade control diamond drilling as recommended by QG. The Mineral Resource is reported at a 40% washed Mn product grade but is inclusive of diluting material and using a minimum 1m external ore thickness. Yields are not adjusted with production reconciliation factors for resources reporting i.e. modelled yields are reported in 100% terms.

The Sands resource is derived from a push probe drilling program that was completed in May 2012. The estimation is based on a two dimensional grid modelling methodology and the resource has been reported using in situ tonnes and grades. A zero in situ Mn cut-off grade was deemed appropriate given the proposed mining and processing methods.

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Ore Reserves Summary

Ore Reserves as at 30 June 2015 in 100% terms reported in compliance with the JORC Code

| Ore Type | Proved Ore Reserve | | | | | | Probable Ore Reserve | | | | | | Total Ore Reserve | | | | | | Reserve Life | Company Interest |
|---------------|-------------------------------|-----------------|-------------------|--------------------|--|--|-------------------------------|-----------------|-------------------|--------------------|--|--|-------------------------------|-----------------|-------------------|--------------------|--|--|--------------|------------------|
| | Millions of Dry Metric Tonnes | Head Grade Mn % | Yield (dry/dry) % | Product Grade Mn % | | | Millions of Dry Metric Tonnes | Head Grade Mn % | Yield (dry/dry) % | Product Grade Mn % | | | Millions of Dry Metric Tonnes | Head Grade Mn % | Yield (dry/dry) % | Product Grade Mn % | | | | |
| Orebody - ROM | 60 | 33.4 | 55 | 45.3 | | | 22 | 32.0 | 55 | 43.2 | | | 82 | 33.0 | 55 | 44.8 | | | 10 | 60% |
| PC02 Sands | | | | | | | 7.6 | 22.3 | 33 | 40.0 | | | 7.6 | 22.3 | 33 | 40.0 | | | 10 | 60% |
| | | | | | | | | | | | | | | | | | | | | |

The full declaration is in Appendix 2.

Orebody Notes:

- The Resource Model that underpins the Reserve has a 40% product Mn cut-off. 1m thick ore cut-off on the periphery of the deposit, otherwise a 0.5m thickness cut-off.
- 40m wide strips. Bench height dictated by geology. BHPB provided pricing protocols used in the Blasor Optimiser to define ultimate mining limits.
- Mining and Metallurgical recovery is calibrated using reconciliation data. The yield uplift from the on-line PC02 processing is not included in the Reserve.
- Based on a blended schedule – Proved and Probable Ore is not discretely processed separately from other scheduled ore.
- To reflect the Competent Person's confidence in the underlying data supporting the estimate some Measured Resource has been downgraded to Probable Reserves and some Measured and Indicated Resource included in the schedule has not been included in the Reserves. Inferred ore is included in the schedule but not the Reserve.

PC02 Sands Notes:

- No Head Grade cut-off.
- BHPB provided pricing protocols used in the Blasor Optimiser to define ultimate mining limits.
- Metallurgical recovery based on Definition Phase Study data.
- Based on a blended schedule – PC02 output is blended with MF02 for shipping.
- Inferred ore is included in the schedule but not the Reserve. On-line tailings processing is expected to occur but is not included in the Reserves.

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Reconciliation Summary

Below are the F1, F2, F3 Reconciliation factors of the reporting year's production with the reserve estimate for the identical volume actually mined for the period FY15Q1 to FY15Q3. The site reported F1 and F2 has been adjusted to a dry basis to match the F3 reconciliation basis.

| Reconciliation FY 2015 | Dry Tonnes | Grade | Metal |
|-------------------------------------------|------------|-------|-------|
| Grade control / Reserve (% basis) F1 | 98% | 100% | 98% |
| Process feed / Grade control (% basis) F2 | 93% | | |
| Market sales / Reserve (% basis) F3 | 90% | * | 83% * |

* Due to the size of the ROM stocks at GEMCO small changes in the estimated ROM grade influence the calculation of the metal recovery. The comparison of Bin (actual) grades with STGM expected, excluding any stockpile balancing, showed a 99% reconciliation.

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Mine Production Summary

Mine Production FY 2015 (Actual to March, forecast April - June)

| Ore type | Millions of Wet Metric Tonnes (plant feed) | Head Grade Mn % |
|--------------|-----------------------------------------------|--------------------|
| ROM | 9.9 | Not measured |
| Sands | 0 | |
| Total | 9.9 | Not measured |

Forecast production is contingent on ongoing product sales for FY15Q4.

Total Metal or Product Produced FY2015 (Actual to March, forecast April - June)

| Ore type | Commodity Mn Ore Mt (wet) |
|--------------|------------------------------|
| ROM | 4.9 |
| | |
| Total | 4.9 |

Forecast production is contingent on ongoing product sales for FY15Q4.

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Feasibility Study

The Definition Phase Study (DPS) for the PC02 sands project was completed in July 2014. In August 2014 it was approved for execution. First production is expected late FY2016. No feasibility studies have been completed in relation to the GEMCO ROM Mineral Resource and Ore Reserve.

Independent Audits or Reviews Completed in FY2015

An independent audit of the geological database was completed by Group Resource Business Optimisation (RBO), now Group Technology, Geoscience and Engineering (TGE). A Mineral Expert's Report was prepared for GEMCO by CSA Global in November 2014.

An independent review of yield was completed in January 2015 by internal BHP Billiton technical specialists.

An independent review of the PC02 Sands Reserve declaration was prepared by Martin Meyer of Group TGE, in March 2015.

No material issues were raised in these audits or reviews.

Risk Assessment, Conclusion and Recommendations

The key risk for the PC02 Reserve are Market Acceptance and Transportable Moisture Limit (TML). These have been addressed in the DFS by supplying customers with sample product, and including the cost of a shed to cover the port sands stockpile.

The key areas of ROM Reserve uncertainty are:

- access to mining areas being granted by the traditional owners
- geological uncertainty, highlighted by the differences between the Resource Model and the Short Term Grade Control Models
- process recovery factors (yield).

The Competent Person for Reserves has re-categorised some areas of the deposit to reflect this uncertainty. Within the likely variations the deposit remains economically viable, and as such there is no material effect on the global ROM Reserve estimate.

There were no other risks identified that materially affect the Mineral Resource or Ore Reserve estimate.

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Information needed / JORC Code - Table 1

This Competent Persons Report template covers all of the required explanation mandated in Table 1 of the JORC Code. It describes the processes undertaken to estimate and report the resource and reserve. Additional detail can be found in the reference documents. Comments to be made in the relevant sections are mandatory on a “if not, why not” basis as prescribed in the JORC Code.

Report Distribution

BHP Billiton Resource Reserve reporting database - electronic

Mn Australia RPD Department - electronic

Confidentiality

All information concerning Prices and Marketing contained in the report is confidential and disclosure of said information is subject to the BHP Billiton Anti-Trust Policy. None of this information should be publicly disclosed without the approval of BHP Billiton legal Advisors. Distributing information relating to Resource and Reserve estimates without the consent of the relevant Competent Person's is a breach of company policy.

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2. Introduction

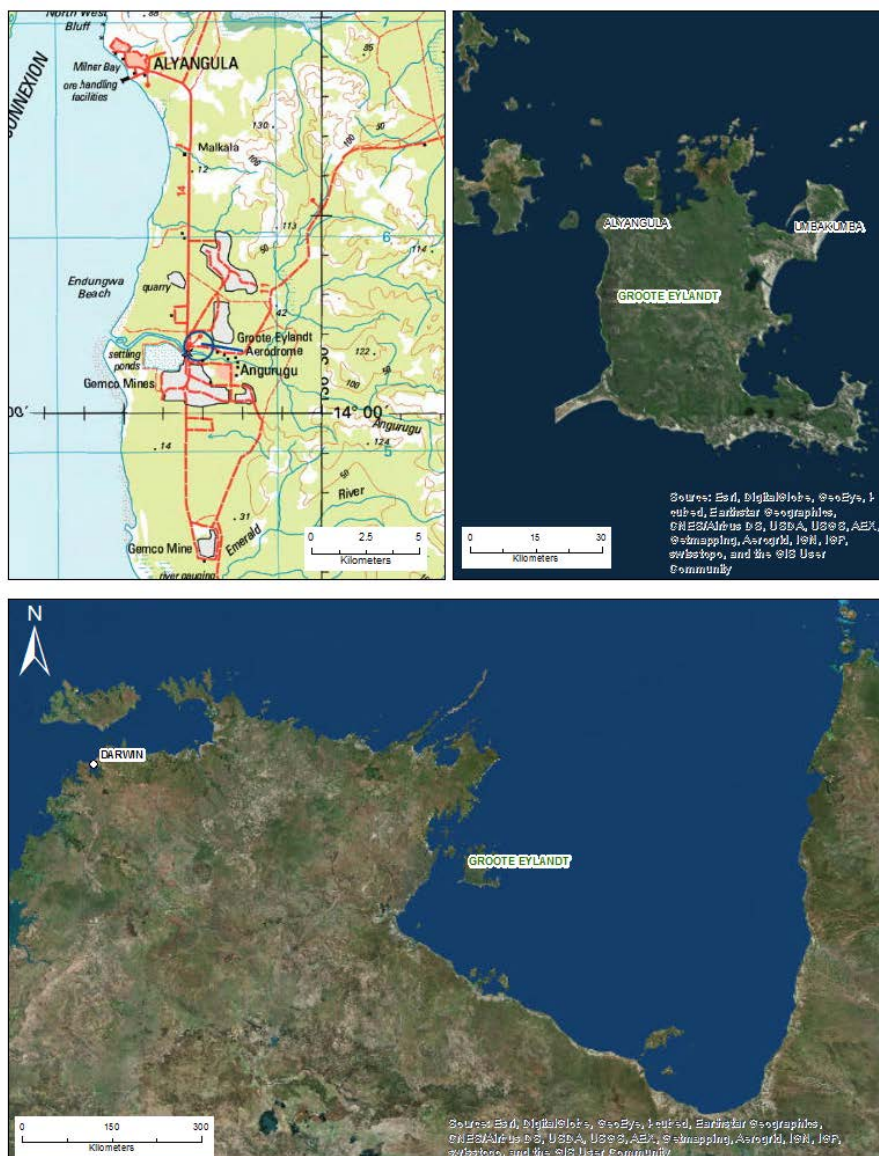
This report covers resources and reserves and is issued in support of the South32 declaration of Mineral Resources and Ore Reserves in the June 2015 Annual Report for the GEMCO deposit.

Groote Eylandt Mining Company Pty. Ltd.
(ACN 004 618 491, trading as GEMCO)

(Groote Eylandt Manganese Mine – Northern Territory Australia)

This report aims to present the Mineral Resource and Ore Reserves estimates including an overview of the GEMCO manganese operations on Groote Eylandt as at the end of June 2015. The Groote Eylandt Mining Company Pty Limited (GEMCO) is owned by BHP Billiton (60%) and Anglo-American (40%). Unless otherwise stated all figures quoted are 100% GEMCO basis.

GEMCO has been mining manganese since 1964 in accordance with special mining leases granted by the Commonwealth Government and traditional Aboriginal owners. The deposit is located in the Gulf of Carpentaria in the Northern Territory of Australia.



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GEMCO commenced mining at Groote Eylandt in 1964 under BHP ownership. A crushing and wet screening plant was subsequently commissioned. The beneficiation plant was commissioned in 1972 at a 1.0 Mtpa product capacity and has since undergone a series of expansions. The most recent of these expansions was the GEMCO Expansion Project, which was completed in 2013 and increased GEMCO's capacity from approximately 4.2 Mtpa to approximately 5.0 Mtpa product by addressing plant bottlenecks and adding a dense media circuit by-pass facility. The expansion also addressed key infrastructure constraints by increasing road and port capacity to 5.9 Mtpa, creating 1.1 Mtpa of additional infrastructure capacity for future expansions.

2.1 Materiality

While the GEMCO (ROM) Mineral Resource and Ore Reserve have changed since the previous report these changes are not considered to be material to the business.

The Sands Mineral Resource remains unchanged; however this is the maiden Ore Reserve for the PC02 sands project.

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3. Work carried out during FY2015

The GEMCO Mineral Resource was updated using the drillhole database closed off at the end of May 2014, a total of 1,027 reverse circulation (RC) drillholes were added to the previous resource estimate in the mining and exploration leases. Additionally the following work was also completed:

- Drillhole spacing studies were conducted for the key quarry areas to determine the most appropriate grade control RC drillhole spacing.
- A laboratory yield relationship was established between the RC and diamond core (DC) drill data for the grade control domains and ore horizons. STGM's (short term grade control models) were subsequently developed for the quarry areas on the basis of this relationship and enabled the implementation of F1 and F2 reconciliations.
- The GEMCO RRA (Resource Range Analysis) was updated in September 2014. The review focused on redefining conceptual and potential mineralisation in East Arnhem Land and on Groote Eylandt on the basis of an improved understanding of the regional geology and exploration results. This also resulted in the revision of the exploration prospectivity matrix and exploration strategy.
- An external audit of the geological database was completed.

With the approval of the PC02 Sands project it was included in the LOA Base plan.

The study work for the Eastern Leases included:

- Submission of the EIS
- Completion of the Selection Phase Study (SPS 2B)
- Ongoing negotiation with the traditional owners for access to drill and potential mining areas.

The Eastern Leases areas are included in the Resource but are unlikely to be included in the Reserve until FY2021, when it is expected that the Definition Phase Study will be completed and the project approved.

3.1 Changes in methodology

There have been no significant changes to the methodology used to develop the geological model and Mineral Resource. However the model has been redefined to include:

- High silica "cap" material (Mn >40% and SiO₂ >11%) which may occur above the MID ore horizon and is typically extracted with the orebody.
- Material with an ore thickness between 0.5-1.0m internal to the orebody which is typically included in the mine plan to maintain the continuity of the mining strips and cuts.

There have been no material changes to the Reserve modifying factors other than updates to reflect more recent reconciliation data. The Resource density was altered in the underlying geological model so a direct comparison of factors used previously is not valid. The key factors for the orebody are:

- Resource to Reserve in situ density correction = 1.0
- No specific mining dilution factor (no change from previous estimate).
- Default Mining Loss = 5% (no change from previous estimate).
- Resource to Reserve Yield adjustment = 1.10 for lump and 1.12 for fines, with selective application. Blocks in C, G and AS quarries had no adjustment applied. Blocks that have domained laboratory yields less than 55% have the full correction applied, and blocks above 65% have no correction applied. A linear transition between full application and no application occurs for blocks that have domained laboratory yields between 55% and 65%

The key factors for the PC02 sands stockpile recovery are:

- Bulk density of 1.8t/bcm
- No ore loss or dilution included in estimate
- Yield based on Head Grade in the relationship: Yield (40% Mn product) = $2.7396 * \text{Mn Feed Grade} - 27.64$
- The on-line component of the feed has not been included in this Reserve Statement. More information is required on the expected sand tailings grade before it can be included.

3.2 Actions for improvement

Work is planned for FY2016 to improve the Mineral Resource estimate by:

- Reassessing the in situ bulk density values using diamond core results from the 2014 drilling program.

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- Re-evaluating the RC / DC lab yield relationship using the diamond core results from the 2014 drilling program.
- Integrate the RC / DC lab yield relationship into the Mineral Resource following assessment of the F1 and F2 reconciliation performance of the STGM's.
- Assess the most appropriate technique or dealing with unsampled interburden intervals missing primary grade and yield information.
- Review options for improving the sub-BOT estimate given limited sample information.

Work is planned to improve the FY2016 Ore Reserve estimate by:

- Commencing specific negotiations with the traditional owners regarding ore mining adjacent to Angurugu.
- Continuing to observe the results of the concentrator mass balance project, with particular regard to the sand tailing Mn grade in relation to future on-line PC02 feed.
- Continuing to monitor and use the reconciliation data in the modifying factors assessment.
- Seeking better alignment of the Resource Model with the Short Term Grade Control Models (STGM), including appropriate sign-offs before the STGMs are issued for use.

Work that is not planned but should be considered for improvement for future Reserve Estimates is:

- Proper LIMN simulations of the concentrator process to more accurately predict yield.
- A series of ore tests to improve the correlation between domained laboratory yield and actual concentrator performance.
- Further improvement to the Reserve modifying factors will occur as a robust bank of reconciliation knowledge is built up. When the mass balance project delivers usable results these will be included in the reconciliation process and should add more confidence to the Reserve modifying factors.

3.3 Value addition

There was a net 6Mt decrease to the GEMCO Orebody ROM Mineral Resource compared to the FY2014 declaration as a result of:

- Depletion due to mining.
- The inclusion of the high silica cap and internal 0.5-1.0m ore thickness material;
- Conversion of Potential Mineralisation to Resource; and
- Exclusion of sacred sites at A South and C quarries.

The PC02 sands Mineral Resource remains unchanged.

There was a 4.7Mt (dry) (5%) decrease to the ROM Reserve. The key differences were:

- -9.9Mt as a result of depletion (plant feed and additional ore loss);
- +7.6Mt as a result of the approval of the PC02 project ;
- -3.5Mt as a result of re-classification of the C Quarry area due to geological uncertainty;
- The balance was due to other minor Resource classification changes and minor changes to mining extents.

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4. Tenure

Groote Eylandt is Aboriginal owned land as granted under the Aboriginal Land Rights (NT) Act 1976 (ALRA). GEMCO's obligations are chiefly embodied in various lease documents including Mineral Leases and Special Purpose Leases, a Letter of Understanding dated 13 May 1965 and an Agreement dated 16 September 2006. These documents cover mining operations, the township, welfare of Aborigines, the Eastern Exploration Leases and other aspects ancillary to the Company's operations.

The table below details the mineral and exploration licenses associated with the current GEMCO Mineral Resource and Ore Reserve; additionally Figure 2 presents a tenement location plan.

| Lease | Area (ha) | Activity | Expiry date |
|-----------|-----------|--------------------------------|-------------|
| MLN 951 | 1,155 | Mining & associated activities | 16/09/2031 |
| MLN 952 | 645 | Mining & associated activities | 16/09/2031 |
| MLN 953 | 1,464 | Mining & associated activities | 16/09/2031 |
| MLN 956 | 1,208 | Mining & associated activities | 16/09/2031 |
| MLN 957 | 176 | Mining & associated activities | 16/09/2031 |
| MLN 958 | 686 | Mining & associated activities | 16/09/2031 |
| MLN 959 | 2,114 | Mining & associated activities | 16/09/2031 |
| MLN 960 | 567 | Mining & associated activities | 16/09/2031 |
| MLN 961 | 345 | Mining & associated activities | 16/09/2031 |
| MLN 2 | 1.38 | Power line lease | 29/9/1989* |
| MLN 3 | 1.65 | Bridge lease | 24/7/1985* |
| ELR 28161 | 1,249 | Exploration activities | 16/11/2015^ |
| ELR 28162 | 3,165 | Exploration activities | 24/11/2015^ |

Table 1 - Tenement list

* An informal agreement has been reached involving the bridge land and power supply leases.

^ GEMCO intends to renew these leases, however is also currently negotiating the conversion of these leases to mineral titles.

The LOA Base Plan, which forms the basis for the Reserves Statement, includes only quantities from the Mining Leases. Other required permissions to mine are expected in the normal course of business. The LOA Base Plan does not contain production beyond the expiry dates of the leases, however it is expected closure activities will still be ongoing.

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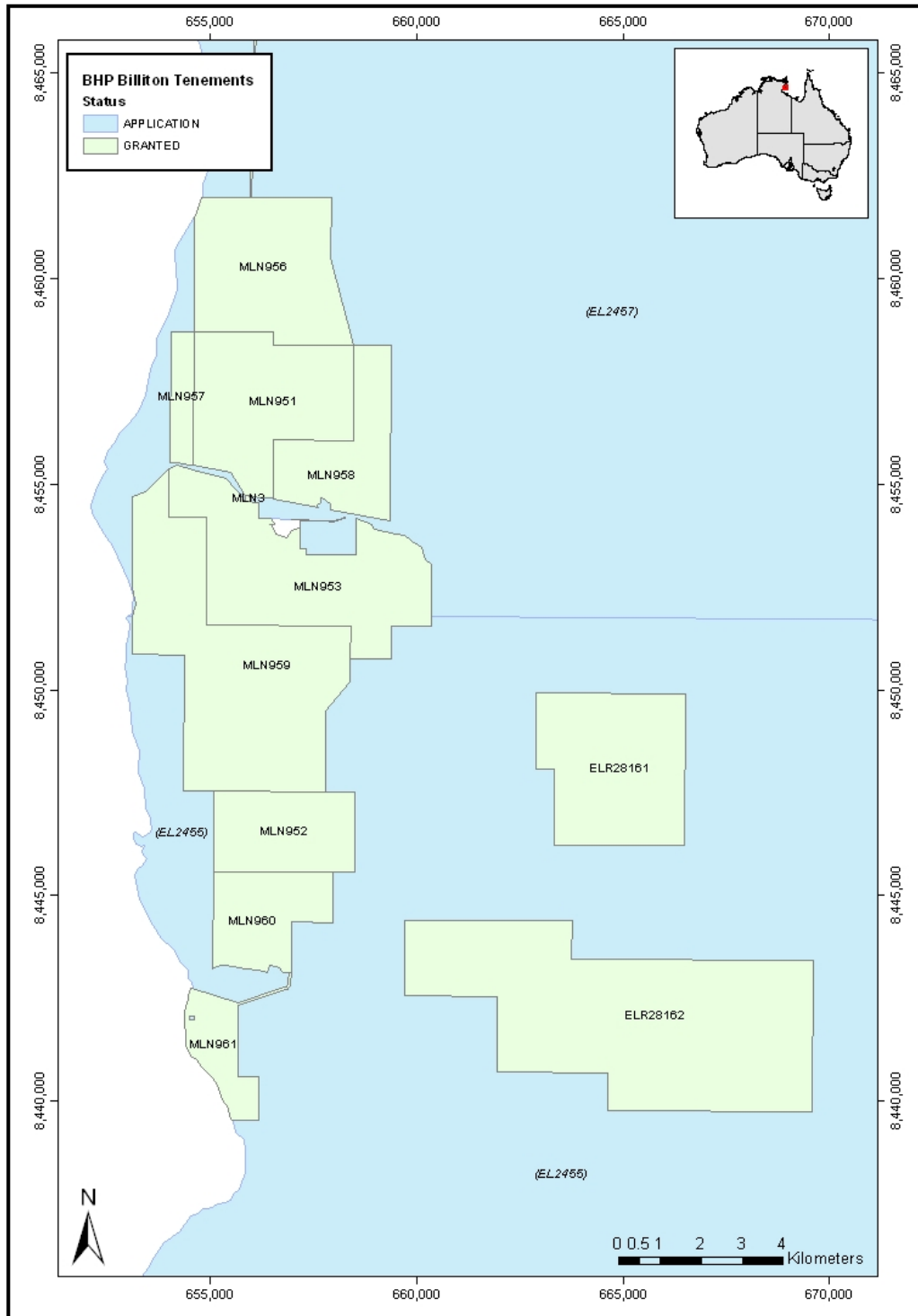


Figure 2 - GEMCO leases

GEMCO manages exploration licences in East Arnhem Land, including a Joint Venture agreement with Rio Tinto Exploration (RTX).

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| Lease | Area (block) | Activity | Expiry date |
|---------|--------------|-------------------------------|-------------|
| EL4170 | 16 | Exploration under the RTX JV | 13/10/2016 |
| EL4171 | 96 | Exploration under the RTX JV | 11/09/2015 |
| EL10182 | 222 | East Arnhem Land exploration. | 19/04/2015 |
| EL27249 | 6 | East Arnhem Land exploration. | 19/04/2015 |
| EL24524 | 48 | East Arnhem Land exploration. | 19/04/2015 |
| EL398 | 53 | Exploration under the RTX JV | 6/01/2016 |

Table 2 - Exploration licences

Additionally, GEMCO has also lodged applications for a number of exploration licences in East Arnhem Land, over the remainder of Groote Eylandt and adjacent islands.

Tenure is managed via the BHP Billiton 'Minerals Land or Tenement Management' (MLTM) system, which is a component of 1SAP and manages and governs the following:

- Land and associated rights;
- Complex land ownership payable and receivables; and
- Imperative approvals process and security.

As well as this, MLTM also ensures:

- All contracts that BHP Billiton are a party to are captured in 1CMS;
- Business Partners are governed in the system to meet anti-corruption and legal compliance;
- Improved reporting and auditing; and
- Central processes for tenure management obligations, reminders and tasks.

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5. Deposit geology

5.1 Overview

The geology and mineralogy of the Groote Eylandt manganese deposits are well documented in the public record. Various sources have been drawn upon to briefly summarise the current knowledge of the Groote Eylandt deposits.

Groote Eylandt is predominantly composed of a stable basement of Proterozoic sandstones and quartzites. The manganese deposits are part of a blanket of Cretaceous sediments lapping onto the western margin of the Proterozoic basement sandstones and quartzites. Erosion channels in the basement have influenced both primary manganese deposition as sediments and supergene enrichment by laterisation.

The manganese orebody is a sedimentary layer, consisting of manganese strata occurring between clay and sand beds and gently undulates beneath the western plains of the island. It extends over an area of about 50 square kilometres as an almost continuous horizon ranging in thickness up to 11 metres. The ore body is thus essentially stratabound and strataform in character.

The orebody consists of pisolitic and oolitic manganese oxides. These oxides are thought to have originally been deposited as a chemical precipitate, forming a tabular sedimentary deposit in wave affected shallow sea-floor environments during a period of rising and falling sea levels. Subsequent to deposition, the manganese layer emerged from the sea during a worldwide drop in sea level. The depositional events were followed by a long period of tropical weathering, which extensively modified the upper parts of the sediment profile. Pisolitic manganese oxides underwent partial to complete remobilisation and recrystallisation that resulted in the formation of hard cemented pisolite and massive manganese oxides. The overlying clays and gravels were strongly oxidised and leached to form the iron and alumina rich laterites that are now excavated off the manganese ore as overburden.

Figure 3 shows the geological distribution of manganese ore on Groote Eylandt.

Figure 4, diagrammatically depicts rock types, mining horizon and the relationship to the stratigraphic model.

The ore horizon is covered by laterite overburden ranging in thickness up to 35m. In most current areas, the overburden averages 15m thick. The orebody is typically mined as two different layers:

- **Middle** - massive high grade ore and cemented and loose high-grade pisolitic ore.
- **Bottom** - massive, high silica ore.

In the present mining areas, the mined ore horizon is between 0.5 and 5 metres thick. Currently a maximum of about twenty metres of overburden is being stripped using combination of box-cutting using a truck and shovel to within 11m of the top of ore, and D11 Dozers for the remaining overburden. (For example F3, D, A South, E South and B quarry).

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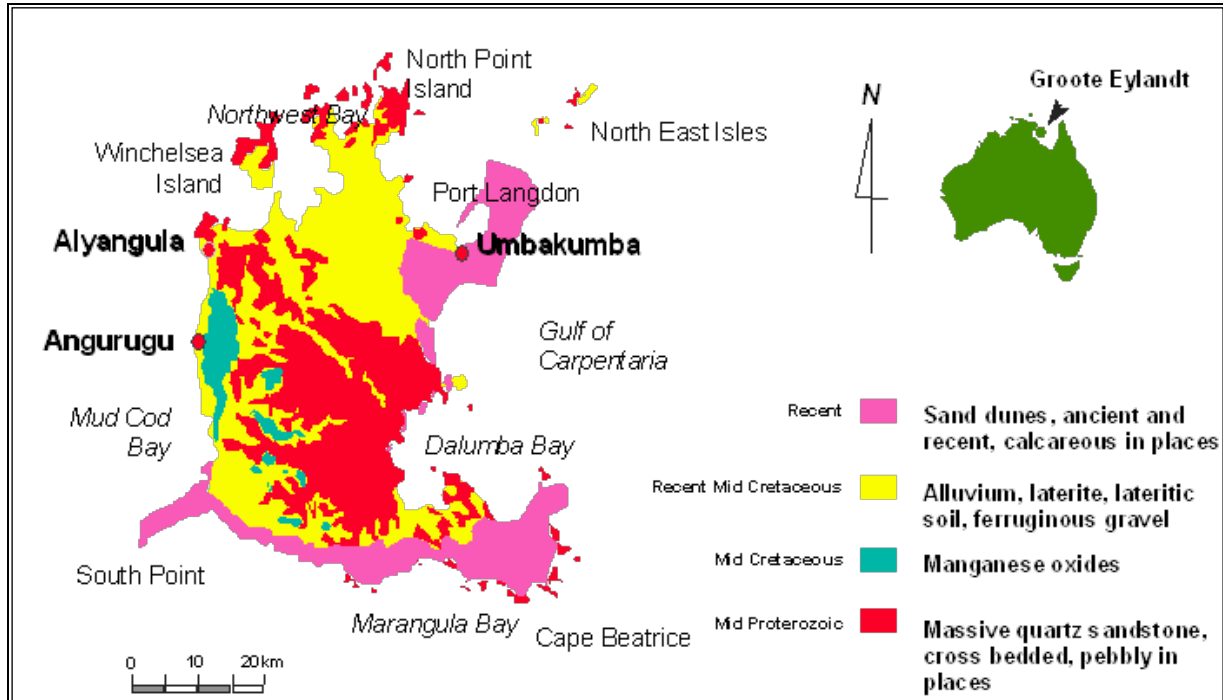


Figure 3 - Geological setting

5.2 Stratigraphy

The Groote Eylandt stratigraphic sequence is as follows in chronological order:

- **Middle Proterozoic Basement** (approx. 1800 Million Years)
- Quartzite: A strongly jointed, massive, near horizontal unit.
- Lower Cretaceous Sediment Sequence (approx. 136 Million Years)
- Quartz Sandstone: Derived from the underlying older Proterozoic quartzite and does not contain fossils.
- Glauconitic Sands and Clays: A succession of shallow marine sediments of clays, siltstones and sands. The upper part of the sequence hosts the manganese ore, which occurs in distinct strata. These strataform bodies form an integral part of the sedimentary sequence. The known extent of the manganese oxide deposit is over 20 kilometres in the north south direction. It is open on the western (seaside) and lenses onto and abuts hills of the quartzite basement to the east. Boundaries between sediment types tend to be vertically gradational, although sharp boundaries exist. Substantial sediment overlay the basement, although in places the manganese rich horizons may be in direct contact with the basement.
- Tertiary Laterite and Clay (3 to 65 Million Years).
- Deep tropical weathering has resulted in the development of thick laterite profiles, consisting of enrichment and depletion of hydrated iron oxides and clays. Both the glauconitic units, including the manganese rich horizons and overlying gravels and clays are lateritised.
- **Quaternary Soil** (present to 3 Million Years)

Soil - Red-brown topsoil forms a thin coverage typically centimetres thick, pockets up to 2-3 meters thick exist.

Figure 4 illustrates a typical lithological column and the relationship to the stratigraphic model of the Palaeo-Proterozoic to recent.

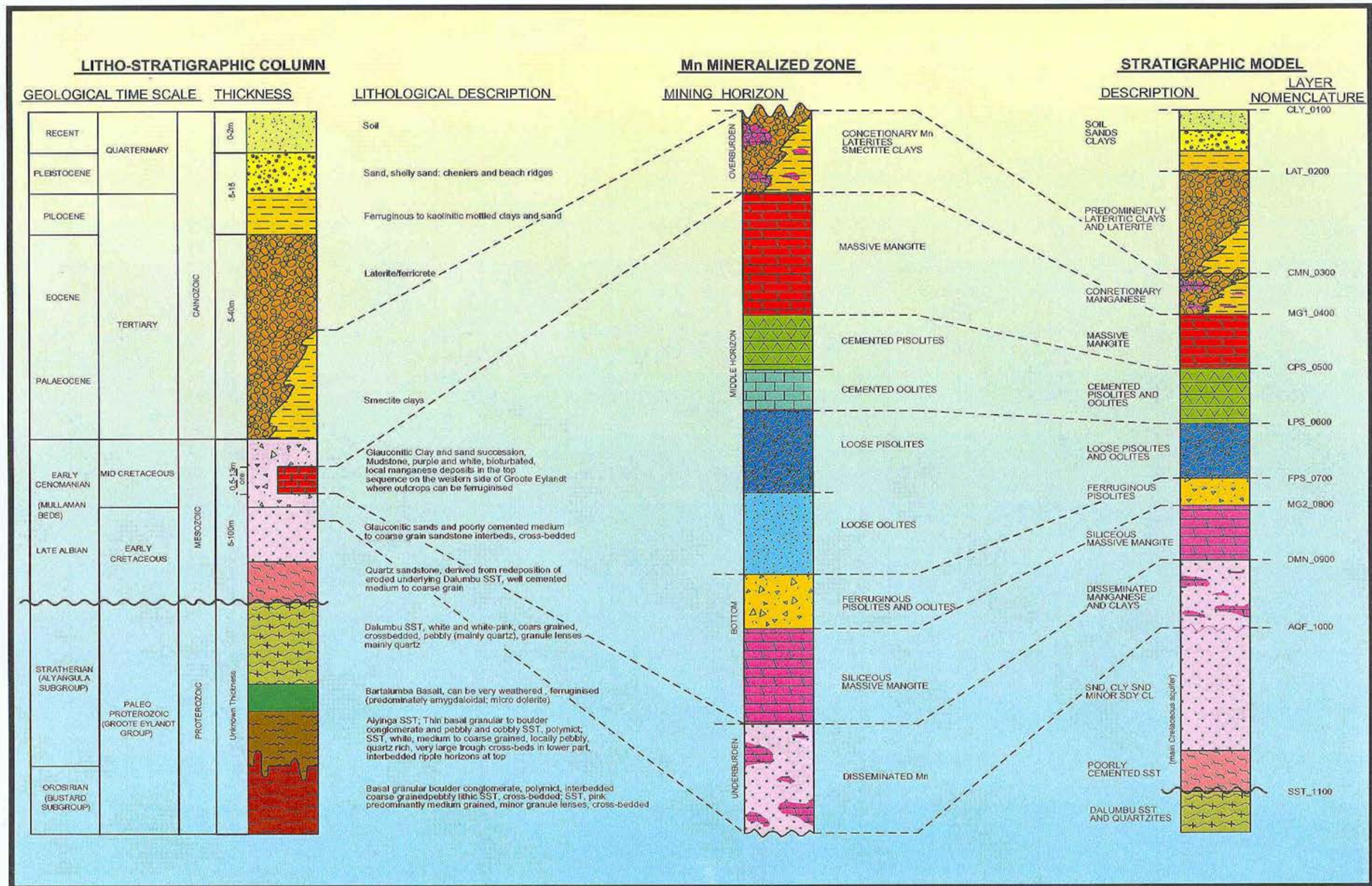


Figure 4 - Stratigraphic profile

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5.3 Manganese ore

Primary sedimentary features

Whilst there is no clear evidence to indicate whether the primary manganese rich sediments are of organic or inorganic origin, characteristics of both deposits appear to be present within the Groote Eylandt mineralised resource. Oswald (1990) has postulated an organic genesis for the manganese pisolites, suggesting the formation may be a phenomenon of coastal waters, river estuaries, lakes and embayments during a transgression of a stratified metal-enriched sea. An alternative is to consider an inorganic genesis of the pisolites, in which near shore and beach conditions (e.g. wave action, long shore drift and winnowing) has strongly affected deposition.

The nature and form of these two potential origins may be significant in terms of modelling. Those areas along the original palaeo-coastline may represent the well-sorted sequence dominated by elongated bars of pisolites and oolites with ribbon like thickening. Whereas in other areas the mineralised strata has formed a blanket cover of shallow embayed zones and deeply filled channels of the palaeo-drainage, with the thickness and form of the layers strongly controlled by the direction and slope of the drainage system.

Mining has exposed primary sedimentary features that suggest a shallow marine environment. The ore contains pisoliths and ooliths, which is evidence of wave action influenced accretion. Inverse and normal graded bedding, cross bedding and ripple marks are evident, indicating deposition during a minor change from marine transgression to regression. In primary ore, manganese pisolites are loosely embedded in a matrix of white kaolin clay with very minor quartz sand. The primary ore is believed to be most closely represented by loose manganese pisolite and loose manganese oolite.

Secondary Manganese Enrichment

Lateritisation has mobilised manganese, iron, alumina and silica in the vertical profile. Manganese oxides through deep tropical weathering, during the Tertiary period have progressively replaced the kaolin matrix in the loose pisolite. This has caused the development of moderately thick laterite profiles above the ore. Diagenetic and supergene processes have recrystallised the primary manganese oxide minerals in the loose pisolite (pyrolusite, romanechite, todorokite, vanadates, lithiophorite, all with kaolinite gangue) to cemented manganese pisolite and massive mangite (dense cryptomelane and pyrolusite) at the top of the pisolitic ore and at the bottom of the siliceous facies.

The area has been extensively lateritised. In the wet season leaching of rocks occurs and in dry season the solution containing the leached ions is drawn to the surface by capillary action to be evaporated leaving salts to be washed away. Na, K, Ca, Mg are readily depleted and this can result in a complex vertical and lateral distribution of chemical environments. Specifically a solution containing these ions under suitable pH conditions can dissolve silica, leaving a clay saprolite. Sequences of smectite clay occur locally over the ore horizons - especially near F1 and C Quarry and regionally north from D quarry to B deposit and A South.

Mineralogy and Dominant Lithologies

The major sedimentary facies influencing ore types were pisolite facies and siliceous facies and these have been overprinted by supergene enrichment processes creating a supergene enriched facies.

Pisolite facies

- Major mineable ore type
- Generally confined to palaeo sea floor terraces close to palaeo highs
- Thickest ore on terraces
- Can be massive, cemented or loose pisolite/oolite
- Pisolite is composed of pisoliths (> = 2mm diameter)
- Oolite is composed of ooliths (< 2mm diameter)
- Found stratigraphically above siliceous facies.
- The **supergene enriched facies** can be sub-divided into three main types:
- Massive Mangite - massive textureless manganese oxides usually occurring as a thin layer capping the orebody; formed by secondary recrystallisation and enrichment of primary pisolite ores.
- Cemented Mangan - Pisolite - primary pisolitic manganese oxides strongly cemented by a matrix of secondary manganese oxides; usually occurring in the upper part of orebody. The principle source of Metallurgical Lump ore.

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- Loose Mangan - Pisolite - primary pisolitic manganese oxides weakly cemented by a matrix of clay; predominantly kaolinite.

Siliceous facies

- Most widespread manganese mineralisation on lease area is siliceous massive mangite.
- Present as thin bands and disseminations dispersed in clays and sands.
- Ore mineralogy consists of massive cryptomelane and pyrolusite with abundant quartz sand inclusions.
- Formed when supergene processes during laterisation transported Mn (probably from overlying pisolitic facies) to lower stratigraphic levels.
- Lowest stratigraphic manganese ore type - "bottom" horizon. Can rarely occur as thin mineralisation "cap".
- The mineralogy and chemistry of the ore is well described in Leenders' Volume 1 of "Groote Eylandt Manganese Deposit – July 1995 Resources, pages 12-14.

The geological layers have been classified according to a scheme that may be summarised as follows (Table 3). Previous modelling methodology of estimating individual 'Slayers' have been replaced by modelling the mining horizons separately (i.e., the MID and BOT) according to Table 3 below.

| Stratigraphic layer | Slayer code | Horizon |
|-----------------------------------|-------------|-------------|
| Soil layer | 100 | Overburden |
| Laterite and lateritic clay | 200 | Overburden |
| Concretionary Mn | 300 | Overburden |
| Massive Mangite Layer | 400 | MID |
| Cemented pisolites and oolites | 500 | MID |
| Loose Pisolites | 600 | MID |
| Ferruginous pisolites and oolites | 700 | BOT |
| Siliceous mangite | 800 | BOT |
| Disseminated Mn | 900 | Underburden |
| Glauconitic sands and clay | 1000 | Underburden |
| Basement quartzite and sandstone | 1100 | Underburden |

Table 3 - Stratigraphic layer classification

5.4 Geological interpretation

Geological data is sourced predominantly from air drilling (RC, etc), with minor outcrop and other supporting information also used to constrain the geological interpretation. As stated previously the GEMCO deposit and geological model for mineralisation is well understood, this results in a robust global geological interpretation. However local discrepancies may occur as a result of drilling spacing.

5.5 PC02 sands

Sand tailings are produced as a waste product during the beneficiation of the GEMCO manganese ore from the gangue constituents. These stockpiles and dams are a mixture of sand sized particles and slimes and composed of manganese sands (pyrolusite and cryptomelane), silica sands, with kaolinite and goethite as the gangue minerals. Analysis of the sizing distributions of the drillhole samples shows that the approximately 3% of the sample are >2mm, while an average of 19% of the material is <45µm.

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A variety of blend campaigns have historically been used on site to ensure products meet customer specifications. The sands stockpile and dams were established during all campaigns using a pumping system to establish a 'beach' for further deposition. Relocation of the outlet pipes/spigots during pumping ensured pile stability during deposition.

Deposition results in multiple irregular layers of sands and slimes units that can vary millimetre to centimetre thickness. The figures below present a face from the C41 stockpile, and a close-up, which clearly display the irregular layered nature.

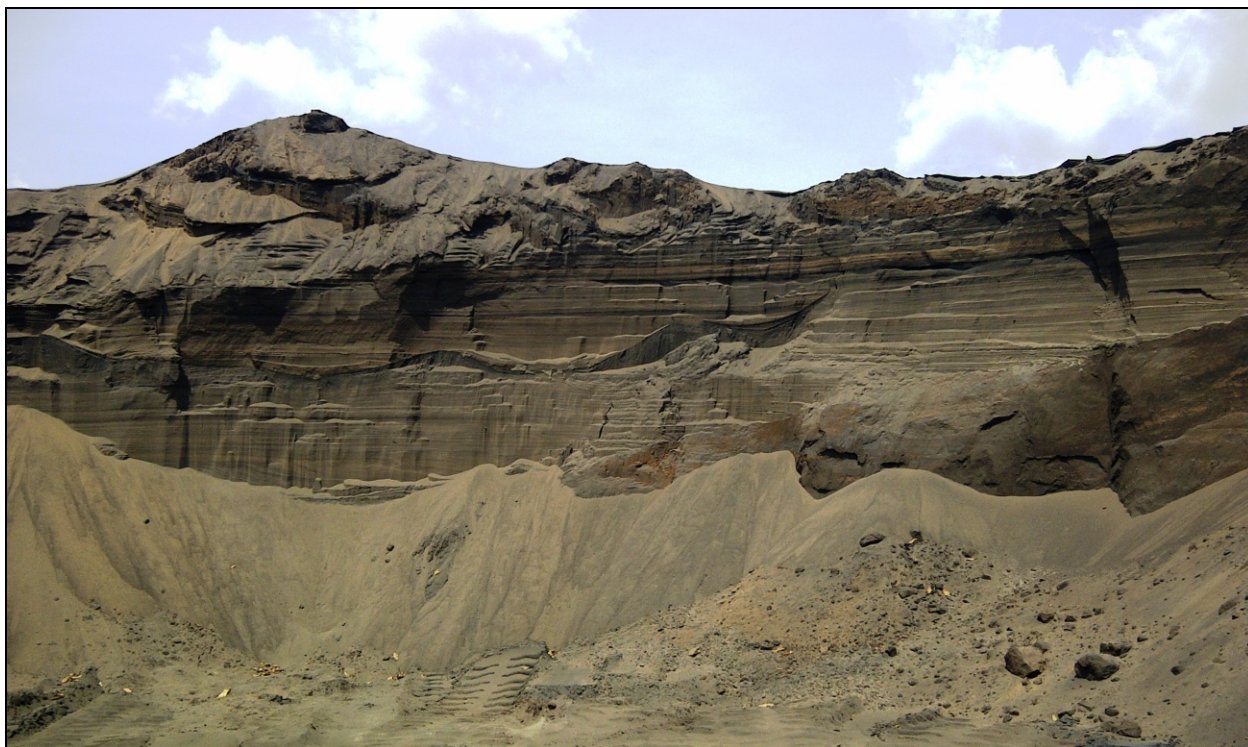


Figure 5 - C41 stockpile face



Figure 6 - C41 stockpile face close-up

Geological logging of the drillholes captured the physical information including: dominant and minor lithology, size fraction, recovery, moisture and colour. Additionally, the 'basement' contact was also recorded. For the purposes of this work, basement was considered to be non-tailings materials (natural surface).

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6. Data acquisition

GEMCO deposit

The drillhole database used to generate the reported Mineral Resource was closed off following receipt of the analytical results from the 2013 exploration and resource definition drilling program, completed in December 2013 (an additional 1,027 RC holes). All assay results were received by May 2014. No drilling from the 2014 (FY15) drill season has been included in this model but is expected to be included in the following resource model update for the FY16 declaration.

The dataset for GEMCO has been collected during a series of drill campaigns over a number of years. These may be summarised in Table 4 below as well as in Figure 7.

The 2013 drill program was completed with a total of 1,027 holes for a total of 21,456 metres.

Figure 8 and Figure 9 describe the sample preparation and analytical processes.

| Drill campaign | Details |
|---------------------------------------------------------|-----------------------------------|
| 1967 – 1970 drilling campaigns - R, CT, OH-Rotary holes | R,CT,OH |
| 1967 – 1976 RE Holes | RE |
| 1971 – 1976 drilling campaigns - OH – Hammer holes | OH |
| 1979 Caldwell holes drilling campaign | CB |
| 1979 and 1980 RC drilling | RC4000 series |
| 1984 RC drilling campaign | RC5000 series |
| 1985 RC drilling campaign | RC5000 series |
| 1986 RC drilling campaign | RC5000 and RC 6000 series |
| 1987 RC drilling campaign | RC6000 series |
| 1989 RC drilling campaign | RC6000 series |
| 1994 RC drilling campaign | RC7000 series |
| 1997 RC drilling campaign | RC8000 series |
| 2001 RC drilling campaign | RC9000 series |
| 2003 RC drilling campaign | RC10000 series |
| 2005 and 2006 RC drilling campaigns | RC11000 and RC12000 series |
| 2007 RC drilling campaign | RC13000 series |
| 2009 RC drilling campaign | RC14000 series and RC15000 series |
| 2010 RC drilling campaign | RC16000 series |
| 2011 RC drilling campaign | RC17000 series |
| 2012 RC drilling campaign | RC18000 series |
| 2013 RC drilling campaign | RC 19000 and RC20000 series |

Table 4 – GEMCO exploration drilling history

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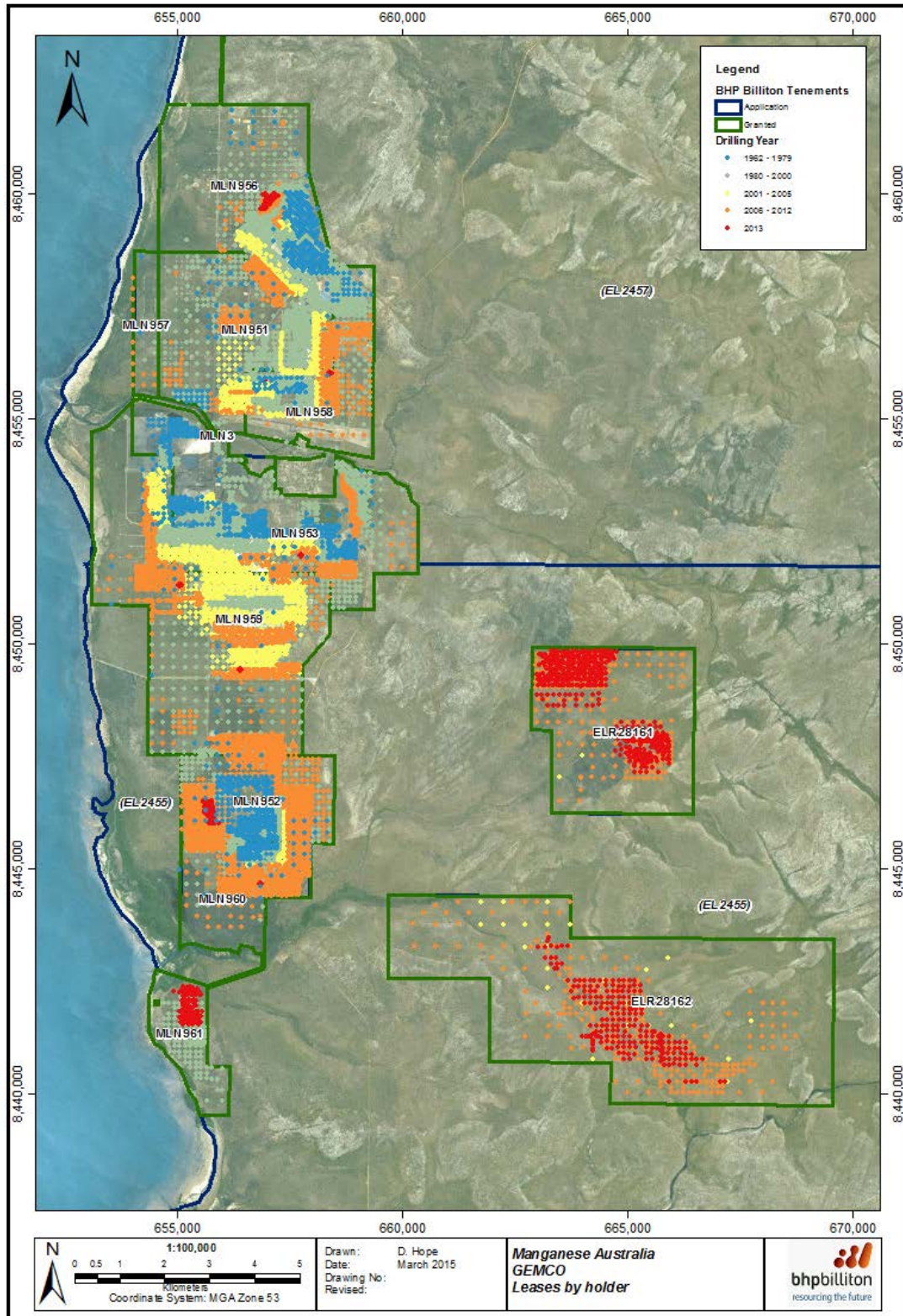


Figure 7 – GEMCO drillhole location plan

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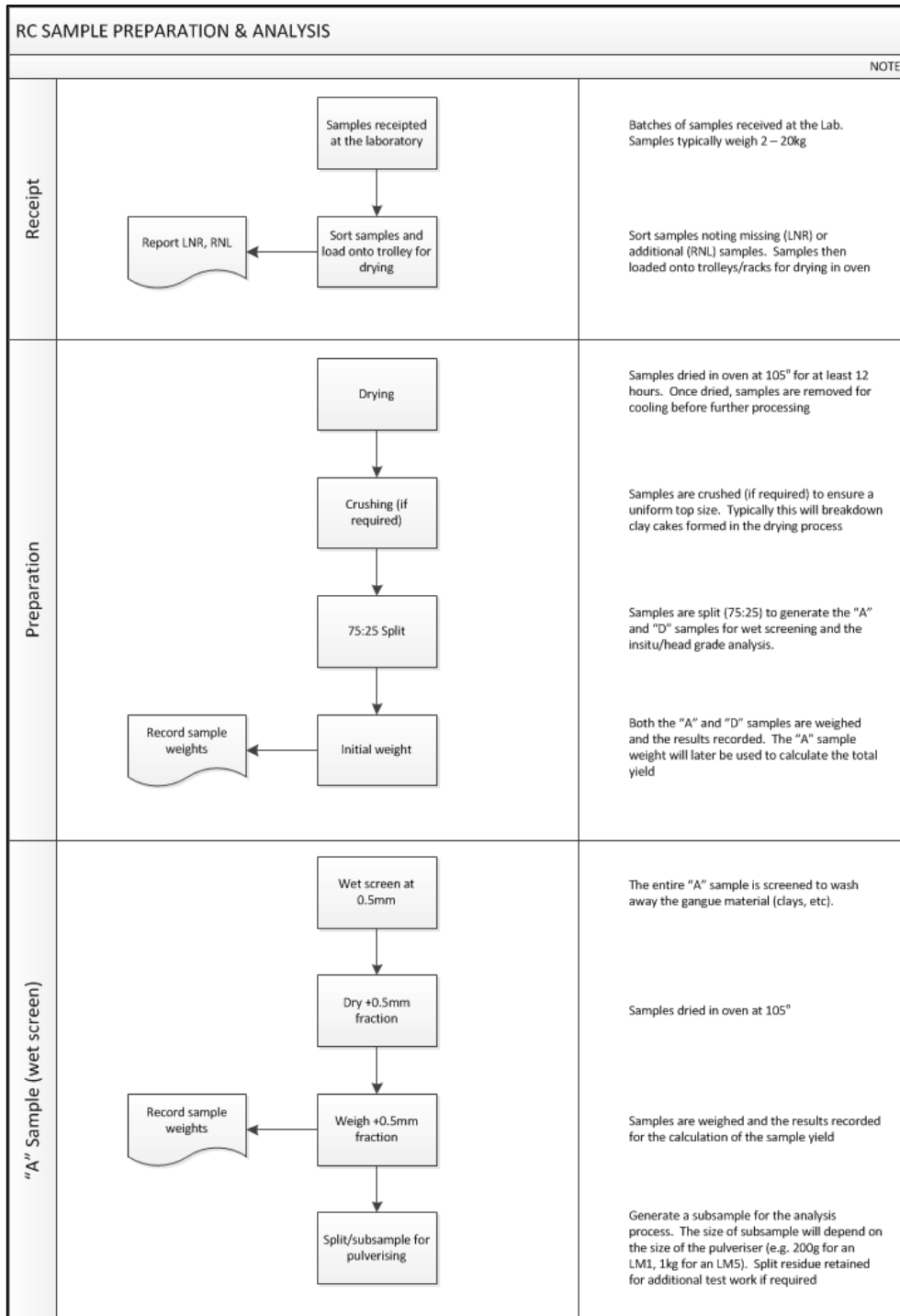


Figure 8 – RC sample preparation flow chart

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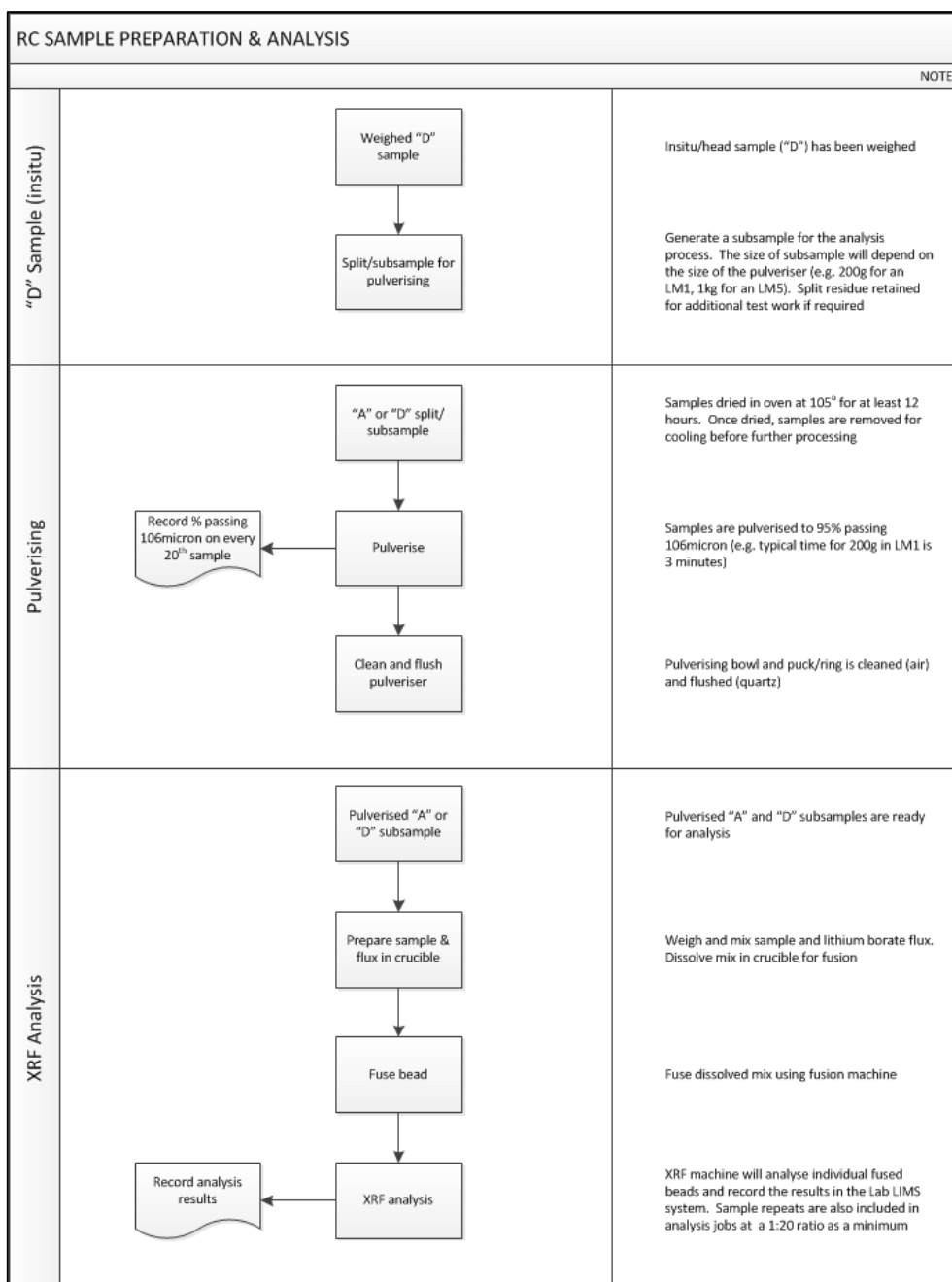


Figure 9 – RC sample preparation and analysis flow chart

PC02 sands

The drillhole database used to generate the reported Mineral Resource was closed off following the completion of the sands drilling program in May 2012.

The drillhole database comprises a total of 124 push probe holes for 1,472 metres, completed on the available sand tailing stockpile and dam areas. These included the C41, Mt Sekars, Old Crusher stockpiles and Dam 8. The Table below details a breakdown of the drillholes by location.

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| Location | Holes | Total Metres |
|-----------------------------|------------|--------------|
| C41 Stockpile | 13 | 143 |
| Mt Sekars Stockpile | 34 | 404 |
| Dam 8 | 61 | 811 |
| Old Crusher Tails Stockpile | 16 | 114 |
| TOTAL | 124 | 1,472 |

Table 5 - Drillholes by location

The drill sites are presented in the figure below. All holes were drilled vertical and have been validated and included in the resource model. Note that the south-west corner of Dam 8 was inaccessible due to standing water (visible in Figure 10).

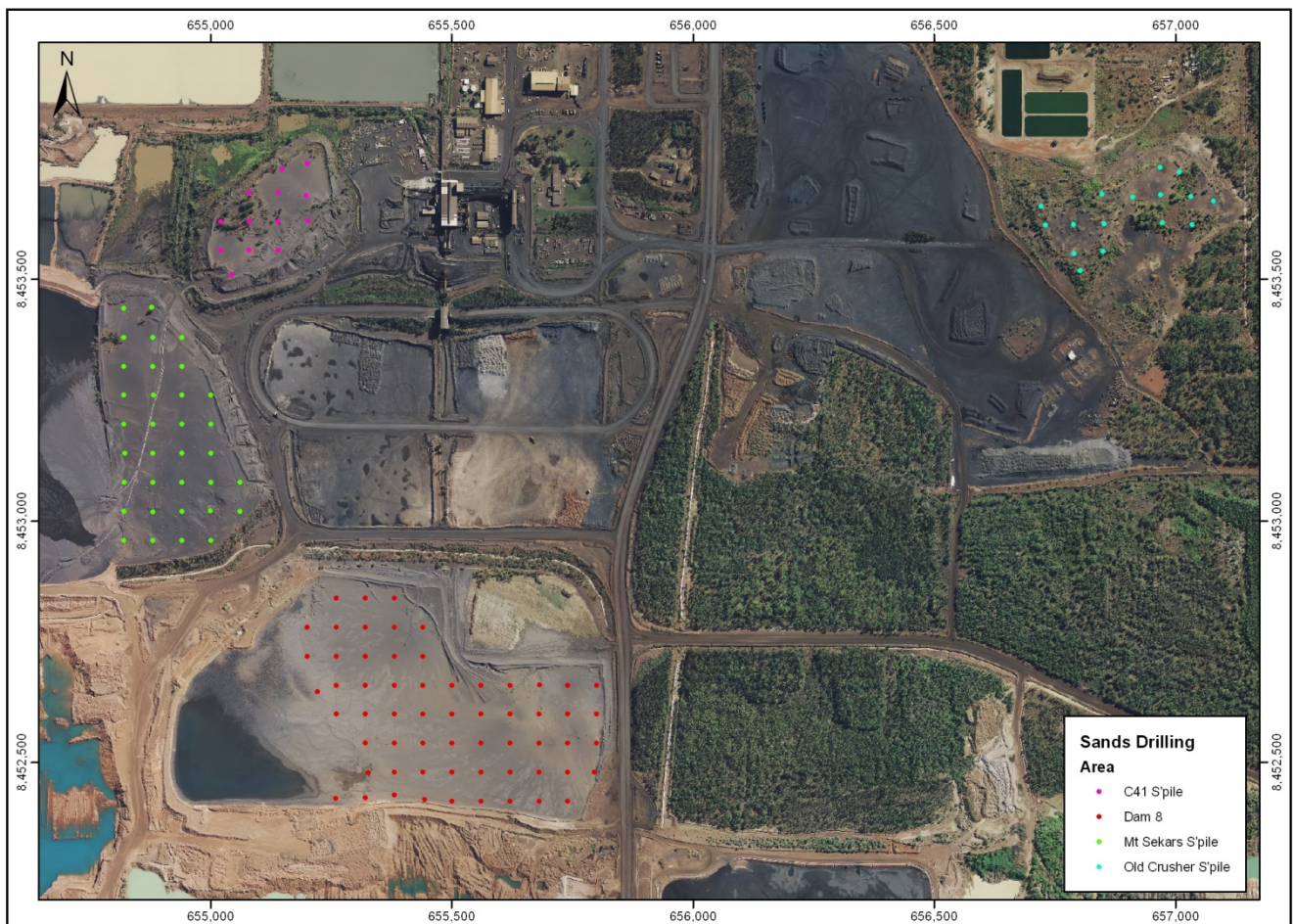


Figure 10 - Drillhole location plan

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6.1 Sampling

GEMCO deposit

RC drill chip samples are collected at 0.5 metre intervals down hole. However only those mineralised samples are presented to the laboratory for analysis. Samples are collected from a cyclone, which is cleaned regularly to minimise contamination between drillholes.

Preparation

The samples submitted for assay can be split into various fractions as a means to replicate the recovered grade of manganese after scrubbing, screening and heavy media separation in the concentrator. Up to five (splits) sub-samples can be prepared for each sample. The assay types are shown in the table below.

| Assay type | Split | Description |
|------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A assays | Wash/Screen | A split of the drill sample that is then wet screened at 0.5mm (early samples taken from 1979-1983 were based on +1mm screen) |
| B assays | Gravity Sep | The portion of the A Sample which has been further separated using bromoform (SG 2.89) heavy media liquid (the material removed is predominantly coarse quartz sand) |
| C assays | Heavy Media | The portion of the A Sample which has been further separated using tetra bromo-ethane TBE (SG 2.97) heavy media liquid (the material removed is predominantly coarse quartz sand) |
| D assays | In-situ | A split of the drill sample as received |
| E assays | Met Test | This preparation was only used for Caldwell bulk samples processed in the Metallurgical Test Plant. |

Table 6 - Sample types

Only the A and D assays have been used in this resource estimate. The D assay represents a true in-situ geological sample whilst the other splits more truly describe a metallurgical test to represent likely recovery from processing. Furthermore, it is assumed that the A type assay give reasonable approximation of the final product, (though some bias is recognised by the liberation of free silica during drilling). Although, it is clear there is an apparent overestimation of SiO₂ and underestimation of Mn as a consequence of the percussion drilling techniques breaking up material more than the mining and processing does. However, the A assay has proven to be a reasonable emulation of the beneficiation plant. The laboratory uses internal and international standards. The latest drilling campaign included the use of field duplicate and uncertified reference material developed on site to enable assessment of assay precision and accuracy.

Analysis

Until recently all drillhole samples were all assayed on site at the GEMCO laboratory using XRF (x-ray fluorescent spectrometer using borate beads). This laboratory is audited every 18 months under the NATA quality assurance system and has maintained its accreditation. Laboratory analysis standard operating procedures exist on site. In 2013, an external commercial laboratory was used for the preparation and analysis of the RC drill samples.

The GEMCO Geological Drill Hole System (GGDS) contains assay values in percent for "A", "B", "C" and "D" type samples for Mn, Fe, SiO₂, Al₂O₃, P, BaO, K₂O, MgO, Na₂O, CaO and SrO. The precision for Mn, Fe, SiO₂, and Al₂O₃ constituents is 0.1%, for P it is 0.001% and 0.01% for the minor assays. Figure 8 and Figure 9 present the sample preparation and analysis flow charts.

Quality assurance and quality control (QAQC) measures at the laboratory include regular standard calibrations using a Certified Reference Material (CRM) and the use of internal duplicates (1:20 ratio). Round Robin assaying has also been undertaken with other external laboratories. Additionally all samples with >5% XRF total variance are re-assayed.

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PC02 sands

Samples were collected in one metre runs for geological logging and split in a single tier (50:50) riffle splitter. Half of the splits were combined into a single composite sample per drillhole for submission to the external laboratory, while the other portion of the split was reserved for further test work.

All samples were prepared and analysed at the Amdel – Bureau Veritas Australia Laboratory in Adelaide (Amdel) which is certified to ISO 9001 and NATA. Samples were processed and assayed according to the flowchart detailed in the figure below.

Samples were cast using a 12:22 flux to form a glass bead, which was then analysed by XRF (x-ray fluorescence spectrometry). Each sample was analysed for Mn, Fe₂O₃, SiO₂, Al₂O₃, BaO, CaO, MgO, Na₂O, K₂O, TiO₂, P, and S. In addition, LOI (loss on ignition) was calculated and gas pycnometry used to determine particle density. The precision of all constituents was 100ppm, except for S and P, which was 10ppm.

Amdel used Certified Reference Materials (CRM) and internal repeats to assess QAQC. A total of eight CRM's were used to assess analytical accuracy, while nine repeats were used to test for precision.

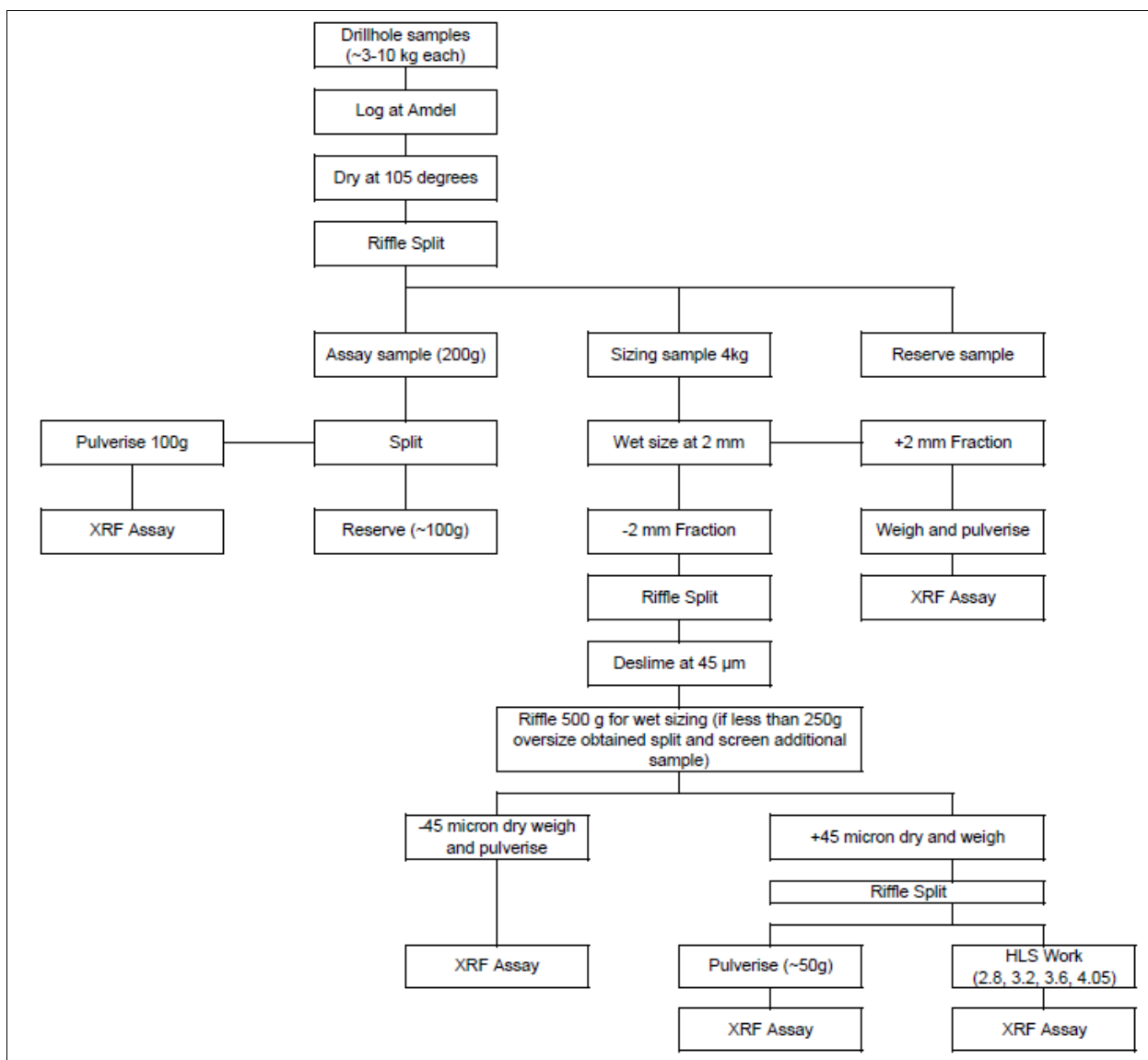


Figure 11 - Sand sample preparation and analysis flowsheet

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Assessment by Technical Marketing personnel suggested that the liquid separation (HLS) results provided by Amdel are not comparable to the results generated during the reflux classifier trial on site. Consequently, it was considered inappropriate to model the HLS results.

6.2 Drilling

GEMCO Deposit

The total drillhole database covers a region bounded by 644,200mE to 674,400mE and 8,437,300mN to 8,465,200mN (in MGA). This dataset contains a total number of 17,993 drillholes, of which 15,454 (86%) have been designated as exploration. Of these exploration holes, 71% have been drilled with a face sampling hammer bit (see below, Figure 12). All exploration drillholes are vertical with an average depth of 22 metres, totalling approximately 335,000 metres drilled. RC drilling since 2006 has been conducted using a 5 ¼ inch face sampling hammer drill bit (no records exist on drillhole diameter prior to this time). With respect to the different types of drill bit:

- Percussion was used before 1979
- Tricone was used from 1979 to 1990
- Face sample hammer bit has been used since 1990.

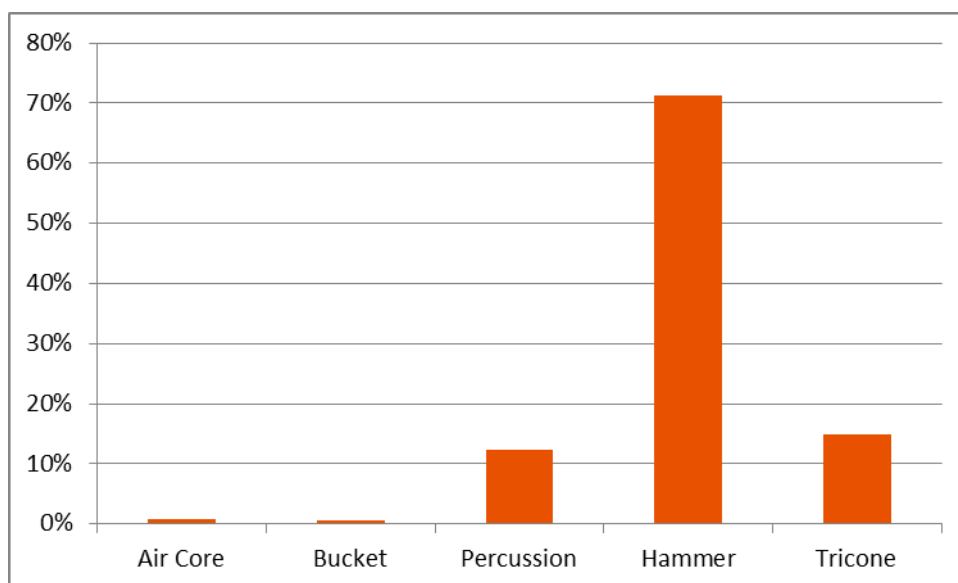


Figure 12 - Exploration holes by bit type

The validated borehole database currently includes 11,894 drill holes used for the stratigraphic modelling and 11,151 grade modelling. The latter included 196,483 sample records (A and D samples). The included drillholes were almost entirely RC type holes.

As indicated above various, campaigns of drilling have been conducted at Groote Eylandt, however there are significant differences in quality of the various drilling techniques and some samples are considered inappropriate for resource estimation.

All drillholes existing in GEMCO's database have been assessed on individual merit to determine the validity of including all or part of their data. For example, early open percussion drill holes and Caldwell bulk sampling drillholes with valid geological logging but containing samples with incompatible assaying techniques have been used to help control stratigraphic modelling and the estimation of yield and density, but have been excluded from the grade estimation. This approach is in line with recommendations contained in Dr John Cottle's "Resource Estimation Models Review" of 1997.

All drillholes with valid geological logging were used to determine stratigraphic intervals and included: Caldwell bulk sampling; reverse evaluation (open percussion or rotary air blast RE, ST, WB); reverse circulation (RC). RC and some RE drilling are the only holes used for grade estimation. This data provides the most comprehensive coverage of the leases.

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Survey

Drillholes used to generate the GEMCO Mineral Resource are collected and stored in the Map Grid of Australia, 1994 (MGA) grid coordinate system, Zone 53L.

The drillholes are supported by detailed survey information, drillhole collar locations are typically surveyed using a Trimble differential GPS (DGPS) post drilling. Where satellite coverage is poor (heavy foliage) and no survey can be conducted, the drillholes are registered to either the Lidar or topography surface. Survey method is coded in the geological database and presented in the figure below.

All drillholes used in the resource estimate are drilled vertical and typically shorter than 50 metres, consequently there is no requirement for downhole surveys.

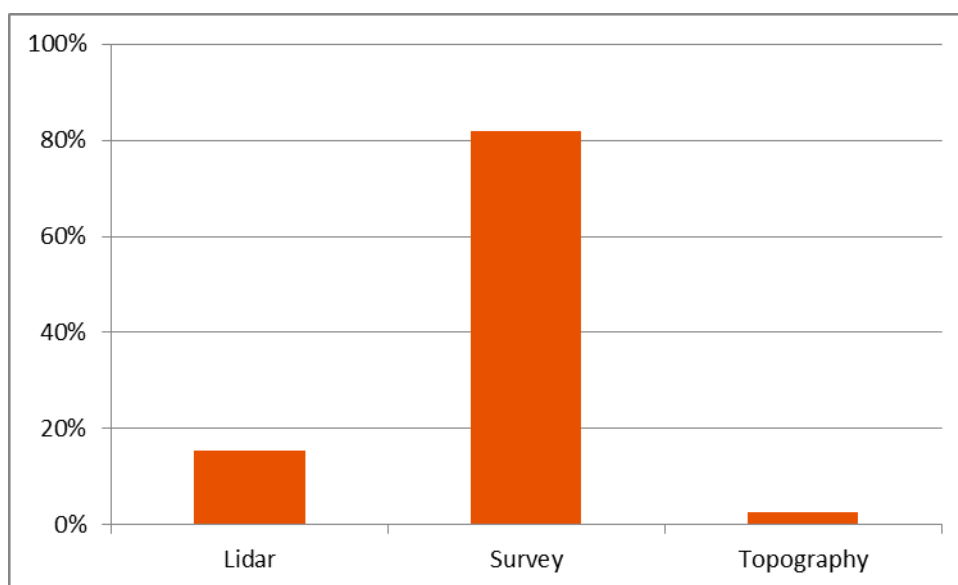


Figure 13 - Exploration holes by survey type

Sample recovery

Samples are weighed as received at the laboratory and assessed to determine sample recovery and yield.

The sample cyclone is inspected and cleaned at the end of each drillhole to minimise contamination between drillholes. Where samples are wet the cyclone may be cleaned at the end of each drill rod.

Assessments of sample recovery and yield have been conducted and demonstrate that no clear relationship is apparent. See figures below for the comparison graphs from the RC19000 and 20000 series (received weight vs yield and received weight vs Mn grade).

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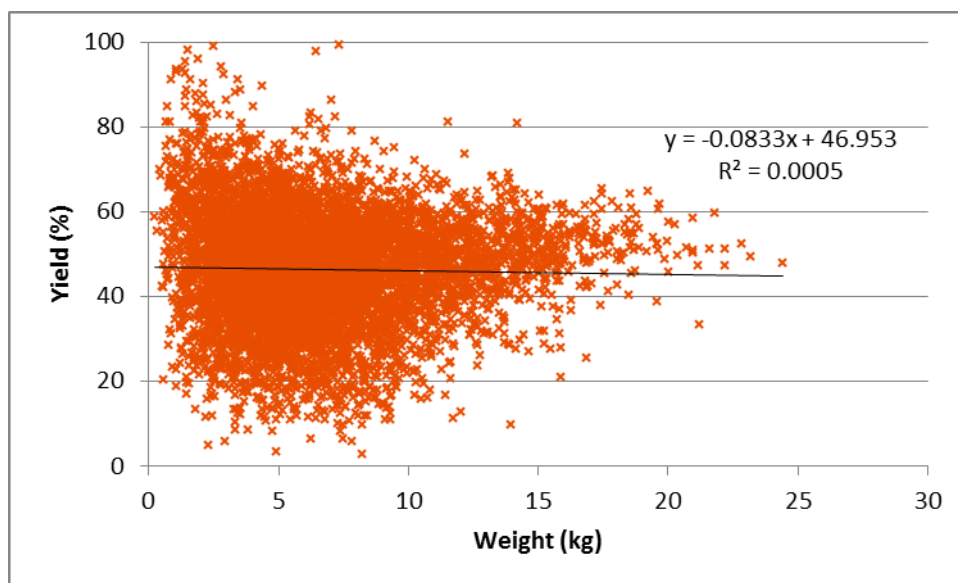


Figure 14 - RC19000-20000 series – weight versus yield

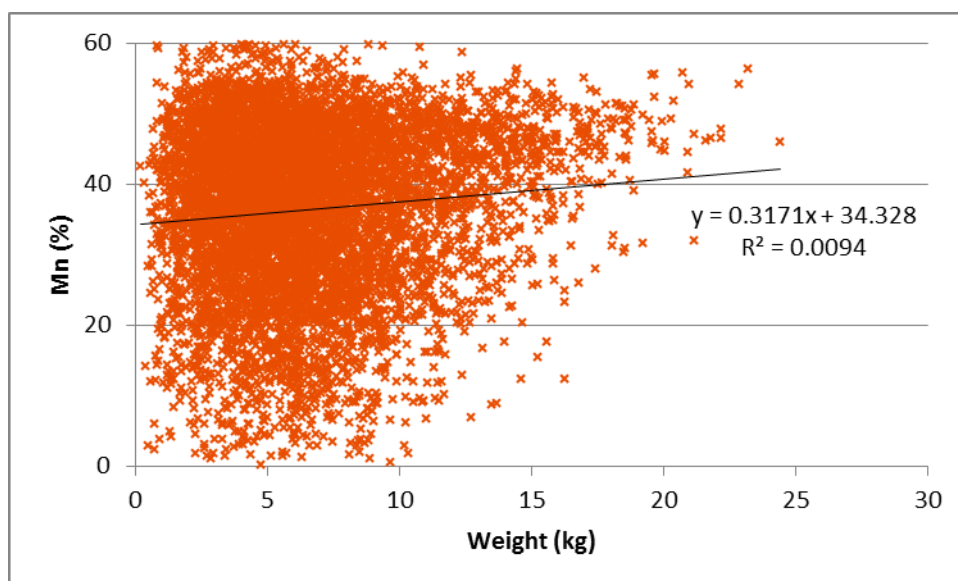


Figure 15 - RC19000-20000 series –weight versus manganese grade

Logging

Drillholes are geologically logged to capture colour, lithology and texture, (and sampled) at a 0.5 metre interval downhole. Historically though, logging was also conducted on the basis of geological intervals (at lithological and textural breaks). Approximately 87% of the geological logging intervals are 0.5 metres.

Since 2003 all exploration and resource definition geological logging has been captured in the Field Marshall/Geobank software prior to import into the GBIS geological database. Sufficient detailed geological information is captured to ensure characterization of the stratigraphic profile according to the established geometallurgical parameters for resource modelling. In addition, a small reference sub-sample is collected for each sample interval in chip trays. Prior to 2007 samples were collected in core pots. All chip trays and core pots for the unmined portions of the Mineral Resource are secured in the Ndunga Shed storage facility.

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The table below presents the percentages of majority rock intersections logged and total sample lengths sorted in descending order. As expected the predominant rock type is clay, which is found above and below the mineralised horizons (overburden and underburden respectively). The mangite and pisolites rock types (from the mineralised horizons) comprise a further 19%. In terms of the mineralised zones, the manganite unit accounts for over half of these intervals (63%).

| Rock type | Total interval length | Percentage | Percentage of Ore Horizon |
|-----------|-----------------------|------------|---------------------------|
| Clay | 111,138 | 53% | |
| Mangite | 27,908 | 13% | 63% |
| Sand | 19,486 | 9% | |
| Laterite | 15,013 | 7% | |
| Pisolite | 12,793 | 6% | 29% |
| Claystone | 5,290 | 3% | |
| Sandstone | 5,010 | 2% | |
| Oolite | 3,825 | 2% | 9% |
| Soil | 3,204 | 2% | |
| Quartzite | 1,090 | 1% | |
| Other | 3,762 | 2% | |

Table 7 - Summary of geological logging intervals

Drillhole sampling

Each 0.5 metre sample interval is collected from a sample cyclone for logging, there is no sub-sampling at the drill rig apart from those samples selected as field duplicates. As stated previously historically some intervals were previously sampled on the basis of the geology however these samples only make up 4% of the total samples presented for analysis, see below.

Samples collected are generally dry; however some intervals are wet as a result of drilling below the water table. All samples are collected and bagged in a similar manner, consequently sampling can be deemed generally representative of the in situ material collected.

Field QAQC measures consist essentially of the placement of an uncertified reference material made up of local homogenised blasthole samples, at a rate of 1 per 60 samples. In addition, field duplicates are collected at a rate of 1 per 30 samples using a single tier riffle splitter. These samples are coded for differentiation in the geological log.

All field QAQC samples are presented to the laboratory as blind samples.

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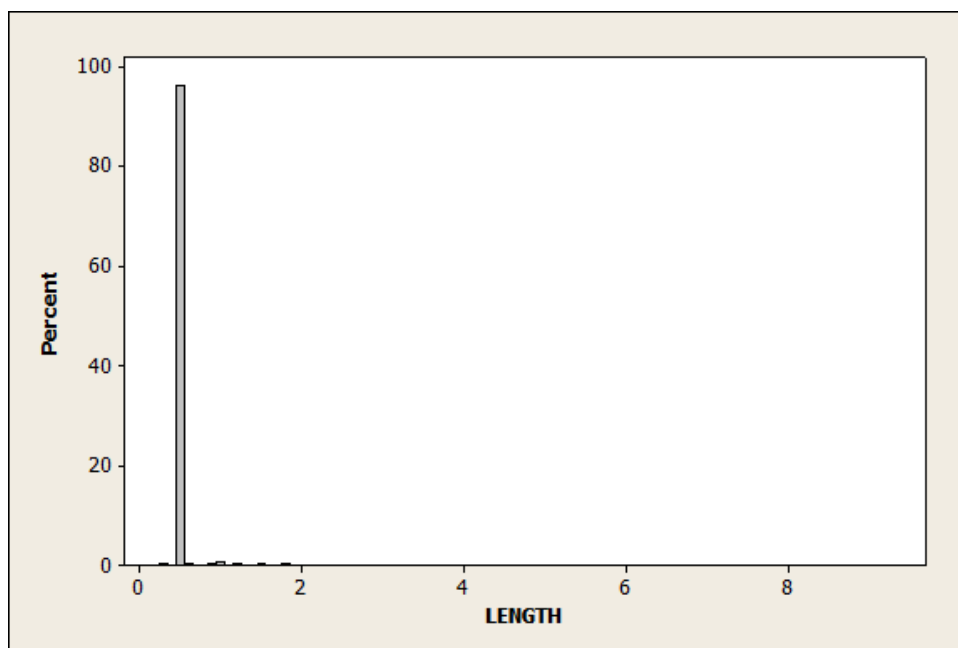


Figure 16 - Sample interval histogram (A samples only)

PC02 sands

The total drillhole database covers a region bounded by 655,000mE to 657,000mE and 8,452,000mN to 8,454,000mN (in MGA). This dataset contains a total number of 124 direct push probe drillholes. All drillholes are vertical with an average depth of 12 metres, totalling 1,472 metres drilled.

Survey

Drillholes used to generate the GEMCO sand tails Mineral Resource are collected and stored in the Map Grid of Australia, 1994 (MGA) grid coordinate system, Zone 53L.

The drillholes are supported by detailed survey information, drillhole collar locations are typically surveyed using a Trimble differential GPS (DGPS) post drilling. Where satellite coverage is poor or no survey can be conducted, the drillholes are registered to the topography surface. Survey method is also coded in the geological database.

All drillholes used in the resource estimate are drilled vertical and shorter than 20 metres, consequently there is no requirement for downhole surveys.

Sample recovery

Sample recovery was logged for all sample intervals. Samples are also weighed at the laboratory.

PVC core tube was used to minimise contamination between sample intervals. Where samples were typically drilled wet, additionally geological logging recorded whether there was compression or loss in each interval as well as recovery.

Assessments of sample recovery and grade have been conducted, and demonstrate that there is no clear relationship. See figures below for the comparison graphs.

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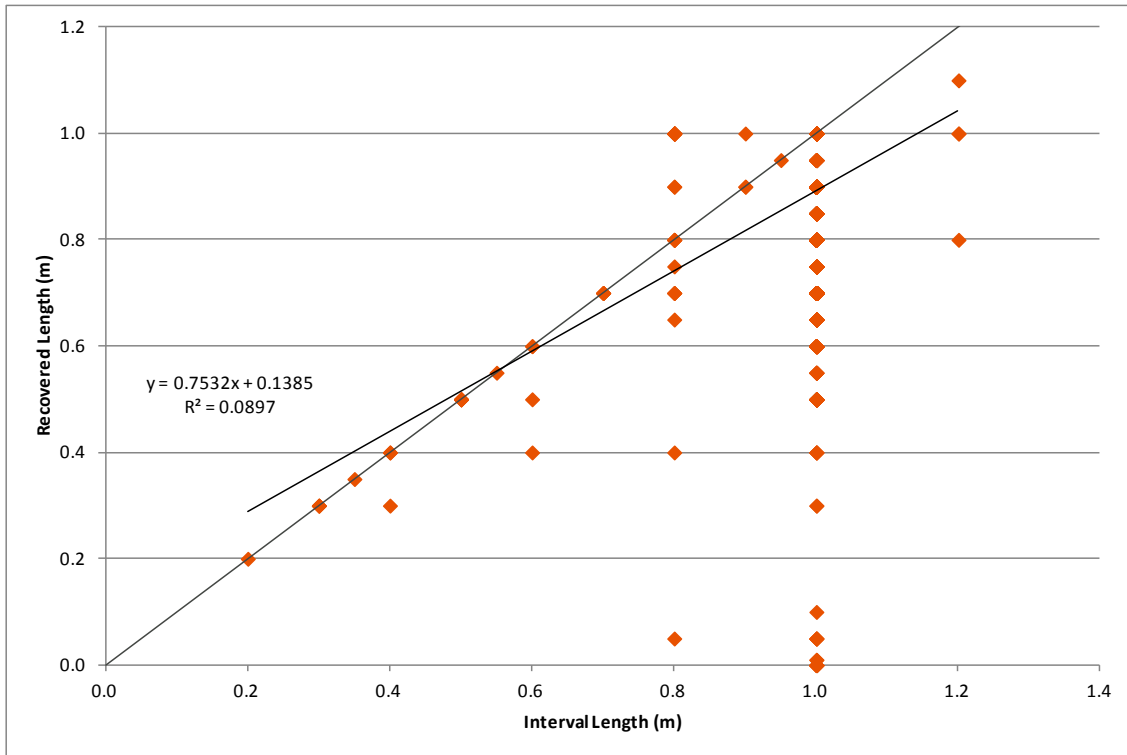


Figure 17 - Sands interval length versus recovered length

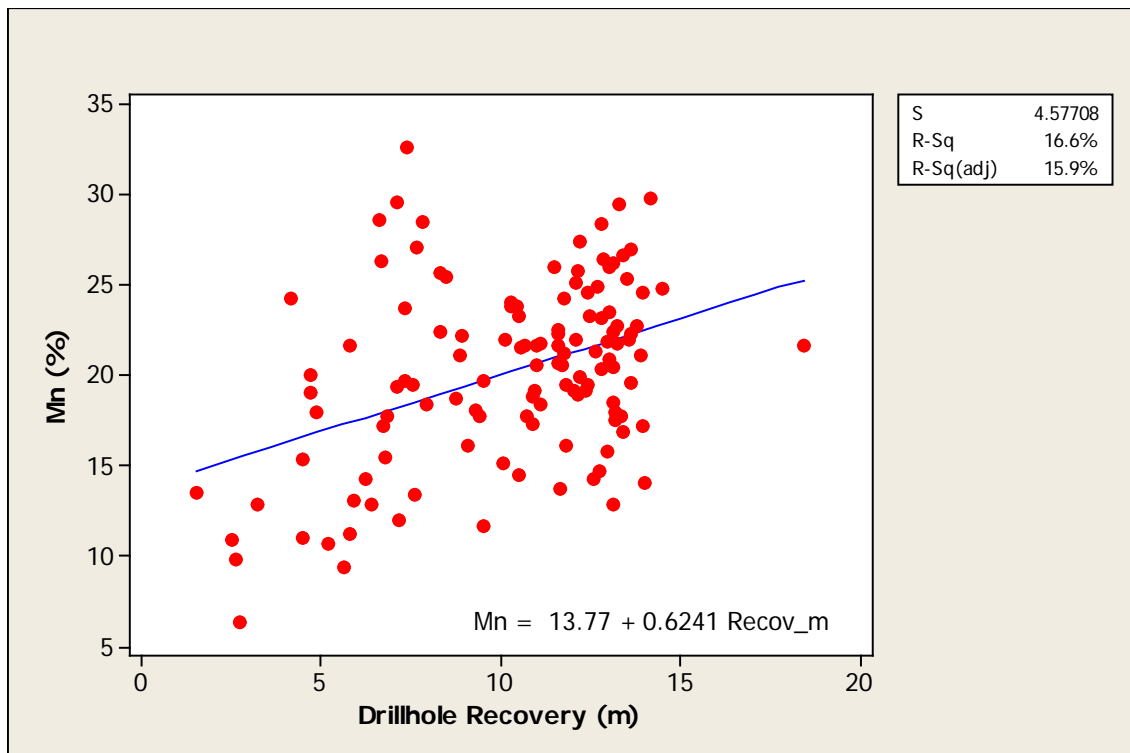


Figure 18 - Sands drillhole total recovery versus manganese grade

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Logging

Drillholes are geologically logged for lithology and texture (and sampled) at 1 metre intervals downhole. Sufficient information is captured to ensure characterization of the material types (sand), sample condition and grainsize. Additionally the 1 metre intervals were also photographed (see Figure 19) and stored on the relevant server.

The predominant rock type is sand, as expected given the nature of the drilling, however there are some clay and silt sized layers within the stockpiles.



Figure 19 - Sands drillhole sample interval (hole A60 run 1)

Drillhole sampling

Figure 19 presents a single metre interval (run 1) from drillhole A60, the PVC casing has been cut away to facilitate logging and sampling. The whole run has been collected then split using a single tier riffle splitter (50:50). Half of the interval was then used to create a single composited sample for the entire drillhole, while the second portion of the split was reserved for further analytical work.

Samples were generally moist to wet due to the nature of the material, however all samples were collected and bagged in a similar manner, consequently sampling can be deemed generally representative of the in situ material collected. Figure 20 below presents a histogram of the composited sample (drillhole) lengths.

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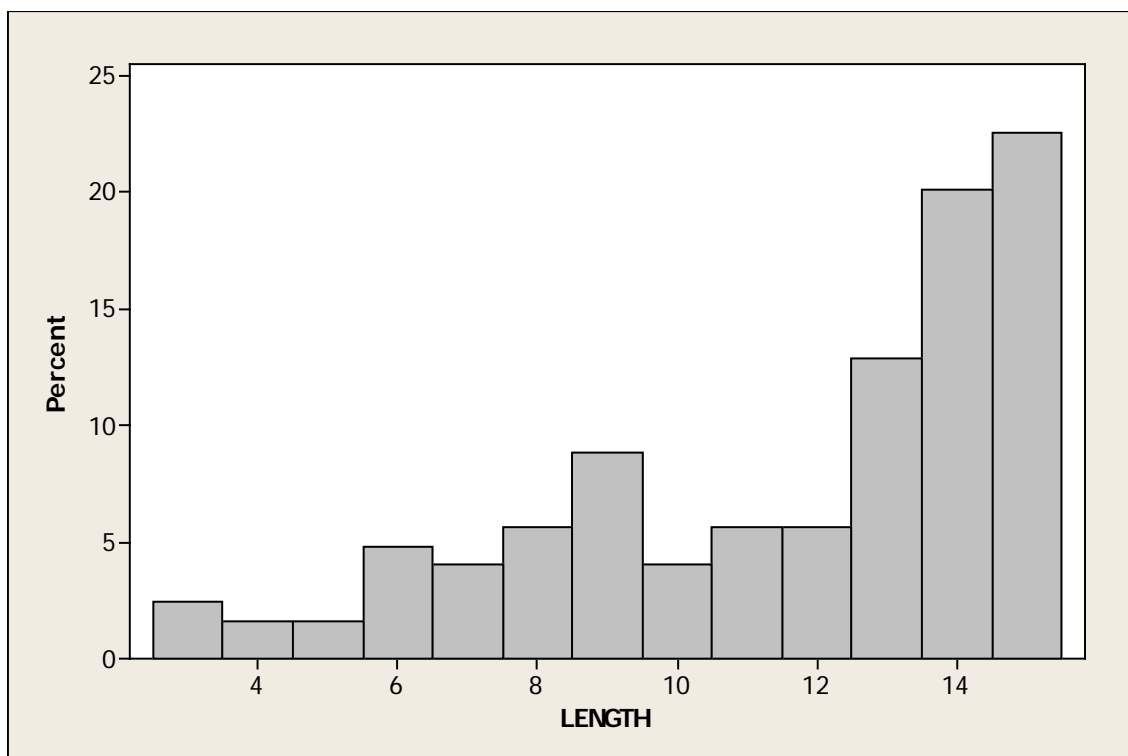


Figure 20 – Sands composite sample length histogram

6.3 Quality of assay data and laboratory tests

GEMCO deposit

GEMCO drill sample dispatches are subject to a comprehensive quality assurance and quality control (QAQC) program. The current QAQC protocol used since 2006 includes use and monitoring of field duplicates, uncertified reference materials, certified reference materials (CRM), and independent laboratory checks and standards.

Field QAQC

A series of uncertified field reference materials are inserted nominally at 1 in 60 sample submissions to assess sampling and assay accuracy. These materials were made on site using blasthole samples homogenised through repeated quartering and mixing. The GEMCO laboratory was then used to prepare and analyse these materials, additionally external laboratories were also used to analyse the material. Statistical analysis of the results determined the mean and standard deviation of the samples.

A total of 111 of these samples were submitted during the 2013 drilling program. The statistical results are tabulated below for the Mn A sample; results can be compared to the expected reference material grade to provide an indication as to the performance of the sampling accuracy. An example presented in Figure 21.

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| Reference Statistics | Medium Mn Grade (A) Reference Material | Very High Mn Grade (B) Reference Material | High Mn Grade (E) Reference Material |
|-----------------------------|-------------------------------------------|----------------------------------------------|-----------------------------------------|
| Expected Mean | 46.62 | 55.68 | 48.40 |
| Expected Standard Deviation | 2.06 | 0.49 | 0.56 |
| Assay Statistics | | | |
| Number of data | 96 | 7 | 8 |
| Minimum | 43.00 | 50.17 | 47.20 |
| Mean | 45.92 | 55.40 | 47.92 |
| Maximum | 48.78 | 59.28 | 48.90 |
| Standard Deviation | 1.12 | 2.89 | 0.63 |
| % outside 3 Std Dev | 0.0% | 42.9% | 0.0% |
| Difference of mean to RM | -1.5% | -0.5% | -1.0% |

Table 8 - Mn A sample reference material statistics

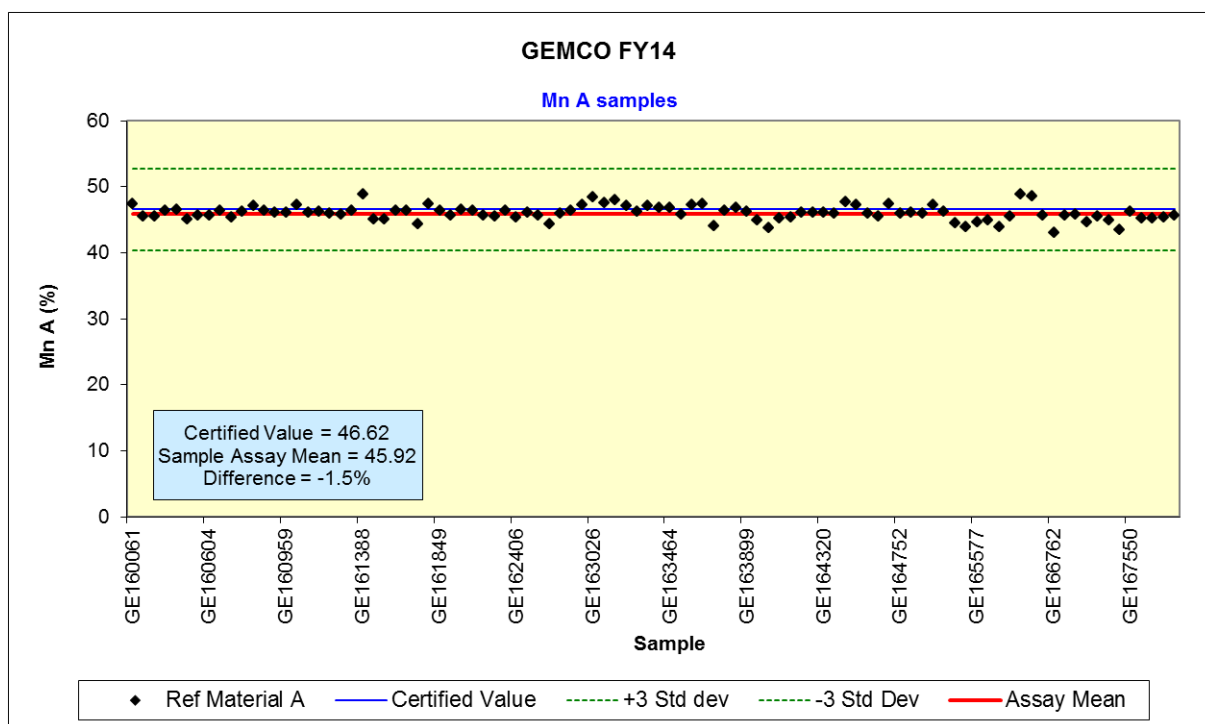


Figure 21 - Medium Mn grade reference material results Mn A sample

The results for the medium and high grade reference materials are acceptable, while the very high grade material appears more variable, though this is the result of a low number of samples and two outliers influencing the statistics. However this variation is deemed acceptable for resource modelling.

GEMCO also submits field duplicates during drilling, nominally 1 submission for 30 samples to assess sampling precision. A total of 976 field duplicates have been submitted during the 2013 drill program. The duplicate sample is collect using a single tier riffle splitter. Table 9 and Figure 22 provide a comparison for the Mn A samples via statistics and a normal scatterplot.

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| | Mn original (%) | Mn duplicate (%) |
|---------------------------|-----------------|------------------|
| Population | 976 | |
| Minimum | 2.96 | 2.18 |
| Mean | 38.35 | 38.27 |
| Maximum | 59.55 | 59.42 |
| Standard deviation | 10.83 | 10.89 |
| CV | 0.28 | 0.28 |
| Correlation | 0.97 | |

Table 9 - Mn A sample field duplicates statistics

The manganese values have a correlation coefficient of 0.97. The mean of the original manganese values and the duplicate values are 38.35% Mn and 38.27% Mn respectively (Table 9). The coefficient of variation for the original data is 0.28 for both, indicating that that both datasets are reasonably similar. This is considered an acceptable precision for resource modelling.

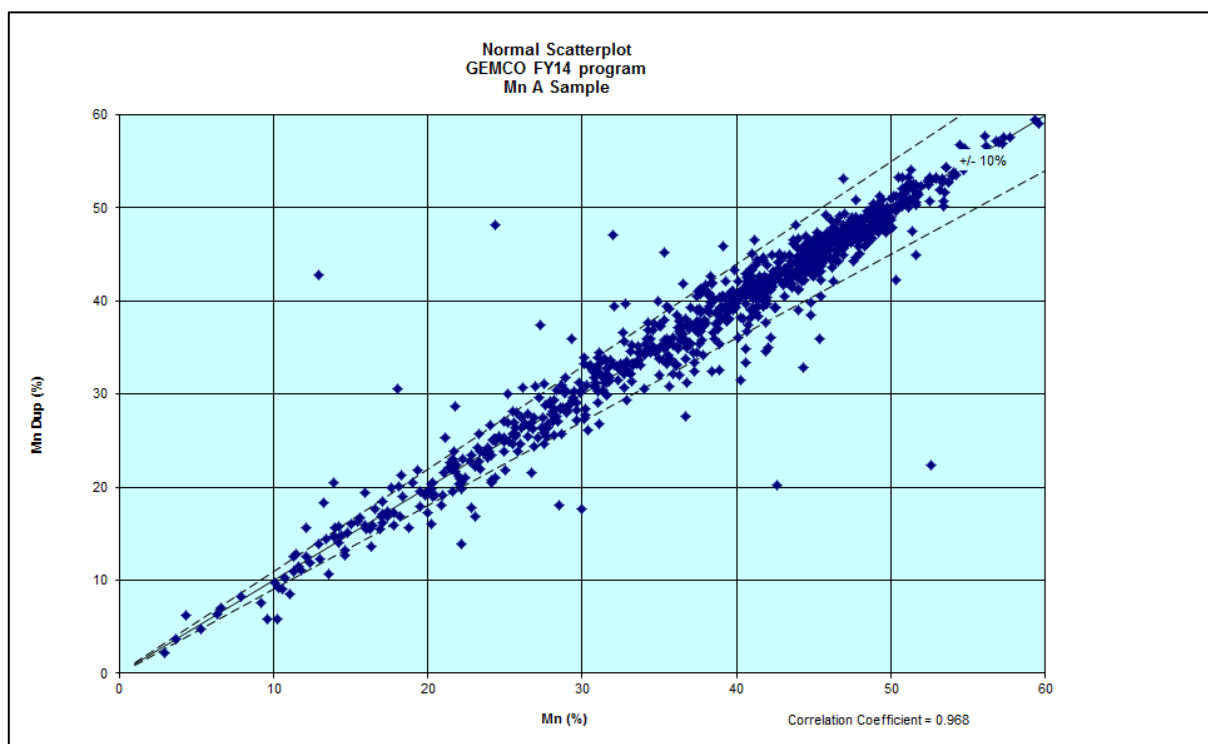


Figure 22 - Mn A sample field duplicates normal scatterplot

The pulp packets for those samples collected and analysed are stored the Ndunga Shed. This facility also houses the core pot and chip tray samples collected at the drill rig. No other residual samples exist for the mineralised RC samples as the entire sample collected at the drill rig is presented to the laboratory for preparation and analysis.

Laboratory QAQC

Samples are analysed using an XRF method with a borate bead which is deemed appropriate for the style of mineralisation. Laboratory QAQC protocols include the use of a certified reference materials (CRM's) and internal duplicates (typically 1:20) to assess the analytical accuracy and precision. Samples from the 2013 drilling program were prepared and analysed at Bureau Veritas Darwin and Adelaide, prior to this all samples were prepared and analysed at the GEMCO site laboratory.

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A total of 13 different CRM's were used during the 2013 drilling program and 734 samples analysed. Selected CRM results are tabulated below for the Mn A sample and demonstrate that there is an acceptable level of accuracy for resource modelling.

| Reference Statistics | BCS176_2 | SARM 17 | NCS11021 |
|-----------------------------|----------|---------|----------|
| Expected Mean | 47.5 | 38.81 | 26.53 |
| Expected Standard Deviation | 1.20 | 0.97 | 0.67 |
| Assay Statistics | | | |
| Number of data | 27 | 149 | 161 |
| Minimum | 46.26 | 37.20 | 25.45 |
| Mean | 47.34 | 38.90 | 26.56 |
| Maximum | 48.42 | 40.73 | 27.33 |
| Standard Deviation | 0.5 | 0.31 | 0.3 |
| % outside 3 Std Dev | 0.0% | 0.0% | 0.0% |
| Difference of mean to RM | -0.3% | 0.2% | 0.1% |

Table 10 - Mn A sample lab CRM statistics

A total of 369 internal duplicates were also analysed during the 2013 drill program. Below is the comparison for the Mn A samples via statistics and a normal scatterplot.

| | Mn original (%) | Mn duplicate (%) |
|---------------------------|-----------------|------------------|
| Population | 369 | |
| Minimum | 2.71 | 2.65 |
| Mean | 29.75 | 29.74 |
| Maximum | 59.30 | 59.37 |
| Standard deviation | 13.31 | 13.29 |
| CV | 0.45 | 0.45 |
| Correlation | 1.00 | |

Table 11 - Mn A sample field duplicates statistics

The manganese values have a correlation coefficient of 1.00. The mean of the original manganese values and the duplicate values are 29.75% Mn and 29.74% Mn respectively. The coefficient of variation for the each sample set is 0.45, indicating that that both datasets are similar, and considered an appropriate precision for resource modelling.

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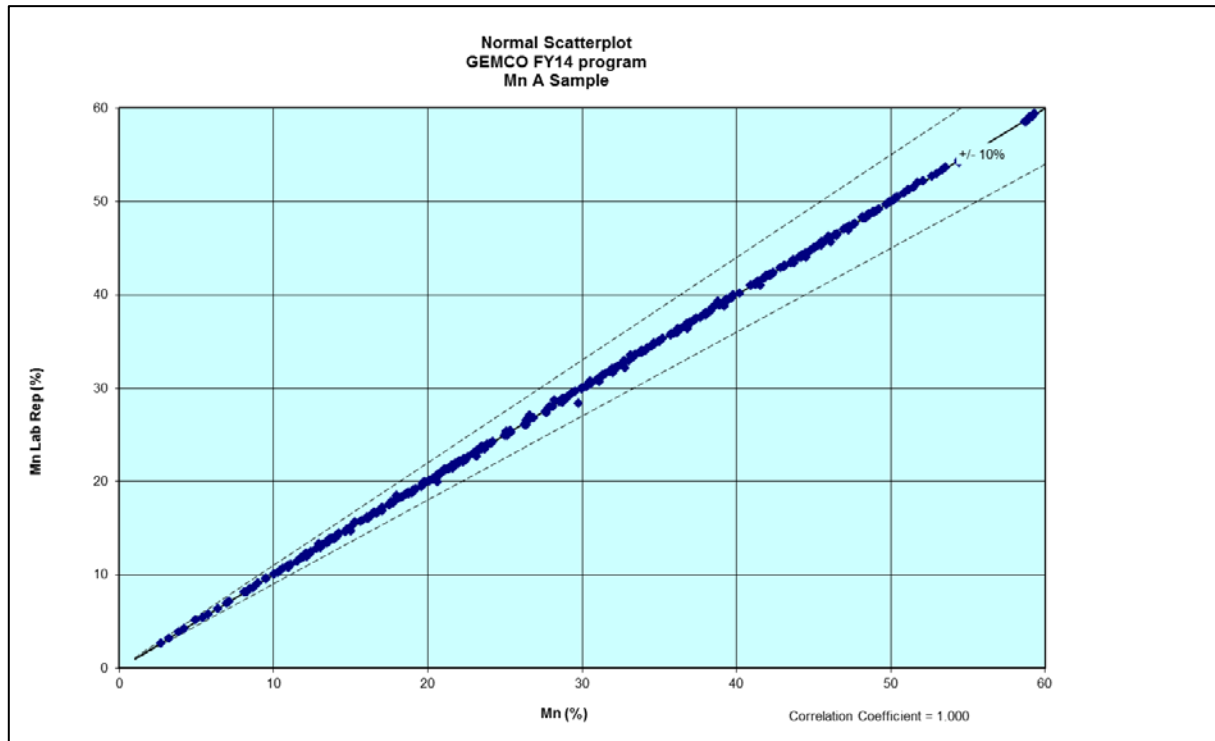


Figure 23 - Mn A sample field duplicates normal scatterplot

PC02 sands

Samples are analysed using an XRF method with a glass bead which is deemed appropriate for the style of mineralisation. Laboratory QAQC protocols include the use of a certified reference materials and random internal duplicates to assess the analytical accuracy and precision. The Amdel laboratory is certified ISO 9001 and NATA accredited.

Laboratory QAQC

Amdel used the following CRM's to assess analytical accuracy:

- 633-1
- BCS 176/2
- SARM 17
- SARM 2

Review of the CRM results suggests that the analytical results can be deemed acceptable for resource modelling. Table 12 details the results for Mn for the 633-1 CRM.

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| Reference Statistics | CRM 633-1 |
|-----------------------------|-----------|
| Expected Mean | 47.85 |
| Expected Standard Deviation | 0.21 |
| Assay Statistics | |
| Number of data | 2 |
| Minimum | 47.6 |
| Mean | 47.75 |
| Maximum | 47.9 |
| Standard Deviation | 0.21 |
| % outside 3 Std Dev | 0% |
| Difference of mean to RM | -0.2% |

Table 12 - Sands Mn sample lab CRM statistics

Laboratory repeats were conducted randomly during processing. Below is a comparison of the Mn samples via statistics and a normal scatterplot.

As expected, there is excellent correlation between the samples with a correlation coefficient of 1.00. The mean of the original and repeat values are 20.67% Mn and 20.64% Mn respectively. The coefficient of variation for the each sample set is 0.23, indicating that that both datasets are similar, and considered an appropriate precision for resource modelling.

| | Mn original (%) | Mn duplicate (%) |
|--------------------|-----------------|------------------|
| Population | 9 | |
| Minimum | 12.80 | 12.70 |
| Maximum | 27.10 | 27.20 |
| Mean | 20.67 | 20.64 |
| Standard Deviation | 4.71 | 4.72 |
| CV | 0.23 | 0.23 |
| Correlation | 1.00 | |

Table 13 - Sands Mn lab repeat statistics

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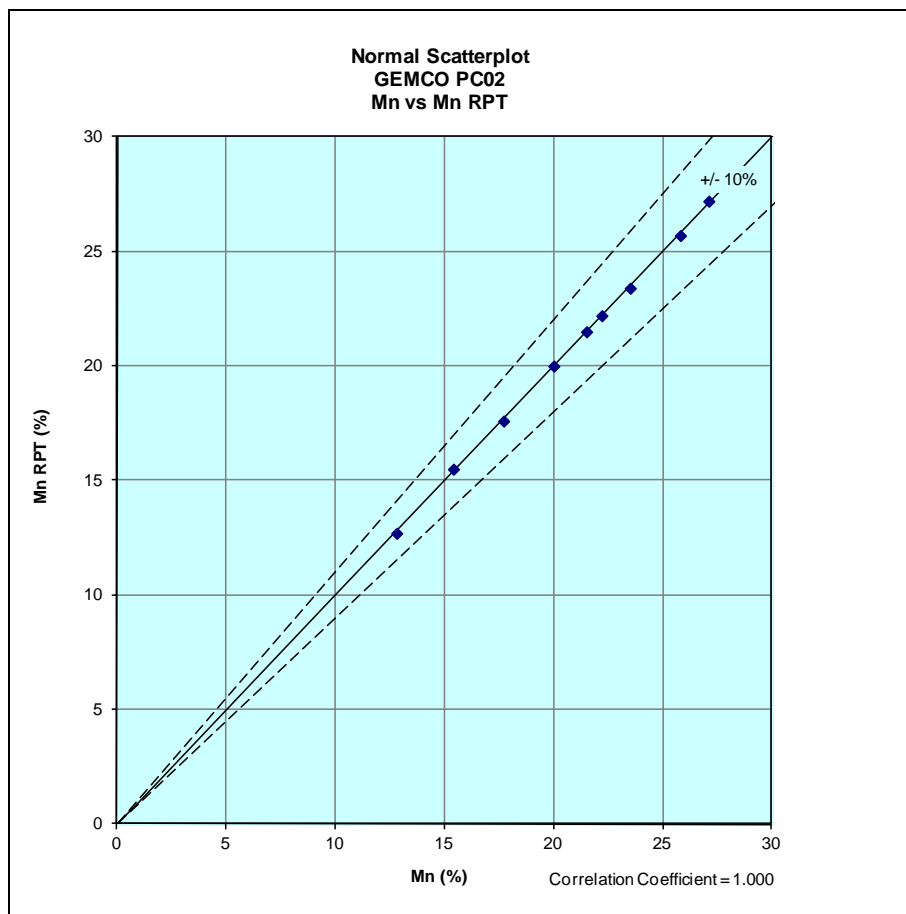


Figure 24 - Sands Mn lab repeats normal scatterplot

6.4 Verification of sampling and assaying

GEMCO deposit

Analytical results are assessed and verified by the Laboratory Coordinator prior to release. The Geological Services team members undertake the data upload to GBIS and run a series of validation and check queries during the data import and following the import. All exploration and resource definition information reside in the GBIS geological database, an SQL database that is located on a secured server on site. The GBIS User Manual outlines the database structure as well as all import, validation, transformation and export queries and reports.

A small number of drillholes (<20) have been twinned. Assessment suggests there is a reasonable level of correlation between the twinned holes.

There have been no adjustments to the assay information in the geological database.

PC02 sands

Analytical results are assessed and verified by Amdel prior to release. The Geological Services team members undertake the data upload and run a series of validation and check queries during the data import and following the import. All PC02 drillhole information resides in a Microsoft Access database, which is located on a secured server on site.

No drillholes have been twinned.

There have been no adjustments to the assay information in the geological database.

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6.5 Sample security

GEMCO deposit

The GBIS database is designed to import the collar and survey information, geological logs and sampling and analytical results. During the import process data is loaded into holding tables for validation prior to upload into the database proper. Queries in the database are also setup to code the lithcodes (based on geological logging and assay results), lump/fines splits, and yield type.

A series of data views have been set up to display the validation errors and missing assay report. This is outlined in the GBIS User Manual which also includes details of the database structure. Key database tables however are listed below in Table 14.

| Table | Description |
|---------------|--------------------------------------------------|
| GB_ASSAY | Analytical results |
| GB_BOUNDARY | Ore horizon and stratigraphy interpretations |
| GB_GEOLOGY | Geological logging and associated information |
| GB_SAMPLE | Sampling details |
| GB_SITE | Header information including collar details, etc |
| GB_VALIDATION | Validation errors |

Table 14 - Key GBIS database tables

GBIS incorporates an extensive selection of queries that are run during the validation process. These include flagging unrealistic collar survey information, incorrect field names, overlapping or missing intervals and assay results that are outside expected ranges or absent.

Validation of the geological transformation also highlights any mismatch where the assay and geology data do not correlate with the expected codes. Manual recoding of intervals is then required to resolve any issues.

Once the data is considered to be valid, GBIS will generate stratigraphic layers and ore horizons based on the geological coding ("boundary functions"). Validation queries in GBIS are designed to ensure the stratigraphic and ore horizons are coded appropriately. The drillhole data is then exported as CSV tables for upload into VULCAN.

For the 2014 Mineral Resource, the database validation was run on only the most recent drilling information, it was assumed that the validations run of the pre-existing data were in order.

Automatic scanning and validation of the imported drillhole database was also performed in VULCAN to verify the GBIS information. The drillhole data was then visually inspected in three-dimensions in VULCAN as a final check. The final drillhole database used in the resource model update is grjun2013.gdm.isis.

Each sample has a sequential alphanumeric sample number initially detailed on the sample bag and attached paper sample tags. All samples submitted to the laboratory are accompanied by a sample submission sheet, which enables linking of samples and jobs in the Laboratory Information Management System.

The only manual data entry during sample preparation is of the sample identifier and (received and screened) weights. There is no data entry during the analytical stages.

All residual and pulp samples are stored at the Ndunga Shed. This is a secure facility which also stores the diamond core and RC chip samples.

PC02 sands

The Access database is designed to import the collar and survey information, geological logs and sampling and analytical results. Following import, tables are validated and compared to one another for consistency. The drillhole data has been checked and compared in the Access drillhole database.

Automatic scanning and validation of the imported drillhole database was performed in VULCAN to verify the raw data during CSV upload. In addition the database validation routine was also run in VULCAN to check for collar location against the

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topography surface, overlapping intervals, etc. The drillhole data was then visually inspected in three-dimensions in VULCAN as a final check. The final drillhole database used in the resource model update was *grnov12.pcd.isis*.

Each sample has a sequential alphanumeric sample number initially detailed on the sample bag and recorded in the geological log. All samples submitted to the external laboratory are accompanied by a sample submission sheet, which enables linking of samples and jobs.

Sample splits preserved during drilling are stored the Ndunga Shed, which is a secured location. The samples reserved during the preparation currently remain at Amdel in Adelaide, as do all residues.

6.6 Audits and reviews

Group Risk Assessment and Assurance (RAA) performed an internal technical MPOR (Mine Planning Ore Reserves) audit during March 2014. Two findings were recorded against sampling techniques and data.

- QAQC performance for analytical testwork was not being assessed in a timely manner to verify accuracy of results.
- An independent audit has not been conducted on the geological database.

The QAQC item has been addressed by the:

- Amendment of the existing external laboratory contract to include:
 - Monthly performance reporting including QAQC samples.
 - A formal monthly meeting between GEMCO and laboratory personnel to discuss performance and other issues.
- Monthly assessment of internal QAQC results by GEMCO in preparation for the monthly laboratory meeting.

An independent database audit was completed in August/September 2014, no material items were identified and demonstrated that the integrity of the data delivered for resource modelling was sound. Several opportunities for improvement were identified and are currently being discussed with the database vendor.

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7. Reporting of exploration work

No exploration targets are being reported

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8. Resource estimation

GEMCO deposit

The resource estimate covers the mining and (Eastern) exploration leases, some 20 kilometres along strike and up to 5 kilometres across strike on the mining leases. Mineralisation can occur at the surface and down to a depth of approximately 40 metres. The orebody is on average between 1 to 6 metres thick. Below is a plan of the drillhole locations, additionally two cross sections have been included presenting the drillholes and top and bottom of ore surfaces.

Site visits are conducted regularly by the Competent Person and other Geological Services personnel to audit drilling, sampling and analytical activities. Additionally daily, weekly and monthly inspections and audits are conducted by exploration and site supervisors to ensure compliance to the required standards and procedures.

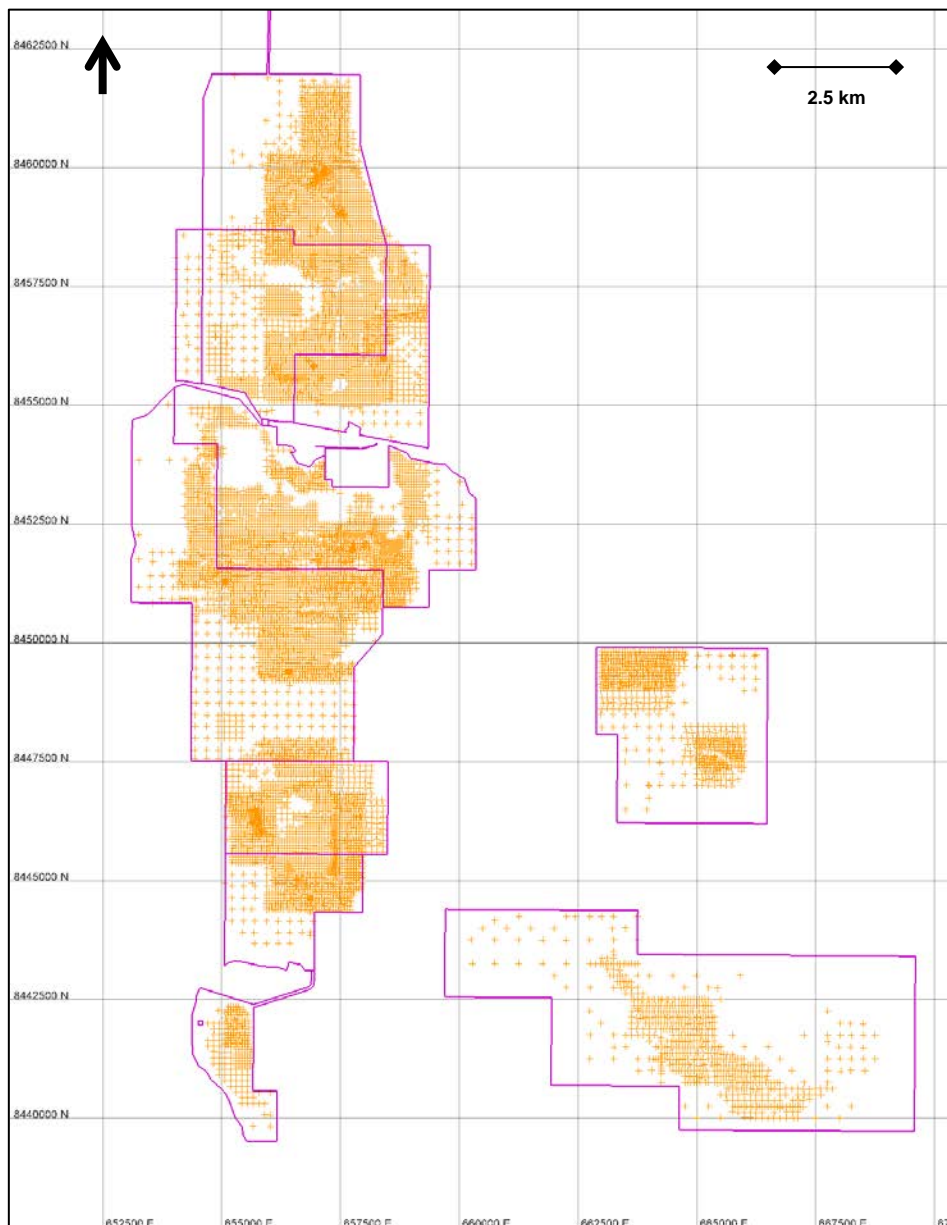


Figure 25 - Drillhole location plan

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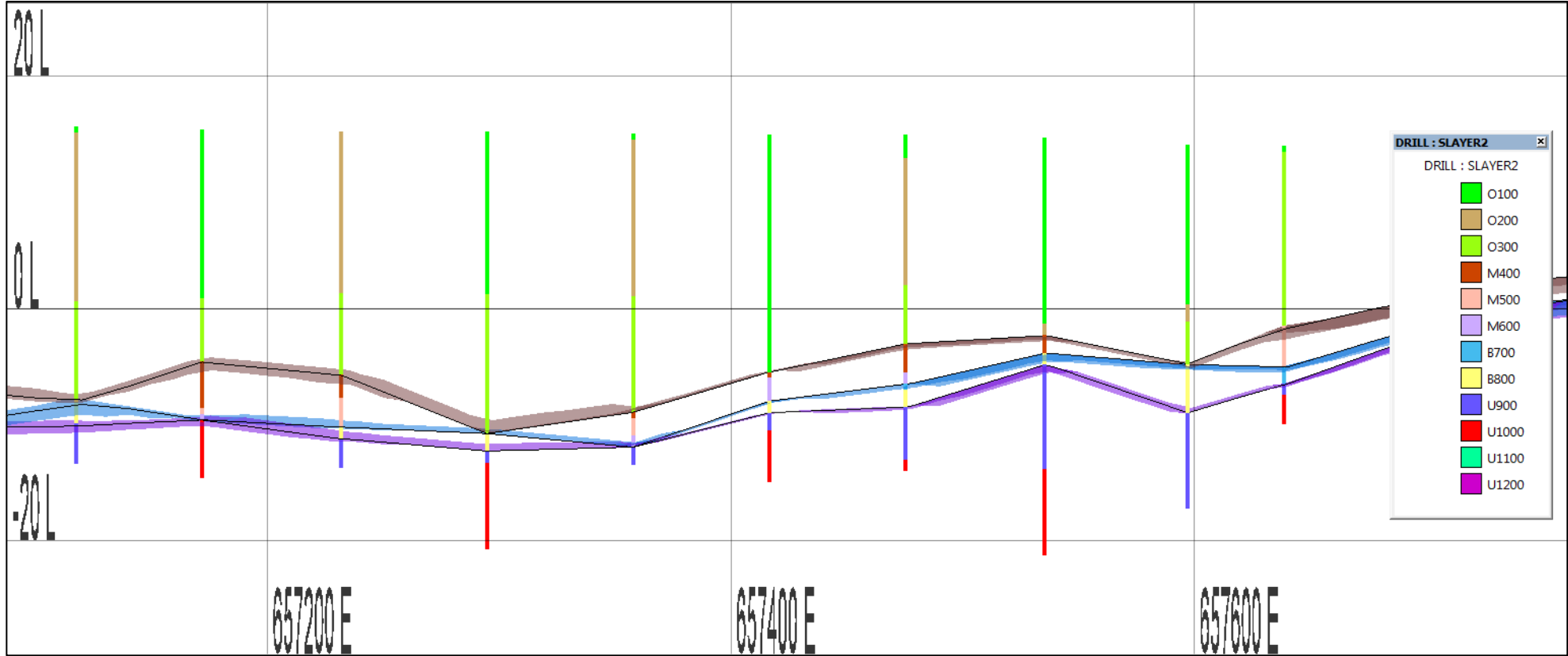


Figure 26 - Drillhole cross section (8445060 +/- 25m) showing stratigraphic layers and top and bottom of ore surfaces – 5x vertical exaggeration

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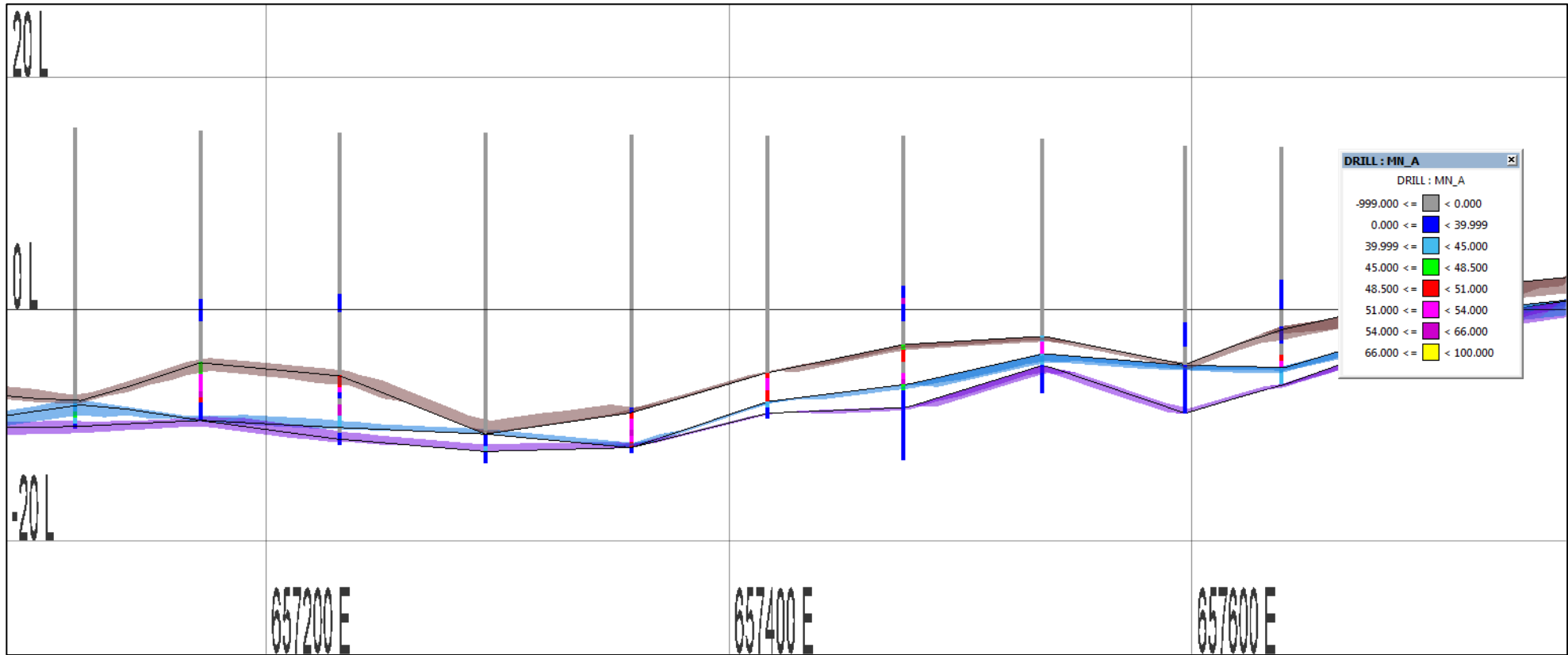


Figure 27 - Drillhole cross section (8445060 +/- 25m) showing Mn A samples and top and bottom of ore surfaces – 5x vertical exaggeration

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Data spacing

Drilling is planned and conducted regionally on 480 x 480 metre drill centres; further infill closes the spacing down to 240 x 240 metres, 120 x 120 metres, 60 x 60 metres if warranted. These drill spacing's relate directly to the Mineral Resource classification criteria (for example 60 x 60 metres is typically equivalent to a Measure Mineral Resource).

A drillhole spacing analysis was completed in 2014 and demonstrated that while the 60x60metre spacing was appropriate for resource classification it provided insufficient definition for grade control. The geostatistical analysis recommended a minimum grade control spacing of 30x30m based on an assessment of the active quarries.

Statistical & geostatistical summary

Table 15 below details the raw sample statistics for the major washed grade (A samples) for all stratigraphic units for those samples used in the resource model.

| Variable | Count | Mean | StDev | CoefVar | Minimum | Median | Maximum |
|-------------|--------|-------|-------|---------|---------|--------|---------|
| Mn | 96,841 | 37.12 | 13.31 | 35.85 | 0.02 | 38.88 | 66.88 |
| Fe | 96,841 | 6.64 | 6.18 | 93.19 | 0.11 | 4.43 | 49.6 |
| SiO2 | 96,837 | 20.14 | 16.90 | 83.92 | 0.30 | 15.40 | 99.88 |
| Lump Yield | 73,597 | 24.64 | 13.86 | 56.21 | 0.05 | 23.34 | 99.00 |
| Fines Yield | 73,597 | 17.53 | 11.15 | 63.61 | 0.24 | 15.01 | 99.00 |

Table 15 - Raw sample statistics – A sample major assays

Missing analytical values have been coded as -99 in the geological database and are treated as null values during the resource modelling process. However those values below the analysis detection limit are coded with half the detection limit and are treated as a real value.

No top cuts have been applied to the data.

QG previously generated experimental variograms for the A and D samples for the aerial domains within the MID and BOT mining horizons as well as the underburden material. This resulted in a total of 288 variograms being completed. The variograms were calculated in two directions in the horizontal plane, using lags of 60m, while a 0.5 metre spacing was used to determine the downhole variogram. These lags were selected to match the data geometry in the horizontal and vertical planes.

Variograms were modelled using a total of four structures (nugget plus three spherical structures). An example variogram and fitted model is shown below for the Mn A sample with aerial domain 2.

Sample compositing

Sample compositing was performed to obtain an even representation of sample grades and to eliminate bias due to sample length. Of the A samples 97% have a sample length of 0.5 metre, while 99% of the D sample intervals have a 0.5 metre length.

A composite length of 0.5 metre is consistent with previous modelling and also honours the dominant sample length. Each composite was coded by model horizon. During the compositing process missing data was coded with -999 for exclusion during the later grade estimations. The table below details the global statistics for the A sample major assays that were used during the grade estimation.

No top cuts have been applied to the data.

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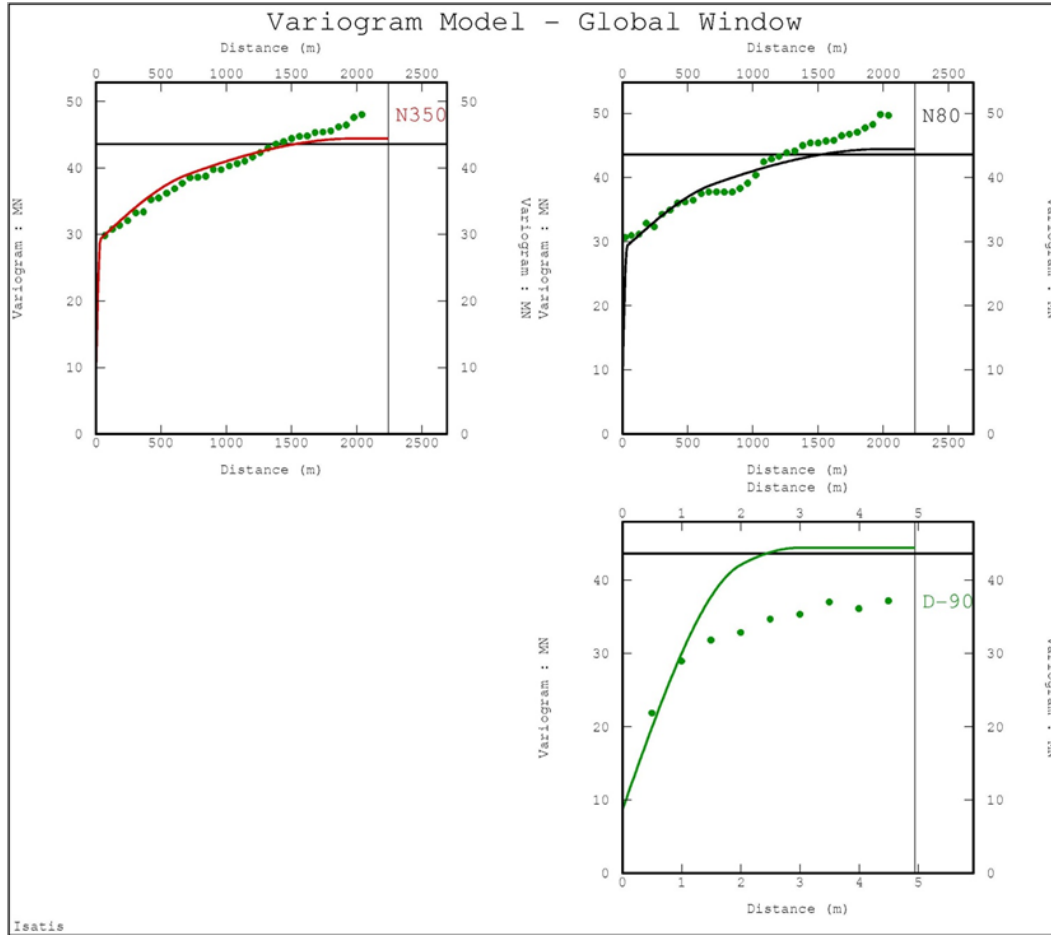


Figure 28 - Mn A sample variogram domain 2

| Variable | Count | Mean | StDev | CoefVar | Minimum | Median | Maximum |
|-------------|--------|-------|-------|---------|---------|--------|---------|
| MN | 35,885 | 40.80 | 5.74 | 14.06 | 1.48 | 41.00 | 59.83 |
| FE | 35,885 | 6.57 | 5.29 | 80.55 | 0.50 | 4.72 | 42.90 |
| SIO2 | 35,878 | 15.99 | 8.36 | 52.31 | 0.70 | 15.00 | 94.11 |
| Lump Yield | 27,789 | 30.71 | 11.72 | 38.16 | 0.66 | 30.51 | 99.00 |
| Fines Yield | 27,789 | 16.23 | 7.92 | 48.77 | 0.52 | 14.87 | 81.39 |

Table 16 - Composite sample statistics – A sample major assays

PC02 sands

The resource estimate covers the historic sands stockpile and dam on the mining leases adjacent to the GEMCO processing plant. The locations are geographically isolated (Figure 29), with the dimensions of the deposits varying between approximately 300 metres by 140 metres for the smallest and 860 metres by 420 metres for the largest. Deposit thickness varies from 3 to 15 metres.

Below is a cross section presenting the drillholes coloured by Mn head grade and also showing the top and bottom of ore surfaces (in this case the topography and natural surface prior to deposition). Additionally a plan of the drillhole locations colour by domain is displayed on the following page.

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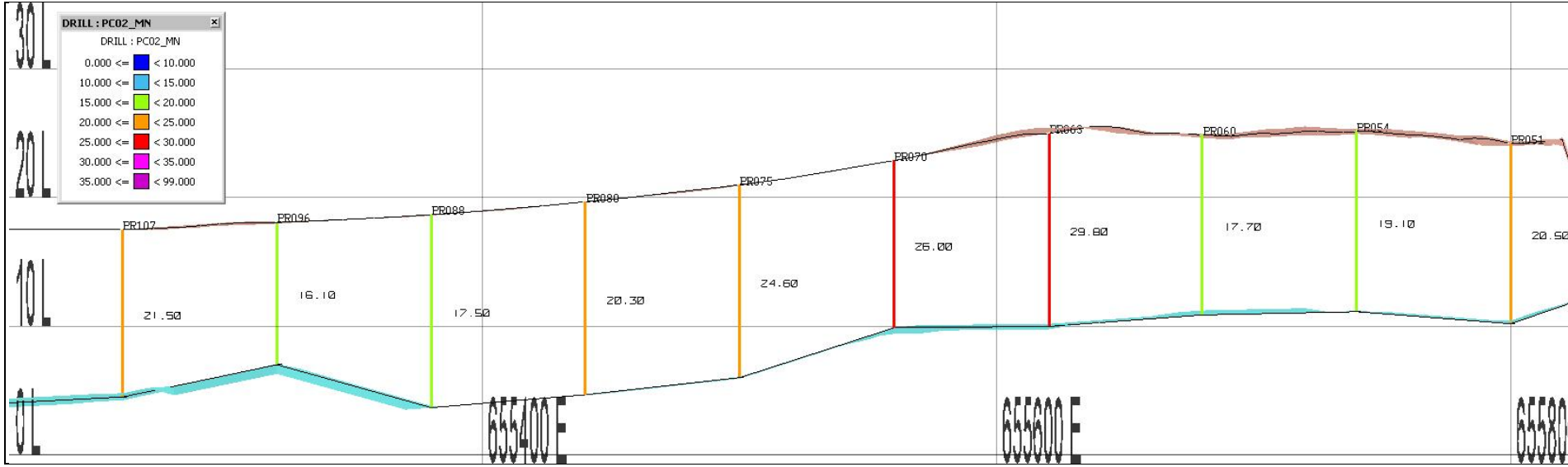


Figure 29 - Sands drillhole cross section (8452600 +/- 15m) showing drillholes coloured by Mn and modelled top and bottom of ore surfaces (5x vertical exaggeration)

COMPETENT PERSON REPORT
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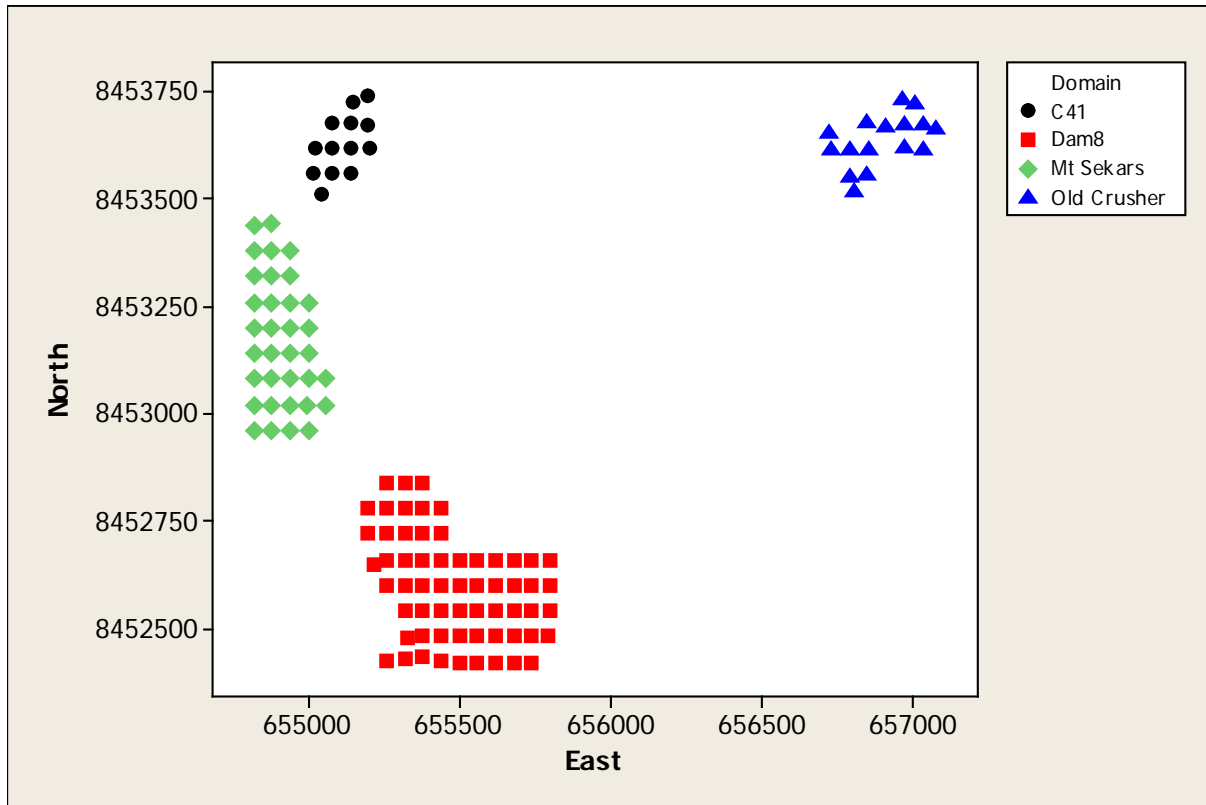


Figure 30 - Sands drillhole collars by location

All drillholes were split and then composited during sampling to provide a single sample per hole regardless of drillhole length. Site visits were conducted during execution of the drilling program by the Competent Person to audit drilling and, sampling activities.

Data spacing

Drilling is planned and conducted on 60 x 60 metre drill centres, which relates directly to the Mineral Resource classification criteria (for example 60 x 60 metres is typically equivalent to a Measure Mineral Resource).

Statistical & geostatistical summary

The table below details the raw sample statistics for sample length and the major grades (in situ head grades) for all locations for those samples used in the sand tails resource model.

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| | Length | Mn | Fe ₂ O ₃ | SiO ₂ |
|--------------------|--------|-------|--------------------------------|------------------|
| Number | 124 | 124 | 124 | 124 |
| Mean | 11.60 | 20.19 | 8.46 | 45.02 |
| Standard Deviation | 3.39 | 4.99 | 0.99 | 7.58 |
| CoV | 29.25 | 24.72 | 11.66 | 16.85 |
| Minimum | 2.55 | 6.34 | 4.87 | 29.10 |
| Median | 13.00 | 20.50 | 8.66 | 44.57 |
| Maximum | 15.00 | 32.60 | 10.37 | 64.07 |

Table 17 - Sands raw sample statistics – length and major assays

Missing analytical values are typically coded as -99 in the geological database and are treated as null values during the resource modelling process. While those values below the analysis detection limit are coded with half the detection limit and are treated as a real value. However there were no missing or below detection values generated during the drillhole analysis.

No top cuts have been applied to the data.

Experimental variogram maps and variograms were generated for the major elements. Omnidirectional variograms were calculated using lags of 60 metres; however, an assessment of the variograms failed to define a reasonable model for each domain.

Sample compositing

As discussed previously compositing was undertaken at the sampling stage as this was deemed the most appropriate method of providing a representative sample given the proposed mining and processing methods.

8.1 Assumptions

GEMCO deposit

Cut-off Parameters

A 40% manganese washed product cut-off grade is used to define the Mineral Resource. This cut-off grade together with the geological characteristics is used to differentiate between the ore horizons and the other material types (overburden and underburden). The mineralised envelope however does include some sub-40% interburden material that will report to tailings during processing. Consequently in situ cut off grades are irrelevant.

During 2013 a cut-off grade investigation was completed, this work concluded that the existing cut-off grade still best represents the deposit.

Mining factors

The orebody at GEMCO has been mined since the 1960's; it is a relatively thin tabular orebody that is currently extracted using a strip mining method (200 x 40 metre strip).

No dilution factors have been applied to the Mineral Resource apart from the inclusion of the interburden material in the resource modelling and estimates.

Metallurgical factors

The orebody at GEMCO has been processed on site since mining began in the 1960's. Ore is currently crushed and then beneficiated via screening and media separation to produce lump and fines products.

A yield value is calculated during RC drillhole sample preparation in an effort to emulate the ore beneficiation process (although this process involves screening only). The Mineral Resource is therefore reported in terms of in situ tones, product grade and product yield.

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Environmental factors

The current strip mining method enables the overburden waste material to be used to backfill the preceding mining strip and cut. Process residues from the beneficiation plant are pumped and stored in sands and slimes dams. Tailings are composed of approximately 50% sands and 50% slimes material.

No environmental assumptions have been included in the Mineral Resource estimate.

PC02 sands

Cut-off Parameters

No cut-off grade has been used; this was considered appropriate given the proposed mining and processing methodologies.

Mining factors

Bulk mining is regarded as the most suitable mining method, given that it would be impractical to separate individual sands and slimes layers in the stockpiles due to their thin nature (centimetre scale).

The resource is inclusive of dilution.

Metallurgical factors

The sand tailings have been produced as a waste product during the beneficiation of the GEMCO orebody from its gangue constituents. As the material has already been crushed and liberated, separation can be achieved as a result of particle density differences.

Assessment by Technical Marketing personnel suggests that the liquid separation (HLS) results provided by Amdel are not comparable to the results generated during the reflux classifier trial on site. Consequently, it was considered inappropriate to model the HLS results.

Environmental factors

Residues from the sand tailing processing will need to be pumped and stored in waste sands and slimes dams.

No environmental assumptions have been included in the Mineral Resource estimate.

8.2 Estimation and modelling techniques

GEMCO deposit

Geological interpretation

Stratigraphic modelling was conducted in VULCAN using the FixDHD and GridCalc modules. The geological model is derived predominantly from drillhole data, but also includes some mapping and outcrop information.

FixDHD attempts to fill in stratigraphic 'gaps' using statistical modelling techniques to determine the missing or unavailable data from the known information, and to manipulate the available data to meet the required criteria for modelling. Where there are insufficient data for the statistical techniques to be employed, less rigorous stacking methodologies are employed. ASCII mapfiles are produced for each stratigraphic unit.

The GridCalc process is then used to generate two dimensional grids using the FixDHD output and additional outcrop geological information. The grids are triangulated (honouring known data points) to produce surface wireframes which are used to constrain the resource model and subsequent grade estimations. The table below details the triangulations used to construct the stratigraphic model.

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| Stratigraphic horizon | Triangulation |
|----------------------------------|---------------|
| Topography | grtopo14_tp |
| Laterite and lateritic clay | gro200_sr |
| Concretionary Mn | gro300_sr |
| MID horizon | grm400_sr |
| BOT horizon | grb700_sr |
| Disseminated Mn | gru900_sr |
| Glauconitic sands and clay | gru1000_sr |
| Basement quartzite and sandstone | gru1100_sr |

Table 18 - Stratigraphic wireframes used in resource model

Estimation parameters

The Mineral Resource has been estimated using an Ordinary Kriging (OK) estimation technique, which is deemed appropriate to the style of mineralisation. Both the wet screened/product (A sample) and in situ head (D sample) grades have been estimated for all major and minor elements (Mn, Fe, SiO₂, Al₂O₃, P, BaO, K₂O, MgO, Na₂O, CaO, SrO and TiO₂) as well as lump and fines yields.

Planimetric (aerial) domains have been treated as soft boundaries to improve the local estimation quality adjacent to the domain boundaries. See Figure 31.

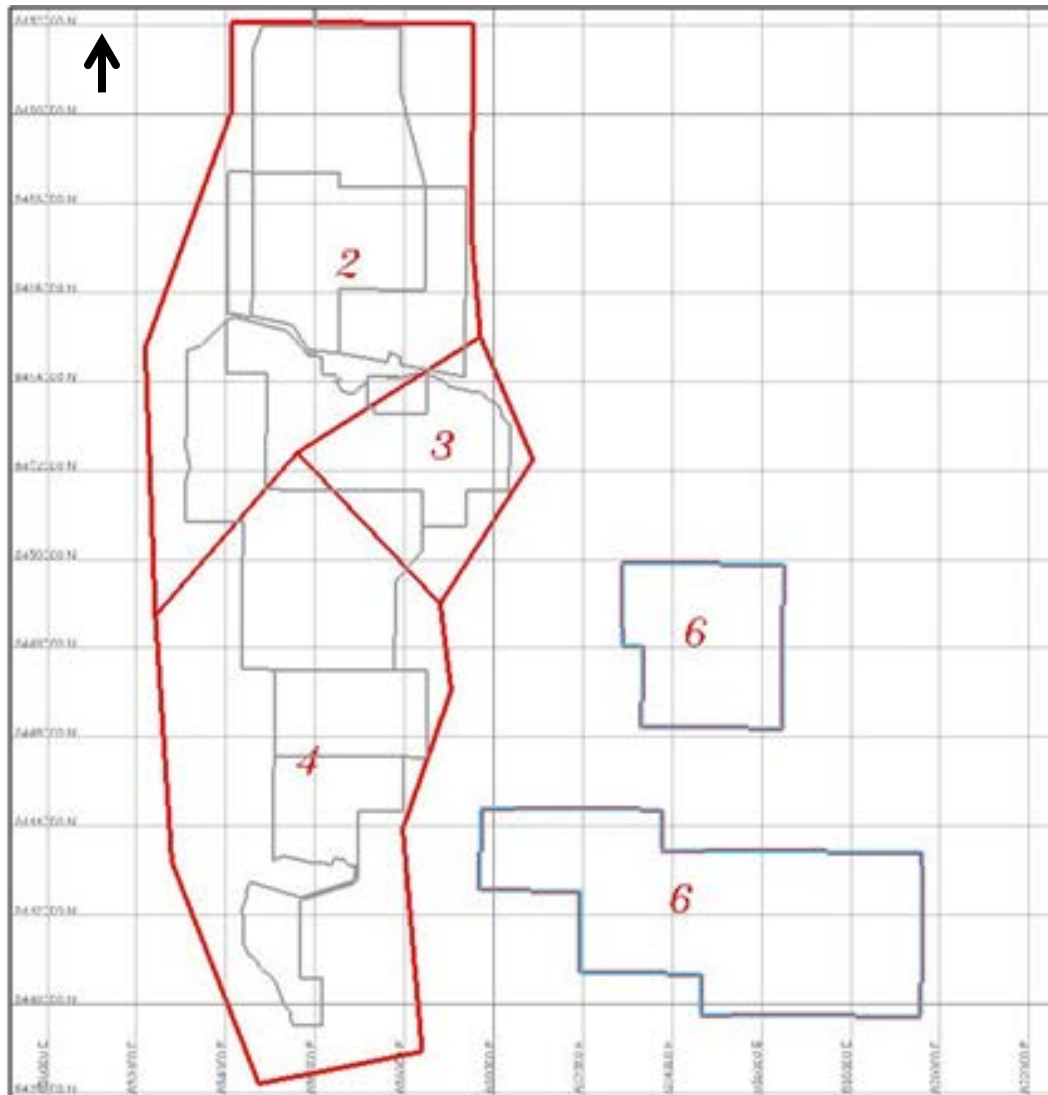


Figure 31 - Planimetric domains and leases

The estimation was however constrained by hard boundaries between the ore horizon domains (MID and BOT), which was considered appropriate following assessment by contact analysis.

Interburden geometry is generally spatially discontinuous, lenses are often informed by a single drillhole and defining interburden within a deterministic wireframe is therefore particularly difficult. As a result the VULCAN 'limit high yield' function, has been used to restrict the distance over which samples that were flagged as interburden were weighted during the estimate. QG previously undertook a kriging neighbourhood analysis and determined that two estimation passes were appropriate, the following neighbourhood search parameters are presented in Table 19. Search parameters are consistent between planimetric domains, except for the exploration areas (domain 6) which are characterised by generally broader drill spacing, resulting in a reduction in the minimum number of samples for the first pass estimate.

Additionally an octant based search was used with a maximum of 4 composites per octant in the first pass, but no octant search in the second pass. Block discretisation of 6x6x1 (36 nodes) was also used for both passes. Finally sub-blocks were estimated at the parent block support.

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| Domain | Ore horizon | Variables | Pass 1 search range | Pass 1 number of composites | Pass 2 search range | Pass 2 number of composites |
|---------|-------------|-------------------|---------------------|-----------------------------|---------------------|-----------------------------|
| 2, 3, 4 | MID | A and D variables | 400x400x4 | 8 - 32 | 1000x1000x10 | 4 – 32 |
| | | Yield variables | 400x400x4 | 8 - 20 | 1000x1000x10 | 4 – 20 |
| | BOT | A and D variables | 400x400x4 | 8 - 32 | 1000x1000x10 | 4 – 32 |
| | | Yield variables | 400x400x4 | 8 - 20 | 1000x1000x10 | 4 – 20 |
| 6 | MID | A and D variables | 400x400x4 | 4 - 32 | 1000x1000x10 | 4 – 32 |
| | | Yield variables | 400x400x4 | 4 - 20 | 1000x1000x10 | 4 – 20 |
| | BOT | A and D variables | 400x400x4 | 4 - 32 | 1000x1000x10 | 4 – 32 |
| | | Yield variables | 400x400x4 | 4 - 20 | 1000x1000x10 | 4 – 20 |

Table 19 - Estimation search parameters by domains and horizon

The VULCAN software package was used to undertake the estimate.

A comparison with previous estimates and production records has been conducted and confirms the Mineral Resource is suitable for long term mine planning.

Modelling parameters

Resource block model extents were developed based on a series of constraints including the topography, basement surface and resource limits with some interpolation outside these boundaries. Parent and sub-block sizes are consistent with the recommendations from the Golder (2004b) study, which is related to the mining strip and cut dimensions. The model definition is tabulated below.

| Parameter | Dimension | | |
|-----------------------|-----------|-----------|------|
| | X | Y | Z |
| Parent block size (m) | 120 | 120 | 0.5 |
| Sub-block size (m) | 20 | 20 | 0.5 |
| Model minimum | 653,000 | 8,439,500 | -140 |
| Model maximum | 660,440 | 8,462,300 | 120 |
| Total parent cells | 140 | 190 | 520 |

Table 20 - Resource block model definition

Density is assigned by planimetric and stratigraphic domain rather than being estimated. Bulk density values have been updated on the basis of grade control diamond core drilling density results (QG, 2014). Where there are insufficient results the average values determined by Golder (2004a) have been maintained. The bulk density values used in the resource are presented in the table below.

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| Horizon | Stratigraphic code | Domain | Density value |
|---------|--------------------|--------|---------------|
| OVB | 100 | 1-6 | 1.60 |
| | | 1-6 | 1.5 |
| | 300 | 1,6 | 1.6 |
| | | 2,4,5 | 1.65 |
| | | 3 | 1.75 |
| MID | 400-600 | 1,2 | 2.80 |
| | | 3 | 2.50 |
| | | 4 | 3.07 |
| | | 5 | 2.45 |
| | | 6 | 2.15 |
| BOT | 700-800 | 1 | 2.55 |
| | | 2 | 2.55 |
| | | 3 | 2.40 |
| | | 4 | 2.78 |
| | | 5 | 2.30 |
| | | 6 | 1.95 |
| UBN | 900 | 1,2,6 | 1.80 |
| | | 3,4,5 | 2.00 |
| | 1000 | 1-6 | 1.65 |
| | 1100 | 1-6 | 2.00 |

Table 21 - Bulk density values

The Mineral Resource has been estimated on a dry basis.

Validation

The model was verified via visual comparison between input wireframes and drillholes (stratigraphic domains and grades) and blocks. The figure below displays the drillholes and block model codes by SLAYER (note that the block model has been coded to account for the combined ore horizons as discussed previously) and the key stratigraphic wireframes.

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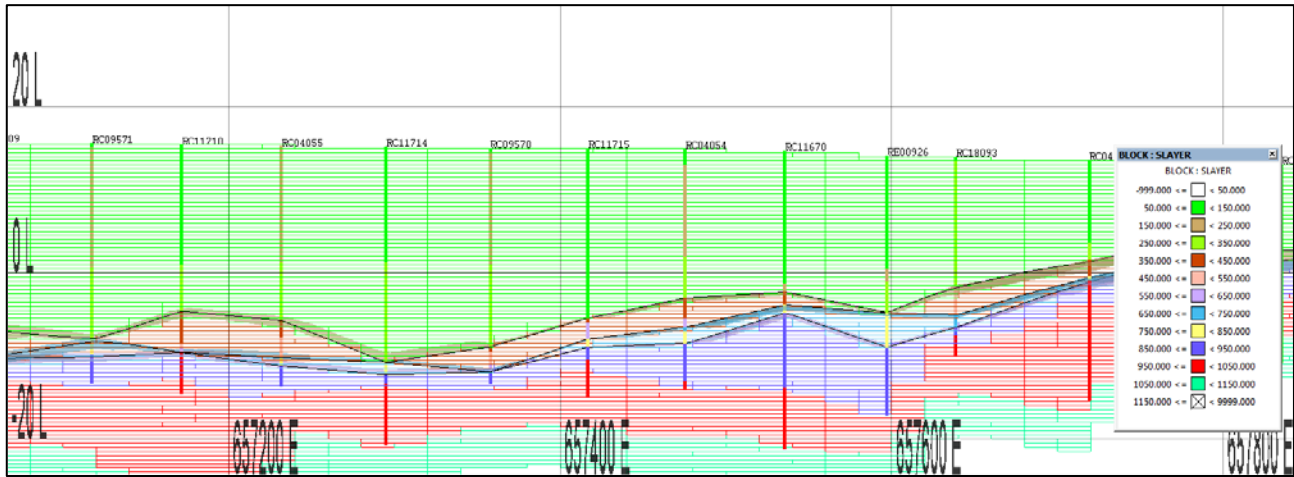


Figure 32 - SLAYER comparison – model versus input drillholes and stratigraphic surfaces 8445060mN (looking north +/- 25m with 5x vertical exaggeration)

Estimated block grades were also validated visually by comparing the input data to the block estimates in east-west and north-south section views. The estimated grades appear to honour the drillhole sample grades and do not show any signs of excessive grade smoothing, which is appropriate given the nature of the deposit, modelled nugget and search parameters. The figure below illustrates an example cross section comparing the estimated manganese product grades (A samples) and the composited drillhole manganese product grades for the MID and BOT horizons.

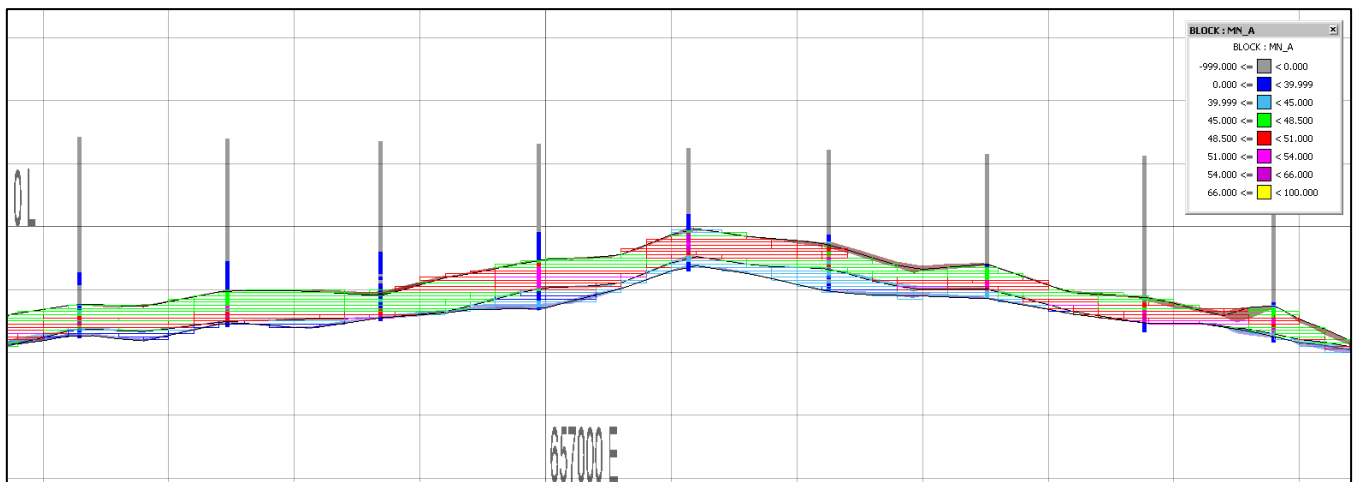


Figure 33 - Mn_A comparison – model versus input drillholes and stratigraphic surfaces 8451530 mN (looking north +/- 15m with 5x vertical exaggeration)

Sectional validation graphs (swath or moving widow's plots) were also created for each component to assess the reproduction of local means and to validate the grade trends in the model in the X, Y and Z directions. These graphs compare the average of the estimated grades to the average of the input composited drillhole grades within model slices based on the parent block size. Below is an example for northing blocks for washed Mn grades in the MID horizon.

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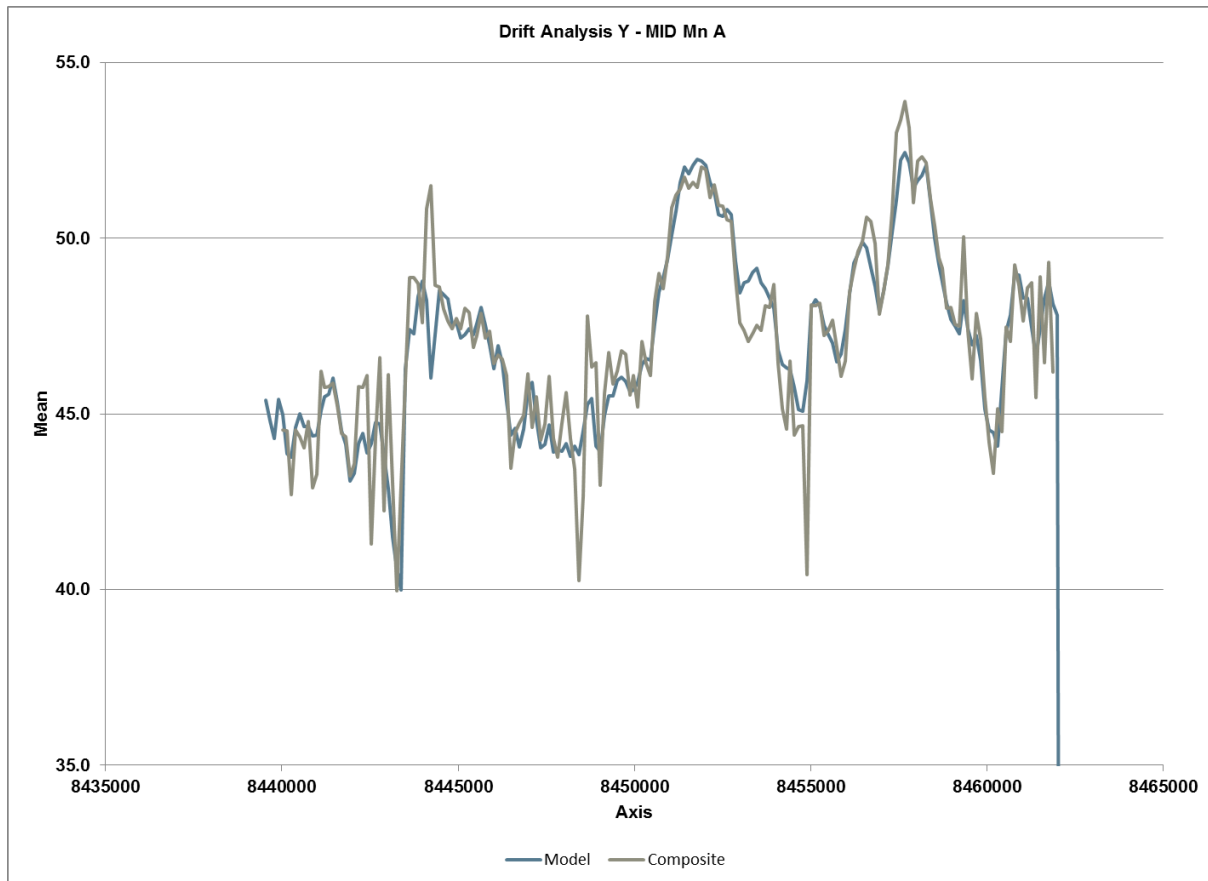


Figure 34 - Northing swath plot – model versus composite drillholes for MID horizon Mn A grades

Due to the large number of individual estimations the main method of validation was comparison of the input global means of sample data with the output block model grades on the basis of statistical domain and model horizon. The table below compares the A sample (washed) composites to the estimated grades for the mining horizons. The results show that there is a reasonable correlation between the input and estimated grades.

| Horizon | Composites | | | | | Estimate | | | | |
|---------|------------|-----|------|------------|-------------|----------|-----|------|------------|-------------|
| | Mn | Fe | SiO2 | Lump Yield | Fines yield | Mn | Fe | SiO2 | Lump Yield | Fines yield |
| MID | 49.1 | 4.1 | 6.6 | 26.4 | 20.6 | 47.3 | 4.7 | 8.0 | 29.9 | 17.9 |
| BOT | 40.8 | 6.6 | 16.0 | 30.7 | 16.2 | 41.5 | 6.3 | 15.2 | 31.4 | 16.2 |

Table 22 - A sample mean grade comparison between composite and estimate – total deposit by ore horizon

PC02 sands

Geological interpretation

A stratigraphic (two-dimensional) modelling approach was deemed the most appropriate technique for modelling this data due to the sampling methodology and proposed mining and processing methods. Stratigraphic and quality grids were generated in VULCAN using the GRIDCALC module according to the definition tabulated below.

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Group TGE (Technology Geoscience Engineering, previously RBO - Resource Business Optimisation) were also consulted prior to resource modelling to confirm the suitability of the selected modelling technique.

| Parameter | Dimension | |
|---------------|-----------|-----------|
| | X | Y |
| Grid size (m) | 20 | 20 |
| Model minimum | 654,000 | 8,451,500 |
| Model maximum | 658,000 | 8,454,500 |

Table 23 - Sands grid model definition

The geological logging defined pseudo-stratigraphic units and enabled the construction of topography and basement contact grids to be calculated, in conjunction with other supporting (survey) information.

Estimation parameters

Quality grids were calculated in VULCAN for all head grade assays using an inverse distance squared algorithm with no smoothing and a trend order of zero. Testing of search parameters showed little variability in the resultant grids. Subsequently, the maximum search distance was set to 200 metres.

A comparison with TGE test estimates for Dam 8 and Mt Sekars were also conducted, which demonstrated consistency between estimates.

Modelling parameters

A stratigraphic HARP (Horizon Adaptive Rectangular Prism) three dimensional block model was constructed using the stratigraphic and quality grids. HARP models are designed to accurately represent undulating or thin horizons with none of the 'steppiness' of traditional block models.

Spatial domains have been defined using survey information and the topography and basement contacts for each stockpile and dam. The final model (*grpc02_nov12.bmf*) has been coded with these domains for validation and reporting. Refer to the figure below.

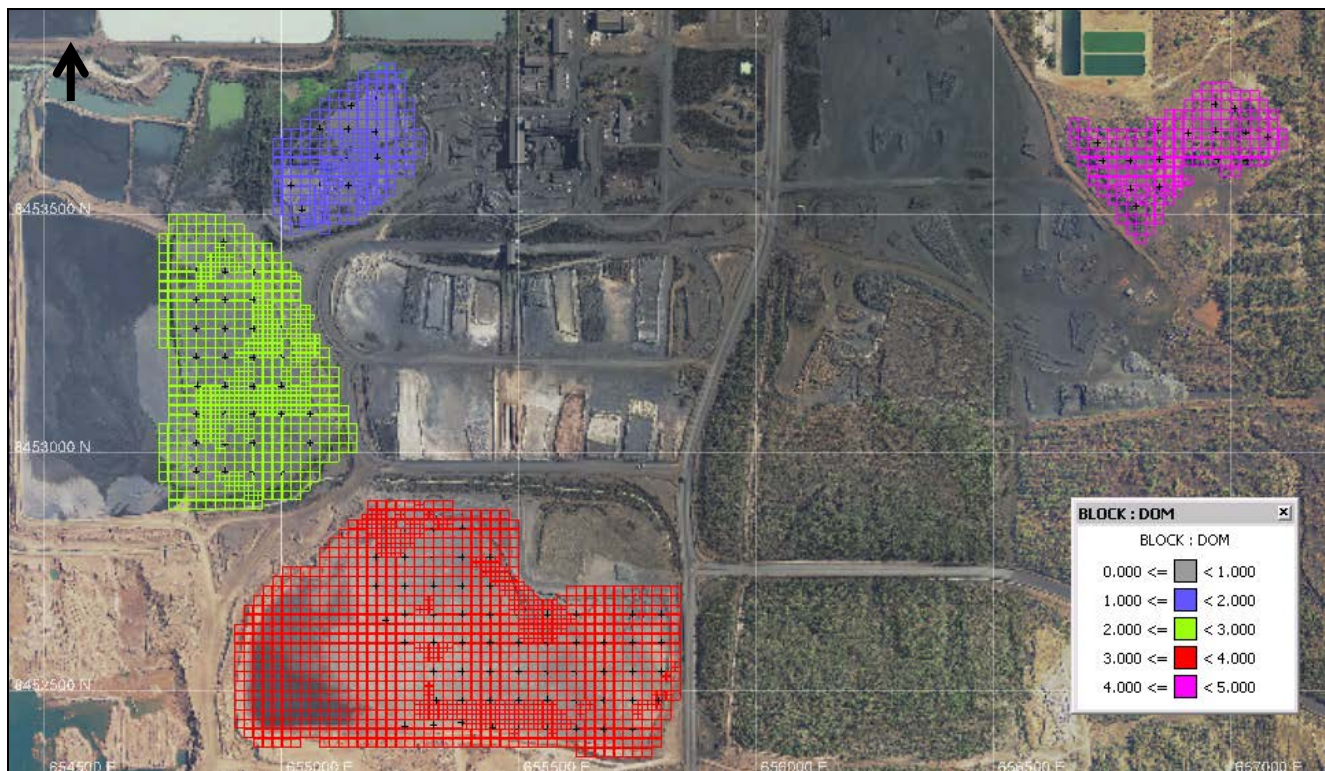


Figure 35 - Sands block model domains

A global bulk density of 1.80 g/cm^3 has been assigned to the block model for reporting on the basis of the results from the reflux classifier pilot test-work.

The Mineral Resource has been estimated on a dry basis.

Validation

The model was verified via visual comparison between input wireframes and drillholes (stratigraphic domains and grades) and blocks. The figure below displays the drillhole grades and block model coded by Mn grade. The estimated grades appear to honour the sample grades and do not show any signs of excessive grade smoothing, which is appropriate given the nature of the deposit.

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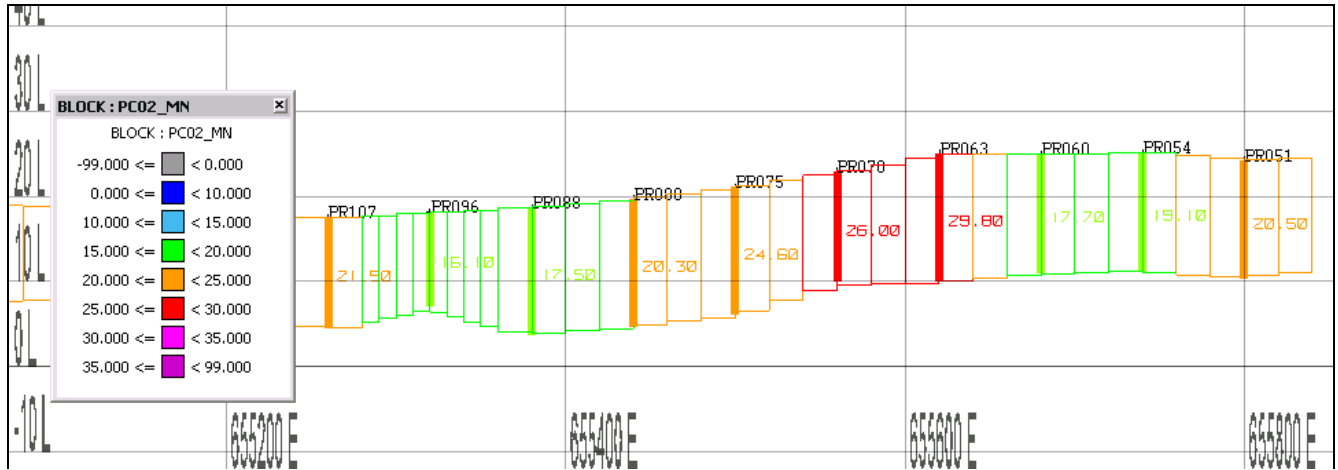


Figure 36 - Sands Mn grade comparison – model versus input drillholes 8452600 mN (looking north with 5x vertical exaggeration)

Validation was also conducted via a comparison of the input global means of sample data with the output block model grades for each location. The table below compares the raw drillhole samples to the estimated grades for each domain. The results show that there is a reasonable correlation between the input and model grades.

| Domain | Drillhole | | | Estimate | | |
|-----------------------|-----------|-------|-------|----------|-------|-------|
| | Mn | Fe2O3 | SiO2 | Mn | Fe2O3 | SiO2 |
| C41 stockpile | 22.41 | 8.45 | 39.97 | 23.21 | 8.23 | 39.97 |
| Mt Sekars stockpile | 23.96 | 8.55 | 38.19 | 24.50 | 8.54 | 37.50 |
| Dam 8 | 19.15 | 8.83 | 46.88 | 18.92 | 8.73 | 46.49 |
| Old Crusher stockpile | 14.34 | 6.90 | 56.54 | 14.22 | 7.04 | 56.61 |

Table 24 - Mean grade comparison between drillholes and estimate – by domain

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9. Mineral Resource Statement

9.1 Classification

GEMCO deposit

The definition of Mineral Resource categories complies with the guiding principles of the JORC Code (2012 edition). The resource is classified using 40% washed Mn product cut-off grade inclusion of internal dilution and an external minimum one metre ore thickness (0.5metre internal), as is the Ore Reserve. One metre is the minimum in which the ore can be confidently predicted due to logging/sample interval. Also, in terms of the Reserve, one metre is the minimum mining seam thickness capable of being mined with current equipment. This cut-off largely determines the mining blocks for the reserve. The following table summarises the criteria used.

| Resource Code | Category | Criteria |
|---------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| 0 | Unclassified | |
| 1 | Measured | Ore horizons MID or BOT and Drill spacing \leq 60 mE by 120 mN and Ore thickness \geq 1 m and Mn product grade \geq 40% |
| 2 | Indicated | Ore horizons MID or BOT and Drill spacing \leq 120 mE by 120 mN and Ore thickness \geq 1 m and Mn product grade \geq 40% |
| 3 | Inferred | Ore horizons MID or BOT and Drill spacing \leq 240 mE by 240 mN and Ore thickness \geq 1 m and Mn product grade \geq 40% |

Table 25 - Resource classification criteria

The following rules were used to define the Mineral Resource boundaries:

Measured Mineral Resource boundary is defined as being 30m past the last drill hole to be included in the Measured Resource category;

Indicated Mineral Resource boundary is defined as being 60m past the last drill hole to be included in the Indicated Mineral Resource category;

Inferred Mineral Resource boundary is defined as being 120m past the last drill hole to be included in the Inferred Mineral Resource category.

The resulting classifications are shown in Figure 37 and are the basis of the declaration.

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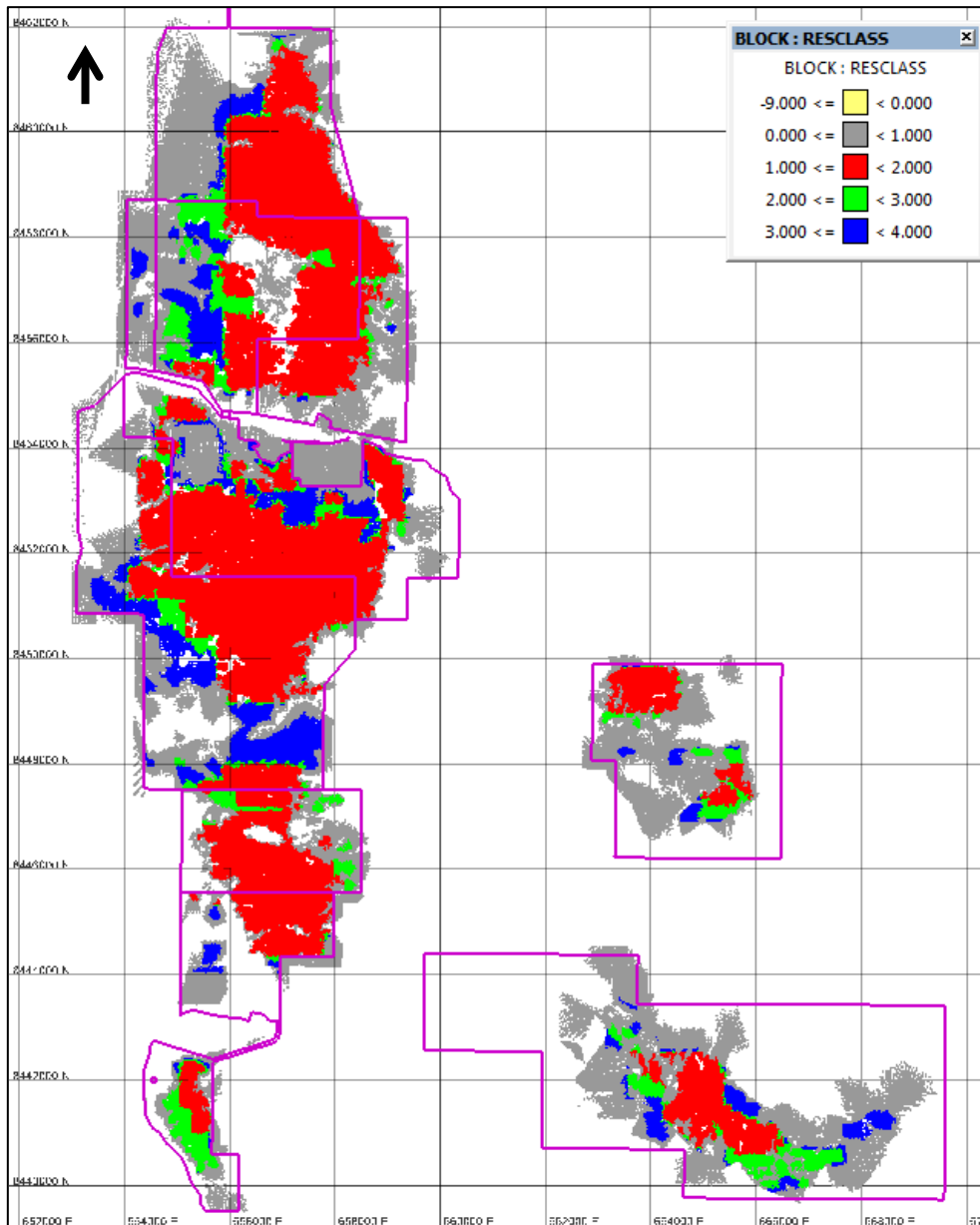


Figure 37 – GEMCO resource category domains (red = Measured, green = Indicated, blue = Inferred, grey = unclassified)

PC02 sands

The Mineral Resource has been reported under the guiding principles of the Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code, 2012 Edition).

The resource is classified using a drillhole spacing criteria, which is summarised in the table below. Due to the uncertainty in density, no material was classified as a Measured Resource. The Inferred Mineral Resource boundary is defined as being 60m past the last drill hole to be included in the Indicated Mineral Resource category.

COMPETENT PERSON REPORT
South32 - GEMCO

| Resource Code | Category | Criteria |
|---------------|--------------|-------------------------------------|
| 0 | Unclassified | |
| 2 | Indicated | Drill spacing \leq 60 mE by 60 mN |
| 3 | Inferred | Drill spacing $>$ 60 mE by 60 mN |

Table 26 - Sands resource classification criteria

The resulting classifications are shown in the figure below and are the basis of the declaration (green = Indicated and blue = Inferred).

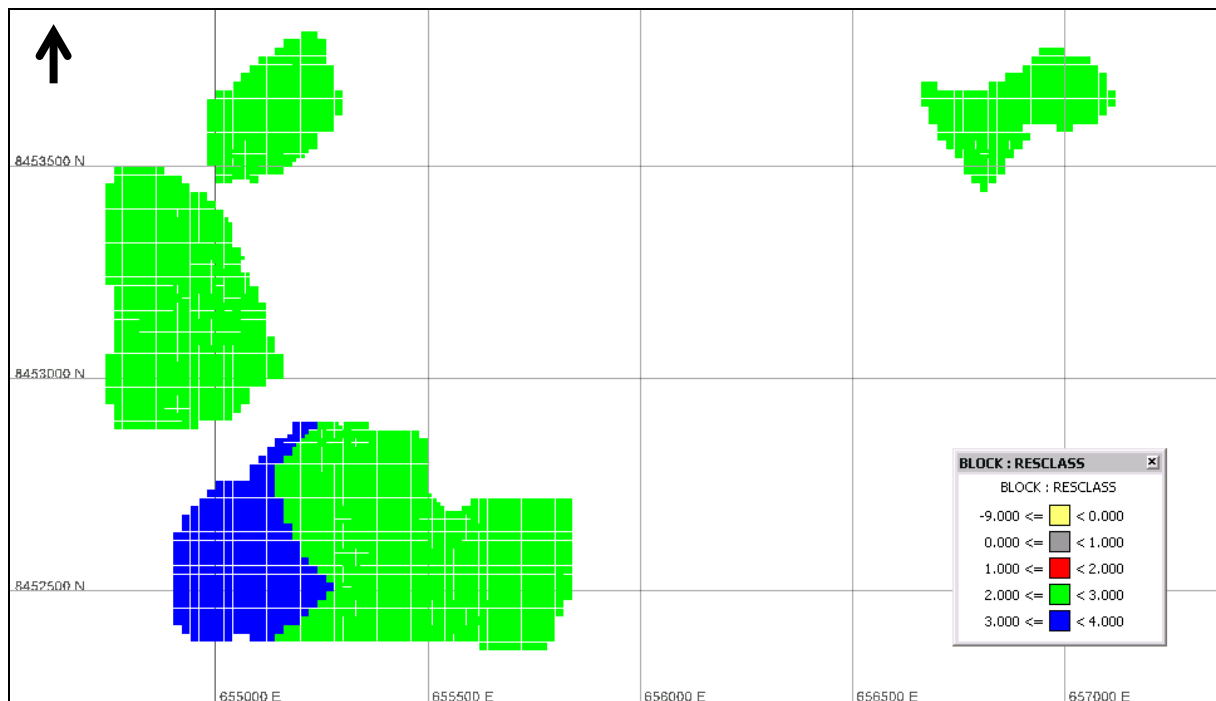


Figure 38 - Sands resource category domains (green = Indicated, blue = Inferred)

9.2 Discussion of relative accuracy / confidence

GEMCO deposit

No analysis has been conducted to quantify the relative accuracy on the Mineral Resource, however the resource model is deemed appropriate as a global estimate, on the basis of the following:

Acceptable assay QAQC results;

Excellent understanding of the geology on the deposit based on over 40 years of production and its continuity;

Comparison of input and output grades via global averages and moving window statistics; and

Investigation of the washed Mn grade slope of regression (Figure 39) demonstrating that the estimate does not appear to be over smoothed.

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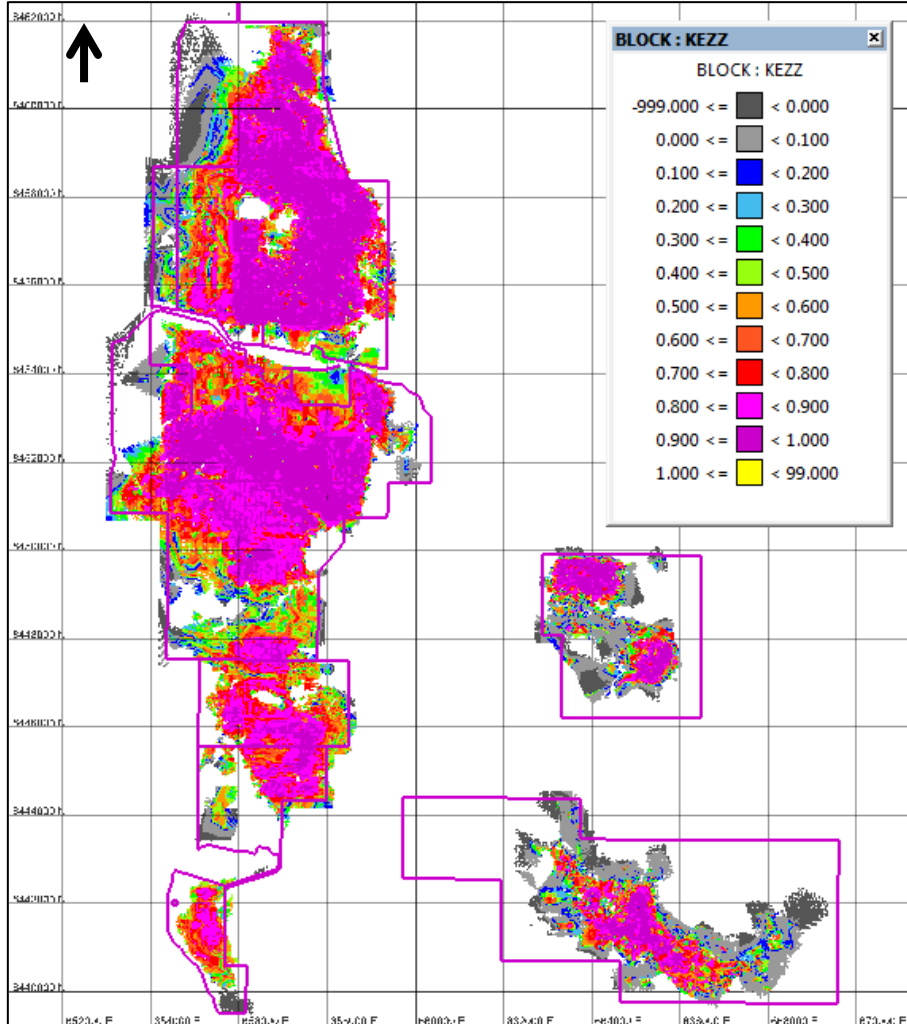


Figure 39 - Mn A estimated block slope of regression in plan view

There has been no change in the resource modelling methodology; however a change in the application of the bulk density values has resulted in an increase in the global tonnage. This is reflected in the waterfall below, which details the previous resource and revised resource (compared as depleted at the end of FY14).

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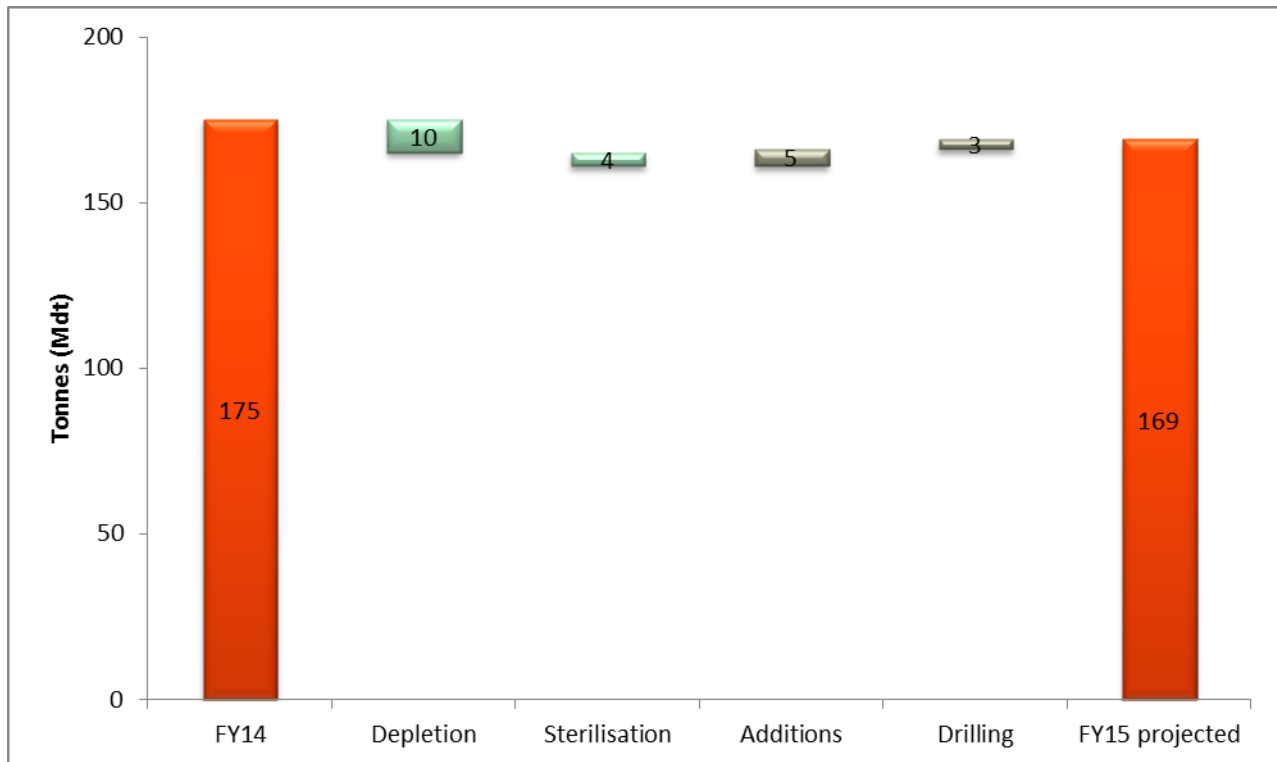


Figure 40 - Model change as depleted at 30 June 2015

PC02 sands

No analysis has been conducted to quantify the relative accuracy on the Mineral Resource, however the resource model is deemed appropriate as a global estimate, on the basis of the following:

Acceptable assay QAQC results;

Good understanding of the geology of deposits in a global sense;

Comparison of input and output grades; and

Comparison of resource to those test estimates conducted by RBO on Dam 8 and Mt Sekars.

As this is the maiden Mineral Resource, there have been no changes to the modelling methodology.

9.3 Mineral Resource declared

GEMCO deposit

The Mineral Resource is reported on an inclusive basis and is tabulated below (and included in the Appendix). It has been reported at a 40% Mn washed cut-off grade and 1metre ore thickness, but is inclusive of diluting material, which will be mined in conjunction with Ore Reserves and delivered to the beneficiation plant. The portion of the Mineral Resource (by category) that is additional to the Ore Reserve is also reported. The grade is reported using beneficiated (washed) grades, as beneficiated grades are used in mine scheduling, quality control and blending (rather than in situ grades).

COMPETENT PERSON REPORT

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| Category | Tonnes (Mt) | Mn grade (%) | Indicative yield (%) |
|-----------|-------------|--------------|----------------------|
| Measured | 106.1 | 45.2 | 48 |
| Indicated | 28.7 | 43.4 | 47 |
| Inferred | 34.5 | 42.6 | 49 |
| TOTAL | 169.3 | 44.3 | 48 |

Table 27 - GEMCO Mineral Resource as at 30 June 2015

Changes from the previous Mineral Resource are the result of the introduction of new drillholes which have converted potential mineralisation to resource and upgraded the Mineral Resource. The most significant change, as stated previously has been the inclusion of the high silica cap material and internal 0.5-1.0m ore thickness material and the exclusion of the sacred sites in A South and C quarries. Finally the model has been depleted based on the material mined year to date at the end of March and the forecast mining for the remainder of the FY.

The table below details the changes from the previously declared Mineral Resource.

| Category | Delta Tonnes (Mt) | Delta Mn grade (%) | Delta Indicative yield (%) |
|-----------|-------------------|--------------------|----------------------------|
| Measured | 11.5 | -0.9 | -0.4 |
| Indicated | -17.6 | -0.2 | 0.3 |
| Inferred | 1.0 | -0.1 | 0.4 |
| TOTAL | -5.1 | -0.5 | -0.1 |

Table 28 - Mineral Resource changes from previous declaration as at 30 June 2014 compared to 30 June 2015

PC02 sands

The Mineral Resource is reported on an inclusive basis and is tabulated below (and included in the Appendix). It has been reported at a zero Mn cut-off grade and is inclusive of diluting material, which will be mined and delivered to the processing plant. The grade is reported using in situ (head) grades.

| Category | Tonnes (Mt) | Mn grade (%) |
|-----------|-------------|--------------|
| Measured | | |
| Indicated | 12.8 | 20.8 |
| Inferred | 2.3 | 20.0 |
| TOTAL | 15.1 | 20.7 |

Table 29 - GEMCO Sands Mineral Resource as at 30th June 2015

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10. Mineral Resource Range Analysis (RRA) and Potential Mineralisation Reporting

A range analysis workshop was completed in September 2014 on the existing Groote Eylandt and East Arnhem Land leases and lease applications. The potential mineral inventory is based on the mid case and the GEMCO Mineral Resource declared at June 2014. This can be summarised in the figure and table below, where prospectivity is the potential of adding to the existing resource based on the current geological understanding. Note, that the mineral inventory is the sum of the potential mineralisation (PM) and the Mineral Resource (i.e. MI= PM+MR).

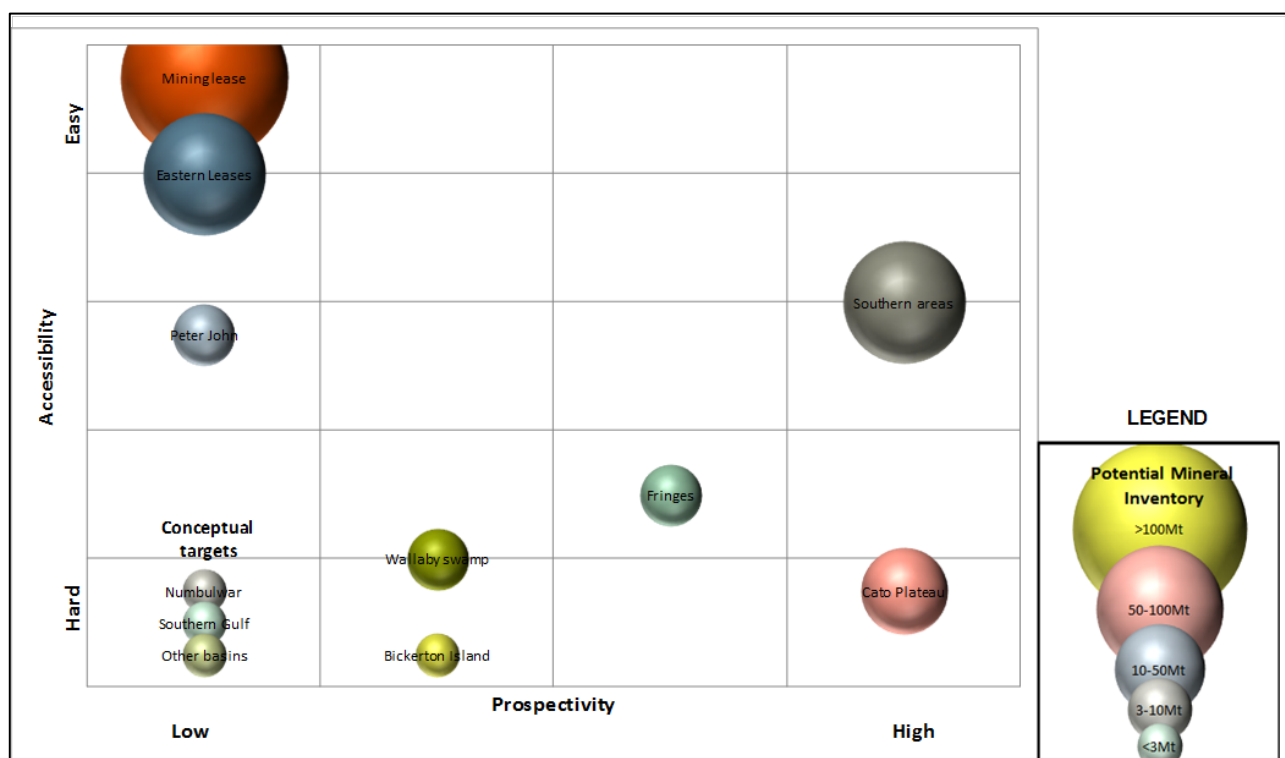


Figure 41 - 2014 RRA opportunity ranking (targets by potential mineral inventory)

| Location | Min (Mt) | Mid (Mt) | Max(Mt) |
|-----------------------------|--------------|--------------|--------------|
| Mining Leases* | 178.7 | 182.6 | 184.5 |
| Eastern Leases^ | 37.2 | 39.0 | 45.9 |
| Southern Lease | 5.7 | 68.7 | 227.4 |
| Fringes | 2.1 | 4.2 | 22.8 |
| Bickerton Island | 0.8 | 2.5 | 20.4 |
| TOTAL GROOTE EYLANDT | 224.5 | 297.0 | 501.0 |
| Peter John River | 0.8 | 3.0 | 5.4 |
| Cato Plateau | 18.0 | 50.5 | 156.9 |
| TOTAL EAL | 18.8 | 53.5 | 162.3 |
| TOTAL GTE+EAL | 243.3 | 350.5 | 663.3 |

Table 30 - GEMCO 2014 RRA results

* Includes 174.5Mt from the Mineral Resource

^ includes 36.6Mt from the resource model (Mineral Resource and unclassified PM)

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11. General mine planning criteria

The GEMCO ore body has been mined since the 1960s. It is a relatively thin, tabular ore body that is extracted using strip mining. The mining extents are approximately 20km north-south and 5km east-west. Ore depths range from 1m to 40m and ore thickness ranges from 0.5m to 6m. Ore is beneficiated, or concentrated, on site before being transported by road train 15km north to the ship loading area at Milner Bay.

11.1 Study Status

The Reserve is based on the FY2015 LOA Optimised Base Case, known as LOA16 as Year 1 equals FY2016 (RPD, 2014). The quantity schedule that underpins the LOA was developed in Blasor LOA Stratiform (Blasor). Blasor is an in-house linear programming optimisation suite that optimises based on NPV.

The FY2015 LOA Base plan covers the current mining areas, plus the extension of mining to the south into J quarry, and the eventual extraction of ore underneath the Rowell Highway (within the mining lease). It does not include Eastern Leases or Southern Areas. The LOA mining extents are shown in Figure 42.

This year is the first year that a Reserve will be declared for the Premium Concentrate, or sands, process known as PC02. PC02 is a separate process that involves reprocessing sand tailings. Throughout FY2014 a Definition Study, which is equivalent to a Bankable Feasibility study, was completed and the project was approved 21/8/2014 (PC02 IAR, 2014). The PC02 process is planned to feed a combination of reclaimed sands tailings stockpiles and direct feed from the concentrator sand tailings stream. Only the sand tailing stockpile feed is considered for Reserves. The on-line feed is expected to increase the yield of the orebody Reserve by 2-3%, but a lack of reliable data means this yield effect is not considered this year.

The PC02 project is not expected to be declared a "Material Project" according to the checklist in Appendix 9. There are no other material changes to the planned mining methods or resulting Reserve compared to previous estimates.

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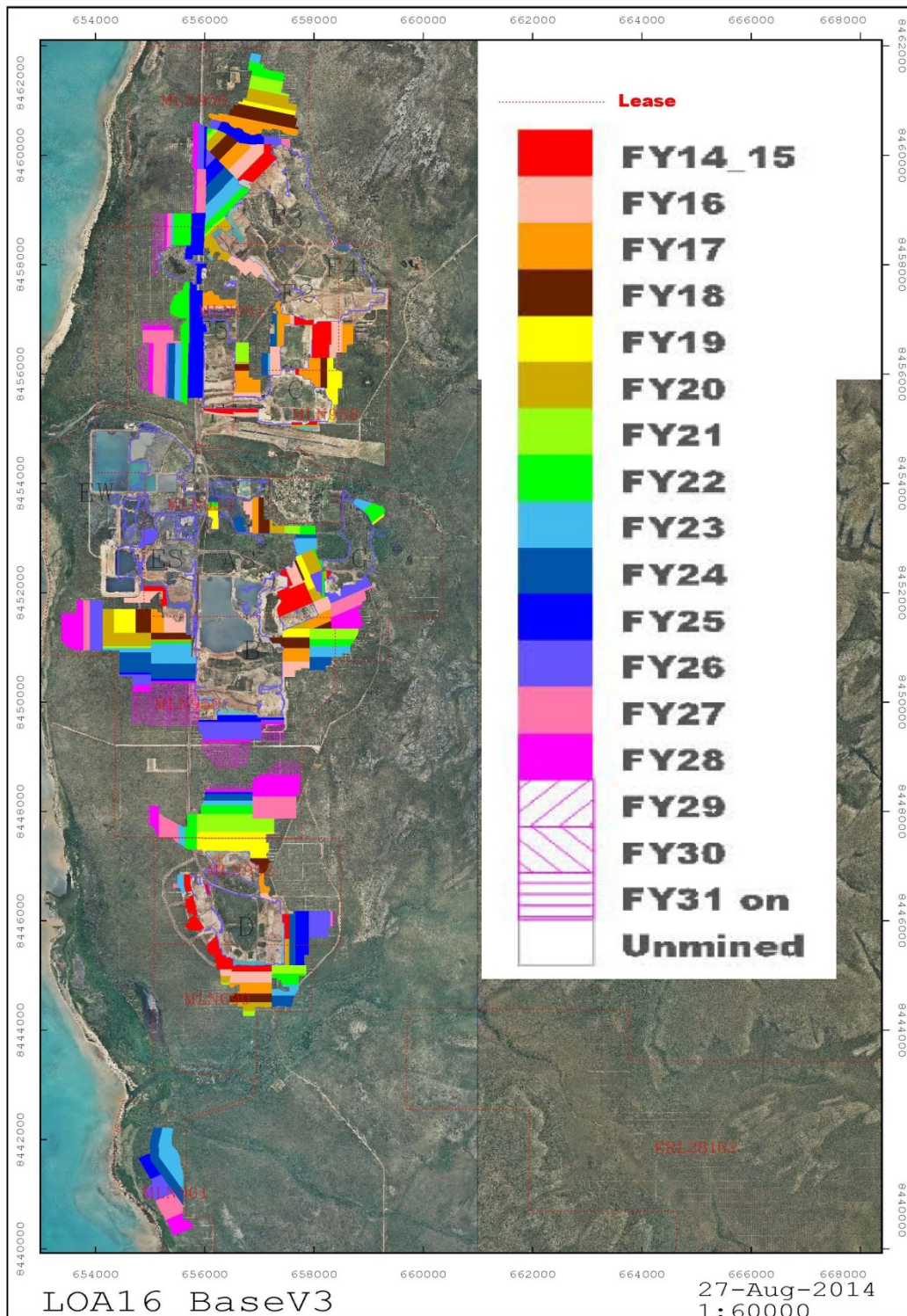


Figure 42 - LOA Mining Extents

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11.2 Cut-off Parameters

By default the Resource cut-off parameters also define the Reserve. For the orebody these are:

- 40% manganese washed product cut-off grade for the overall horizon. There is some sub-40% product grade within the mining horizons where there is higher grade below. Generally this sub 40% material will be washed out during processing.
- 0.5m ore thickness within the orebody and 1m ore thickness around the edge of the orebody. These limits guide the placement of the mining blocks.

Neither of these cut-offs are applied for the PC02 feed, which are sand tailings stockpiles.

An economic optimisation is performed to determine if a block is viable to mine, and thus be included in the Reserve. This process occurs within Blasor. The following factors are built into the Blasor model and influence whether a block is included:

- Waste mining quantity and mining cost
- Ore mining cost including requirement to blast
- Haul distance to the Concentrator
- Concentrator yield and lump : fines product ratios
- Product grade
- Year available to be mined.

The Blasor process is a whole of life optimiser, which aims to maximise NPV. As such the influence of the combination of the above factors on NPV changes over time, with higher cost and lower quality ore being more likely to be mined late in the schedule.

11.3 Mining factors

The conversion of Resources to Reserves is supported by a detailed optimised mine plan, known as the Life of Asset plan.

Choice, nature and appropriateness of the selected mining methods.

GEMCO deposit

The strip mining techniques used at GEMCO are well understood and effective. No changes are assumed over the life of the Reserves. Future changes to techniques will only occur if they are cost beneficial, and as such will not reduce the stated Reserve. A schematic of the mining sequence is shown in Figure 43 . The typical life cycle of a mine (quarry) at GEMCO involves:

1. **Vegetation Clearing:** A tree clearing dozer is used to fell trees and push vegetation into a stockpile, where it may be picked up and placed in areas designated for rehabilitation or alternatively burned.
2. **Topsoil Stripping & Recovery:** Topsoil stripping is carried out to an average depth of around 0.3m. Dozers push the topsoil into windrows where it is picked up by either loader or excavator. It is then placed in trucks for transport to a designated stockpile area, or where possible placed directly on areas available to be rehabilitated.
3. **Pre-stripping of Overburden:** Using a combination of EX2500 excavators & Cat 777 haul trucks, the upper tertiary profile of a quarry is removed. This waste material is placed (backfilled) directly within mined void areas.
4. **The remaining pre-strip and exposure of the ore is completed with D11 dozers.** Up to 16m of waste is pushed off the ore into previously mined void.
5. **Ore Drilling and Blasting:** Once the ore has been uncovered, it is then drilled and blasted in order break up the material so it can be easily handled.
6. **Ore Removal:** EX2500 excavators and Cat 777 haul trucks are used to mine the manganese ore and haul it to the existing ROM area, located at the mine industrial facility, where it is stockpiled for future blending. If appropriate it can be fed directly into the primary crusher (approximately 20% of the time).
7. **Backfilling:** Filling of the previous strip void occurs as a part of pre-stripping activities. Additional shaping and drainage formation is performed as required using dozers in order to ensure a free draining and stable landform is created.
8. **Topsoil Return:** Topsoil replacement occurs using haul trucks in combination with dozers. The topsoil is spread at an average depth of approximately 300mm.
9. **Rehabilitation:** Previously collected native species and stabilising grasses seed is spread either by hand or by helicopter.

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10. Monitoring: The rehabilitation areas are monitored for performance and any required remediation is performed.

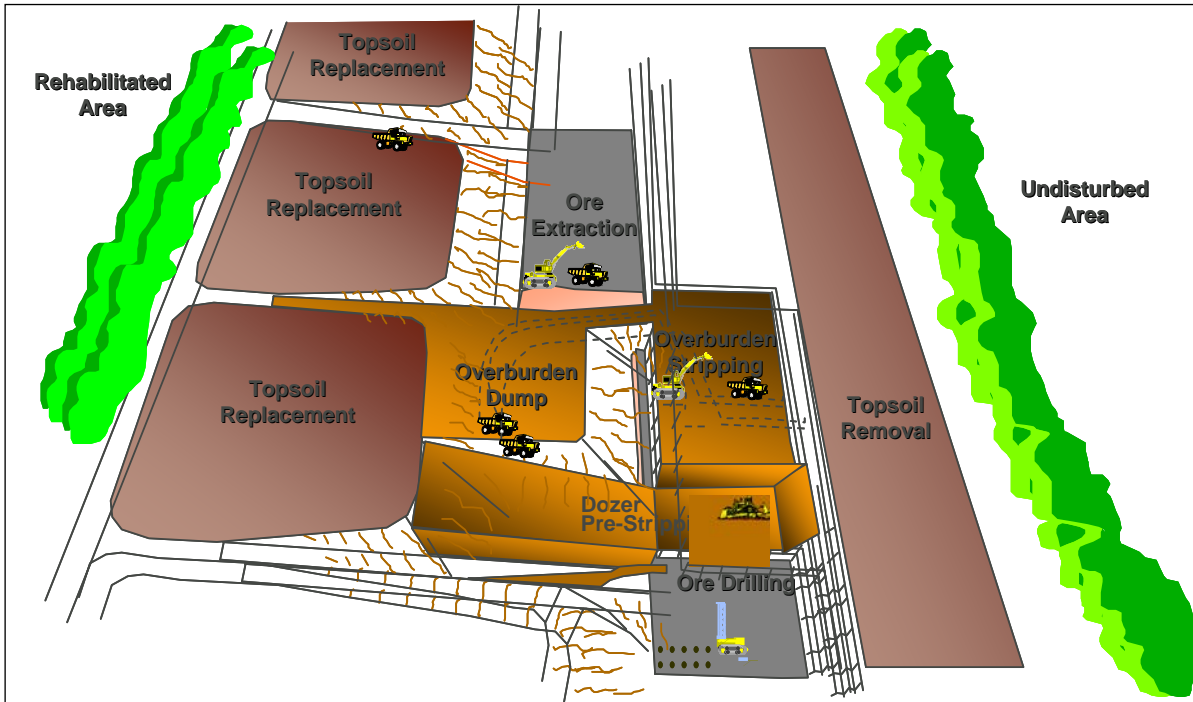


Figure 43 - Mine Method Schematic

The strip layout and mining extents are determined by:

- The surface projections (pit limits) include the following standoffs:
 - 10m from the lease boundary
 - 50m from the lease boundary adjacent to Angurugu
 - 25m from suspected or known sensitive vegetation (e.g. vine thickets)
 - 250m from Angurugu River
 - 100m from Emerald River tributary.
- 40m wide strips
- Strip length generally determined by:
 - Edge of ore (1m thick limit)
 - Edge of Resource – limit of drill confidence
 - Significant change in grade
 - Width of existing void
 - Surface exclusions.

PC02 Sands

The reclamation of the sand stockpiles is planned to be done using a Cat 374DL sized excavator loading Cat 740B EJ articulated trucks, running on a series of benches cutting through the stockpile (Figure 44). The trucks will sit on the bench below the excavator when being loaded. A Caterpillar D8 (or similar) dozer will work with the excavator in the dam to assist in managing the dig face, truck benches and drainage requirements when setting up each stockpile.

The reclaimed sands will be moved to a stockpile adjacent to the PC-02 processing plant where it will be fed into the PC-02 plant using a Cat 980K size loader.

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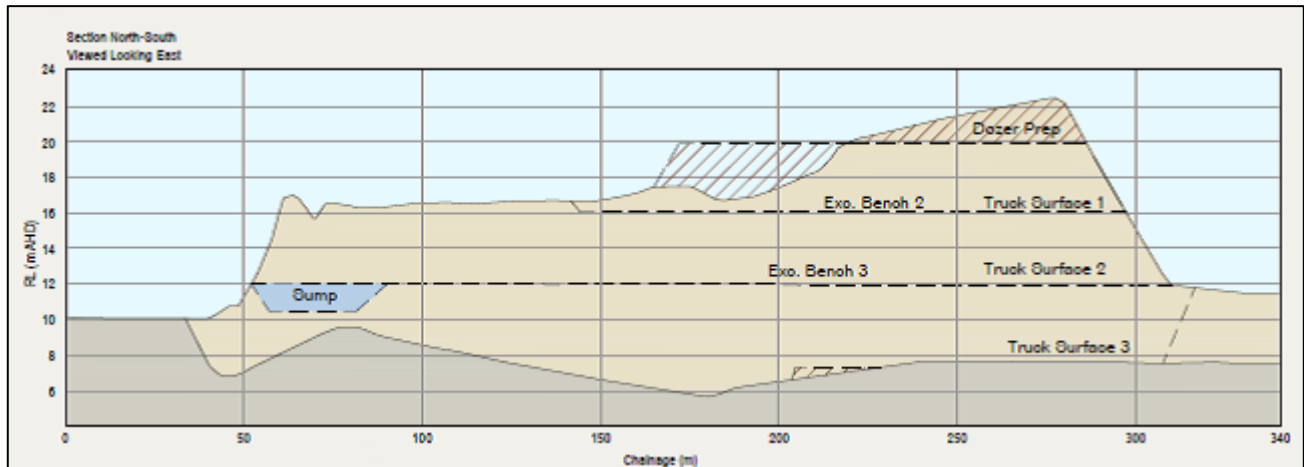


Figure 44- Sand Stockpile Reclamation

For the purposes of the LOA 100m wide strips have been used to generate quantities, however as the stockpiles are reclaimed smaller working strips are more likely to be used. This smaller width will not affect the Reserve estimate.

Basis for selection of mining production capacity.

GEMCO deposit

The mining production capacity is matched to the expected plant feed capacity of 10Mtpa (rom). Additionally 50ktpa (ROM) of G Quarry ROM product is planned to be produced, and blended with GL prior to export.

As strip ratio increases additional mining fleet is required to maintain the production capacity. In the final years of the mine life the annual plant throughput decreases as Blasor has determined it to be uneconomic to increase the mobile equipment fleet size at the end of the mine life. Changes to this assumption will not affect the Reserve.

PC02 Sands

The PC02 production rates are based on the rates use in the Definition Phase Study (DPS). These rates were based on financial evaluations undertaken throughout the Selection Phase Study (SPS) that formed the basis of the DPS.

Assumptions made regarding geotechnical parameters, hydrogeological, grade control and pre-production drilling.

GEMCO deposit

The geological model is interrogated with vertical blocks and adjustments are made to the waste quantities to account for the batter angles. Historically pit slopes have been the working slopes for dozer push (15°-20°) for the high walls, and a side cut slope elsewhere. The side cut slope batter varies by quarry, but is typically 34° and has a maximum of 45° (PRO-4078). Minor variations to this sidewall angle due to local conditions and operating philosophies do not have a material effect on the Reserves.

The batter angle within the ore zone is assumed to be vertical. As trucks are top loaded, that is they sit on the roof of the ore body to be loaded, no personnel or equipment is exposed to the vertical face.

The main geotechnical risk lies with the sidewalls. Undercutting these walls might result in local failures or exclusion zones from which the ore may not be recovered. Due to the shallow depth these effects will usually be confined to the current strip so the overall effect on the Reserve estimate is negligible.

Pit water is controlled by in pit pumping to allow the ore to be mined.

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Grade control drilling is used to refine the short term geological understanding of the orebody and short term grade control models are generated for this purpose. Day to day grade control is well established with field monitoring and direction given to operators by the grade control geologists

PC02 Sands

The geological model has been interrogated with vertical blocks. Geotechnical risks are controlled by mining the stockpile with a series of 4m high flitches. The sands will be expected to slump back to a natural repose angle away from the active face.

Water will be managed locally by ensuring adequate bench drainage.

It is not expected that further grade control or pre-production drilling will be required.

The Mineral Resource Model and Assumptions used for pit optimisation

Blasor LOA Stratiform (Blasor) was used for pit sequence optimisation. The basis of the Blasor Optimiser was:

- FY2015 Resource Model plus modifying factors (Table 34).
- Unit costs derived from the previous LOA and 5YP work (Table 42 and Table 43).

Most recent Value in Unit (VIU), pricing and exchange rate forecasts (Table 48 and Table 49).

Ore blocks had qualities, factored yield, resource category and distance from the concentrator assigned. These were used in Blasor to drive the optimiser and reported out to be used in the subsequent cost model.

Mining Dilution

GEMCO deposit

No mining dilution factor is included. While there is some dilution actually mined, there is not enough information to treat it separately from other modifying factors, so in reality it is included in the yield modifying factors.

PC02 Sands

The dilution mined at the base of the sand stockpiles is expected to be minor, and not material to the Reserve estimate.

Mining Recovery

GEMCO deposit

95% Resource recovery is assumed for Reserves. Table 31 shows the comparison from FY2014 for the areas within the mined ore polygon. There are some minor edge, or barrier, losses outside the mined ore polygon that account for the other 1% of the Resource loss.

| Summary | Survey Volume | Geo Model Volume | Difference (Survey - Model)/Model |
|--------------|------------------|------------------|-----------------------------------|
| FY14-Q1 | 997,760 | 984,915 | 1% |
| FY14-Q2 | 827,276 | 848,648 | -3% |
| FY14-Q3 | 548,576 | 497,004 | 10% |
| FY14-Q4 | 839,160 | 928,619 | -10% |
| FY15-Q1 | 898,146 | 891,863 | 1% |
| FY15-Q2 | 934,508 | 1,092,960 | -14% |
| Total | 5,045,426 | 5,244,008 | -4% |

Table 31 - Model Expected vs Survey Ore Mining Volume

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PC02 Sands

No mining loss has been assumed for the sands stockpile reclamation. As there is sand Resource left unmined at the end of mine life and mining loss will be replaced with other material, so the Reserve estimate will not be affected.

Minimum Mining Width

GEMCO deposit

The strip mining methods and ore extraction techniques based on a 40m wide pit have been well established at GEMCO and no changes are assumed for the reserve estimate.

PC02 Sands

There are no tight or confined areas within the sands stockpiles, so there is not expected to be any restrictions to mining due to working room. For the purposes of the LOA 100m wide strips have been used to generate quantities, however as the stockpiles are reclaimed smaller working strips are more likely to be used. This smaller width will not affect the Reserve estimate.

Type of Mining Equipment

GEMCO deposit

Key equipment and productivity used in the LOA plan is shown in Table 32. Truck capacity is based on the haul distance and varies significantly between years. There is no change to the existing mining equipment types in the Reserve Estimate. The current equipment is appropriate for the GEMCO deposit, mining conditions and mining methods. Currently on site there are 3 EX2500s and 13 D11s, with the LOA schedule showing this will increase to 4 EX2500s and 15 D11s over the life of the mine. Similarly truck numbers are currently 29 and are expected to increase to 34.

| Equipment | Units | Typical Rate |
|--------------------------|-------------|--------------|
| D11 Dozer | M tpa (wet) | 1.8 |
| Ex2500 Excavator (Waste) | M tpa (wet) | 6.4 |
| Cat 777 Truck (Waste) | M tpa (wet) | 1.5 |
| Ex2500 Excavator (Ore) | M tpa (wet) | 8.2 |
| Cat 777 Truck (Ore) | M tpa (wet) | 1.1 |
| Road Trains | M tpa (wet) | 1.5 |

Table 32 - Key Equipment Orebody

PC02 Sands

The expected equipment to be used in the PC02 process is shown in Table 33. The DFS equipment sizing accounted for 100% of the feed coming from the stockpiles, so the equipment is oversized for the expected duty, and will not be required to work continuously. Only one unit of each is expected to be required.

| Equipment | Units | Typical Rate |
|------------------------------------------|-------------|--------------|
| Caterpillar 374DL backhoe excavator (*1) | M tpa (wet) | 0.8 – 2.0 |
| Caterpillar 740B EJ articulated truck | M tpa (wet) | 0.8 – 1.2 |
| Caterpillar 980K size FEL | M tpa (wet) | 0.8 – 2.0 |
| Caterpillar D8 size dozer | M tpa (wet) | Na |
| Road Train | M tpa (wet) | 0.55 |

Table 33 - Expected Key Equipment PC02 Project

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Use of Inferred Resources

GEMCO deposit

Inferred Resources are included in the LOA Plan. The tonnage and proportion of inferred resource by year is shown in Figure 45. There is very little Inferred Resource included in the first 3 years.

The spatial nature of the GEMCO deposit means that the large areas of inferred generally occur around the periphery of the deposit (Figure 37) and could simply be avoided or dropped out of the mining sequence. They do not financially support the Measured and Indicated Resources, so there is little risk to the overall Reserve in including them in the mine plan.

A risk review was undertaken on 26/3/2015 and found no issues with the inclusion of Inferred Resources in the schedule that underpins the Reserve (RBO Resource & Reserve Risk Review FY2015).

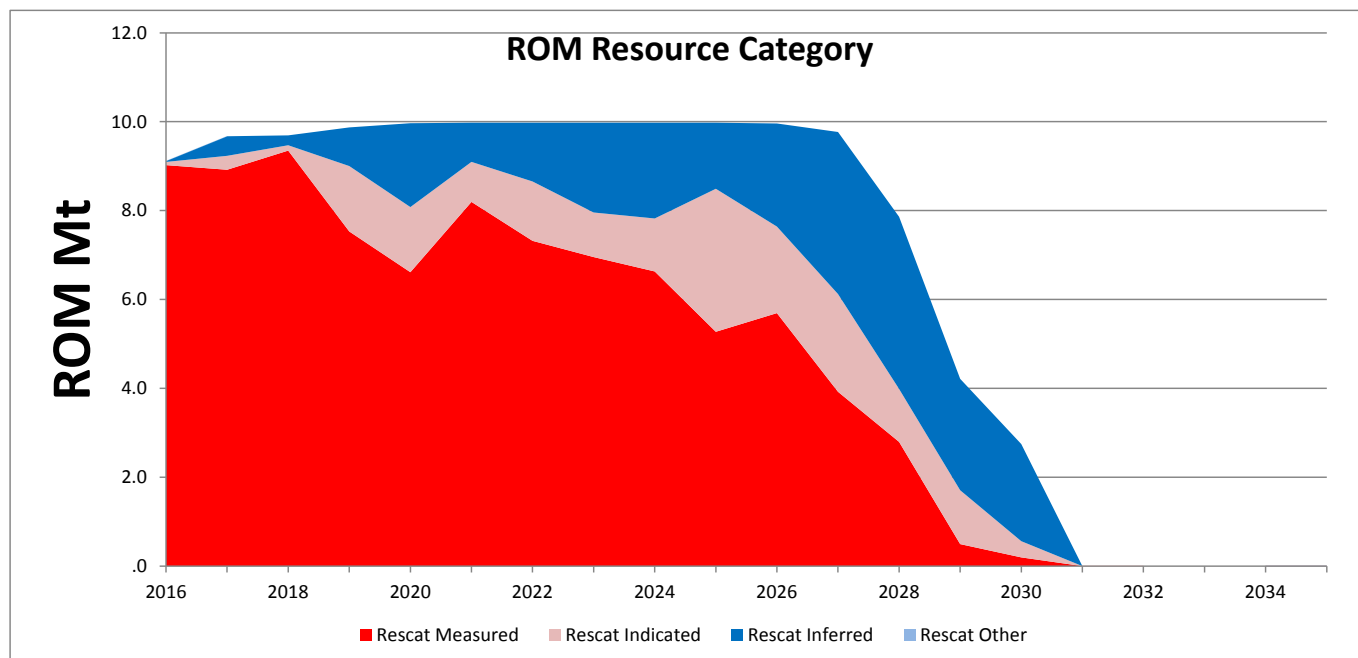


Figure 45 - Inferred Resource in Orebody Sequence

PC02 Sands

The majority of the PC02 Feed from reclaiming stockpiles is from Indicated Resource (Figure 46). The Inferred Resource included does not overlie other Indicated Resource, rather it sits alongside it, and could be avoided if necessary (Figure 37). There is additional unmined Indicated Resource left at the end of the schedule, so there is little risk to the declared Reserve by including Inferred Resource in the plan.

A risk review was undertaken on 26/3/2015 and found no issues with the inclusion of inferred Resources in the schedule that underpins the Reserve (RBO Resource & Reserve Risk Review FY2015).

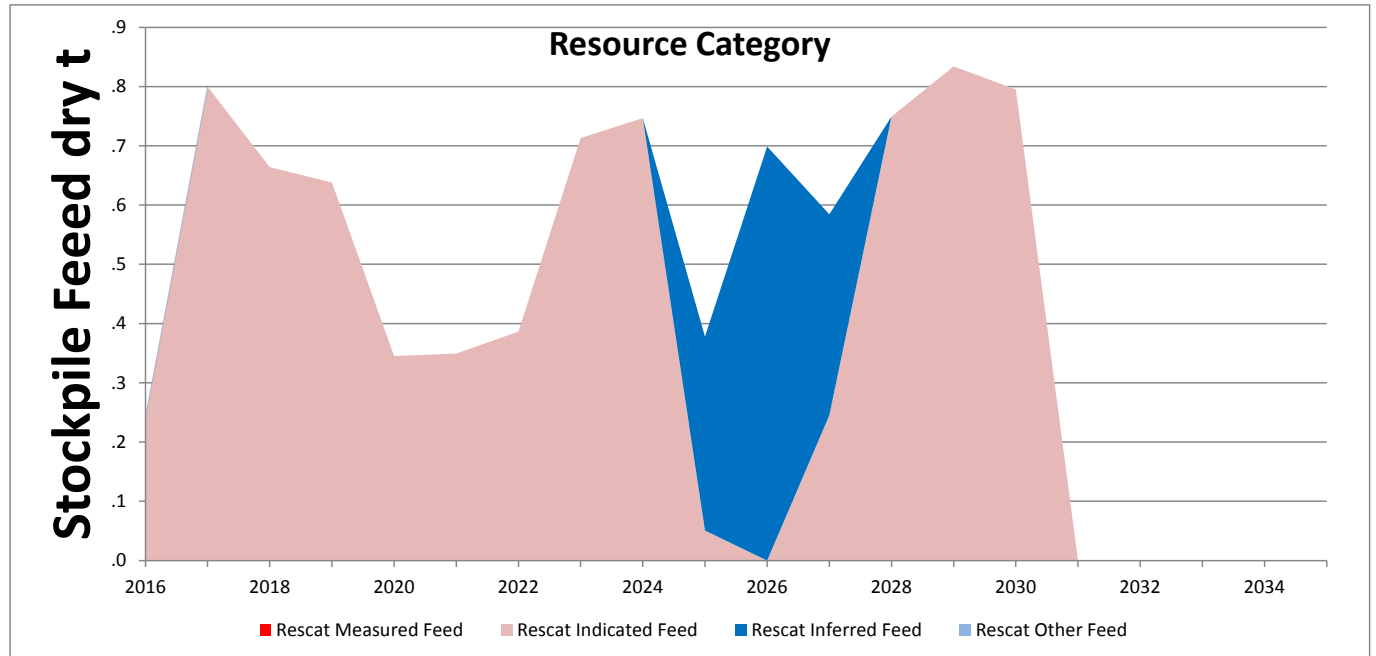


Figure 46 - Inferred Resource PC02 Stockpile Feed

Infrastructure requirements of the selected mining method

GEMCO deposit

The existing infrastructure is appropriate for the current mining method and rates.

PC02 Sands

The only additional mining infrastructure required for PC02 are some minor haul roads between the sands stockpile and PC02 plant. All other infrastructure is associated with the processing and transport of the sands.

11.4 Metallurgical factors

Proposed Metallurgical Process

GEMCO deposit

The GEMCO primarily uses a beneficiation process that consists primarily of separation by size, with the scrubbing and screening of the -0.65mm material that contains large amounts of clay, followed by density with Heavy Media Separation. The processes used for the key products assumed in the LOA plan are:

- GEMCO Lump (GL) and Metallurgical Fines (MF): size separation in the scrubber followed by density separation
- Bypass Products. Size separation only - removal of sands and slimes in the scrubber

Material from a certain area of the deposit, known as G quarry, has a significant amount of fine ore and the expectation of low yields in the concentrator. Small quantities of this ore are screened and the undersize sold in a blend with GL. Previously this GQ material was sold as a standalone product, but recent Transportable Moisture Limit (TML) concerns have stopped the sale of the standalone product.

The existing beneficiation processes are considered appropriate to the GEMCO mineralisation. A flow sheet is included in Appendix 11.

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PC02 Sands

The PC02 Process is based on using Reflux Classifiers to separate material. The reflux classifier technology was selected as it provides the best metallurgical performance and lowest operating and capital cost (PC02 DPS, 2014). While Reflux Classifier technology is new for GEMCO it is not a novel technology and is widely used for separation based on size or density.

A flow sheet is included in Appendix 11.

Metallurgical Test Work

GEMCO deposit

Metallurgical test work and domaining is performed as part of the drilling and Resource estimation process. The laboratory total yield is adjusted, based on geological domains, to give a domained laboratory yield, also known as the Resource Recovery factor. A yield modifying factor is applied to the domained laboratory yields to give the yield used in the LOA planning, valuation and Reserve. This adjustment is based on the reconciliations for the 2 years prior to the creation of the model for the LOA. This factor is monitored for the following 3 quarters of performance, to allow actual performance to be monitored.

Throughout FY2015 there was a very poor reconciliation of the factored yields and a review process was undertaken. External (Ehrig et al, 2015) and internal reviews identified that:

- Some of the areas mined during FY2015 had different ore characteristics to the areas mined during the preceding 2 years, which were used to set the factors.
- The geological domains used in yield modelling go from the centre to the edge of the deposit, where significantly different metallurgical properties are encountered. The central areas, which are the paleo plateaus, are where the majority of the previous mining has occurred, and the adjustment of the lab yield to actual yield is reasonably consistent. As GEMCO has started mining ore around the edges and off the paleo plateaus this correlation is different, and as yet is not well understood.
- The measurement of actual yield, and correlation with particular quarry areas, is hampered by the lack of head grade sampling and the large ROM stocks.
- There has been significant changes to the plant feed rates over the last 3 years, which may be affecting yield.

These issues are illustrated in Figure 47, which shows that there is not a consistent variation between the domained laboratory yield and the actual yield. As such the yield factors were recalculated based on the period Q3FY2013 to Q2 FY2015 and a revised domained yield was generated for AS, G and C quarries.

For the declared Reserve the adjustments to the domained laboratory yields are:

- Lump Product +10%
- Fine Product +12%

Unlike previous years these have been selectively applied. Blocks in C, G and AS quarries had no adjustment applied. Blocks that have domained laboratory yields less than 55% have the full correction applied, and blocks above 65% have no correction applied. A linear transition between full application and no application occurs for blocks that have domained laboratory yields between 55% and 65%. A comparison with previous adjustments is shown in Table 34.

Although not explicitly used in the reserve estimate, the assumed moistures used for planning and reconciliation are:

- Plant Feed – 11.5%
- Lump Product - 3%
- Fine Product - 5%
- ROM Product – 10%.

The FY2015 Q3 reconciliation did not show enough evidence to change the yield adjustments.

To ensure these new factors did not affect the economic extent of mining the optimiser was re-run using the new factors. This resulted in the same mining extents and some minor variations to the sequence.

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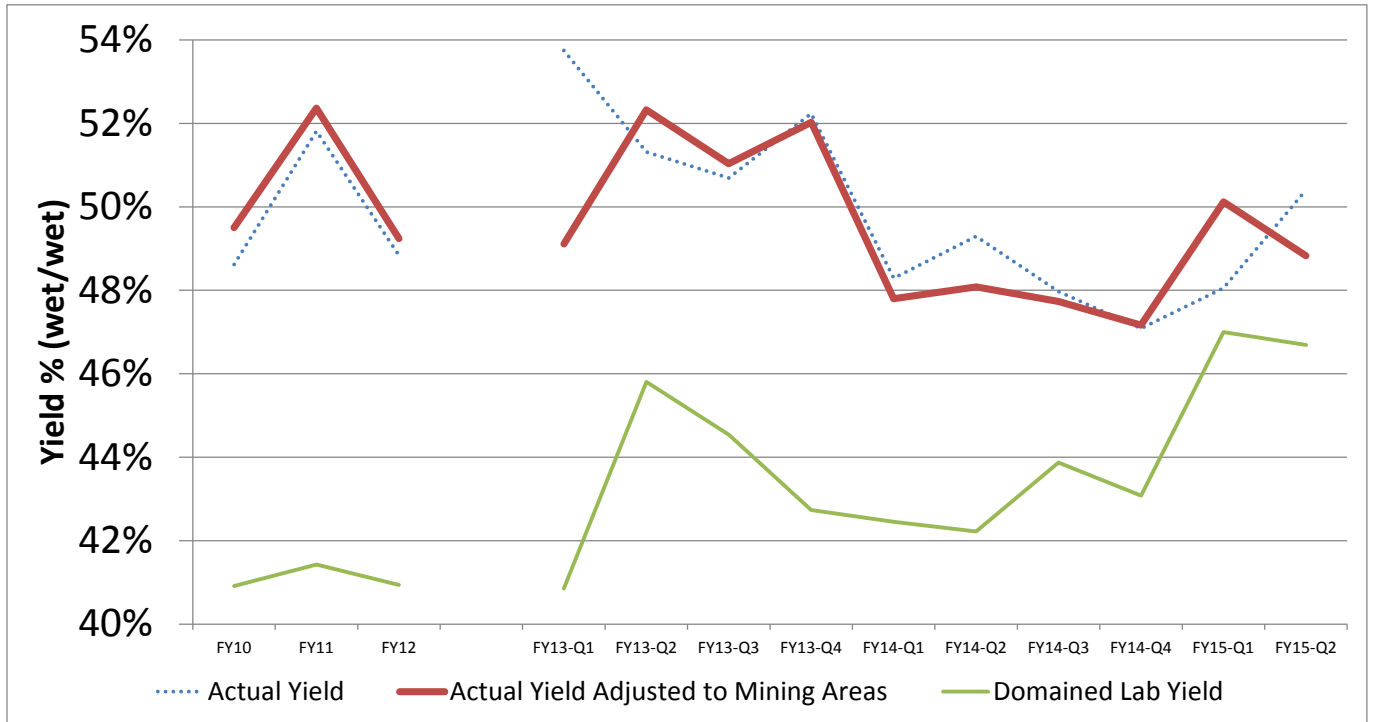


Figure 47 - Actual Yield Compared to Domained Laboratory Yield

| Reserve Set | Lump Factor | Fines Factor |
|---------------------------------------------|-------------|--------------|
| FY2015 (selective application for Reserves) | 1.10 | 1.12 |
| FY2015 LOA | 1.14 | 1.14 |
| FY2014 | 1.13 | 1.19 |
| FY2013 (first to include 11% SG adjustment) | 1.16 | 1.22 |
| FY2012 | 1.148 | 1.337 |
| FY2011 | 1.148 | 1.337 |
| FY2010 (old geological model) | 1.221 | 1.243 |
| FY2009 | 1.219 | 1.177 |
| FY2008 | 1.219 | 1.177 |
| FY2007 | 1.258 | 1.125 |
| FY2006 | 1.334 | 1.096 |
| FY2005 | 1.158 | 1.211 |

Table 34 - Yield adjustment

To estimate a yield for the bypass material it was assumed that the middlings / floats (waste stream from the DMS circuit) was 8% of the DMS input, and contained 10% by mass Mn metal. An example of this calculation is shown in Table 35.

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| | Feed Tonnes (dry) | Product tonnes (dry) | Product Mn % |
|-----------------------------------------|-------------------|----------------------|-----------------------|
| Block Model Values (All DMS product) | 100 | 50 | 45.0% |
| Equivalent Block Bypass | 100 | 54.3 (~ 9% more) | 42.2% (~ 6% lower) |

Table 35 - DMS, Bypass and ROM product yield

Table 36 shows the key yield metrics of the LOA schedule and the updated / revised schedule, with the new yield factors, that was used as the basis for the Reserves.

| | LOA Plan | Revised Plan |
|--------------------------------|----------|--------------|
| Concentrator Process | | |
| Feed tonnes (Mt dry basis) | 118.9 | 118.9 |
| GL & MF Product (Mt dry basis) | 61.8 | 60.5 |
| Bypass Product (Mt dry basis) | 3.7 | 2.8 |
| Concentrator Yield (dry/dry) | 55% | 53% |
| G Quarry ROM Process | | |
| Feed tonnes (Mt dry basis) | 0.65 | 0.62 |
| GQ Product (Mt dry basis) | 0.59 | 0.56 |
| G Quarry Yield (dry/dry) | 90% | 90% |
| PC02 Process | | |
| Stockpile Feed (Mt dry basis) | 8.3 | 8.9 |
| On line Feed (Mt dry basis) | 13.0 | 12.5 |
| PC02 Product (Mt dry basis) | 7.1 | 7.2 |
| PC02 Yield (dry/dry) | 34% | 33% |
| All Processes Yield (dry/dry) | 52% | 50% |

Table 36 - Yield by Process

There is 6.1Mt of G Quarry ore planned to be fed into the concentrator. Currently G Quarry is not allowed to be fed into the concentrator because of perceived low yield, poor yield prediction and throughput issues, so this G Quarry feed has been arbitrarily deferred until year 10 of the schedule. As such the 6.1Mt of G Quarry fed after year 10 is not included in the Reserve, in the same way Inferred Resource is included in the LOA valuation, but not the Reserves. A program of metallurgical test work specifically focusing on the G Quarry performance in the concentrator is required before this area can be included in the Reserve.

PC02 Sands

As a part of the PC02 study process the following metallurgical test work was undertaken:

- Heavy liquid separation (HLS) of each drill hole to determine yield and grade

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- Pilot plant outputs including HLS analysis by size fraction of feed and product stream samples
- LIMM simulation

These tests were designed to be specifically representative of the expected PC02 process.

The results of this test work gave an indicative head grade vs yield relationship. An adjustment to this yield was made to account for fines loss through the reflux classifier to give the yield relationship shown in Figure 48. This yield relationship formed the basis of the Reserve estimate, with the outcomes shown in Table 36.

As the PC02 Sands stockpiles are reasonable consistent, no specific geo-metallurgical domaining was used.

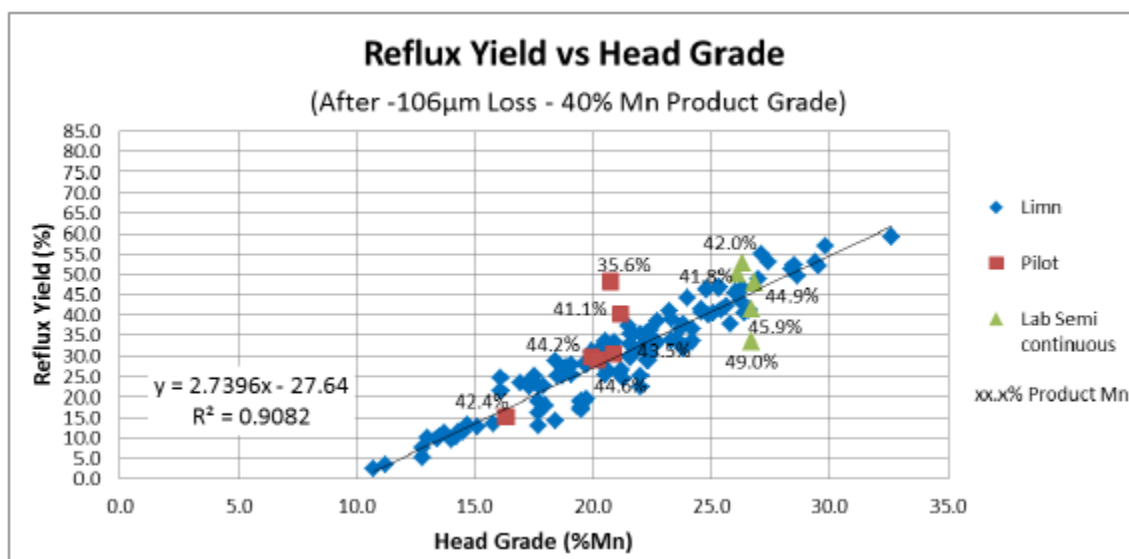


Figure 48 - PC02 Yield

Assumptions and Allowances for Deleterious Elements

The Value in Use (VIU) calculation derived by the technical marketing team is used to determine the relative value of products compared to a standard Mn ore. Deleterious materials are included in the VIU estimate. As such they have been considered in the application of revenue values to the schedule.

Downstream Product Loss

The VIU pricing calculation accounts for product loss associated with smelting/ refining or other downstream processes. As such they are accounted for in the financial evaluation.

Bulk Sample and Pilot Scale Test Work

GEMCO deposit

Not applicable – operating mine.

PC02 Sands

An on-site pilot plant was part of the Selection Phase Study (SPS). The pilot plant results were used in the calculation of yield, and the pilot plant product was used for market testing. The other main learnings from the pilot plant were the product moistures and product stockpile drainage rates, which are important to predict the handleability and shipping characteristics of the PC02.

The pilot plant and pilot plant feed is considered representative of the PC02 plant and PC02 sands feed.

Product Specifications and Mineralogy

The expected product suite, marketing names, and how they relate to the concentrator outputs, are:

- GL-01 is the lump product output from the heavy media drum (HMD).

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- SL-75 is the bypass lump product that comes out of the scrubber but does not go through the HMD.
- MF-02 is the portion of the output from the heavy media fines circuit (HMS) that is not blended with the output from the PC02 plant.
- SC-02 is the portion of the bypass fines (material that has been through the scrubber but not the heavy media circuit) that is not blended with PC02. This only occurs in FY2016 prior to the full production rates from the PC02 plant.
- MF-PC02 Blend is a blend of 30% PC02 plant (on-line and reprocessed sands) and 70% bypass and heavy media processed fines.
- GQ-GL is a blend of 75% GL and 25% GQ material. GQ material is the undersized screened fraction of G Quarry ore.

Lump products are nominally 7mm to 75mm size. Fine products are nominally 0.5 to 15mm in size. PC02 is nominally 0.1mm to 1.5mm in size. Figure 49 shows the annual product quantities.

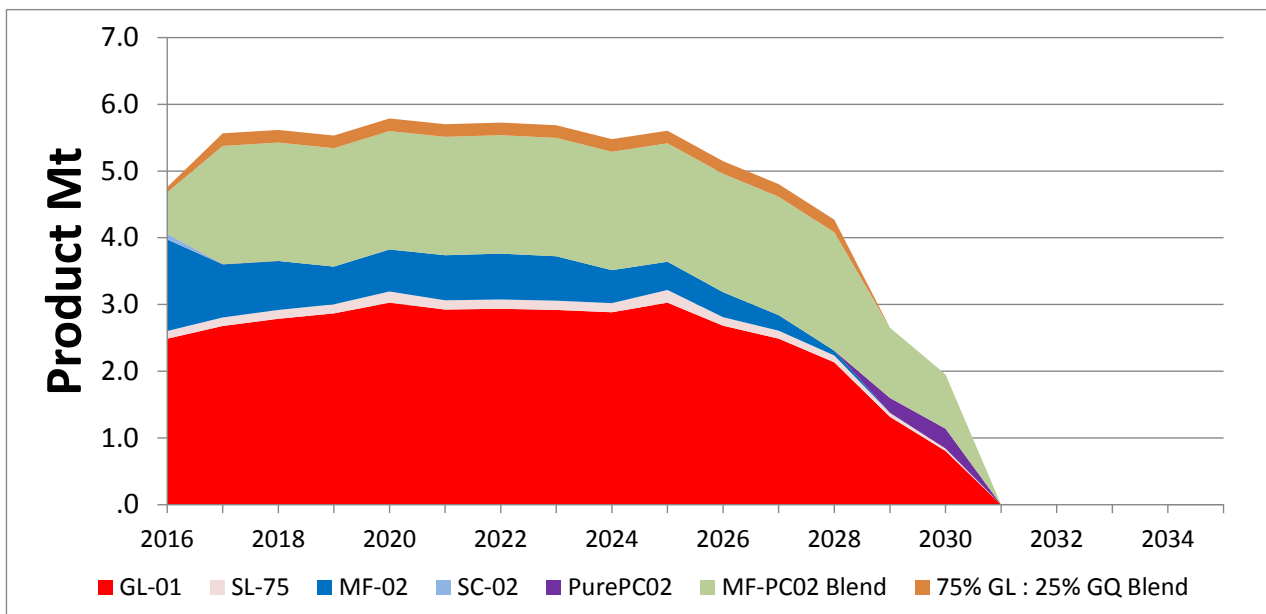


Figure 49- Product Quantities

GEMCO deposit

GEMCO is expected to see a gradual decline in Mn grade over the life of the deposit (Figure 50), rather than a sudden mineralogy change. Product specifications are set annually for the GEMCO products, and are reviewed based on what is forecast for the following 12 months. As such the specification will change with any change to grade or mineralogy. The average qualities for selected years are shown in Table 37 and Table 38.

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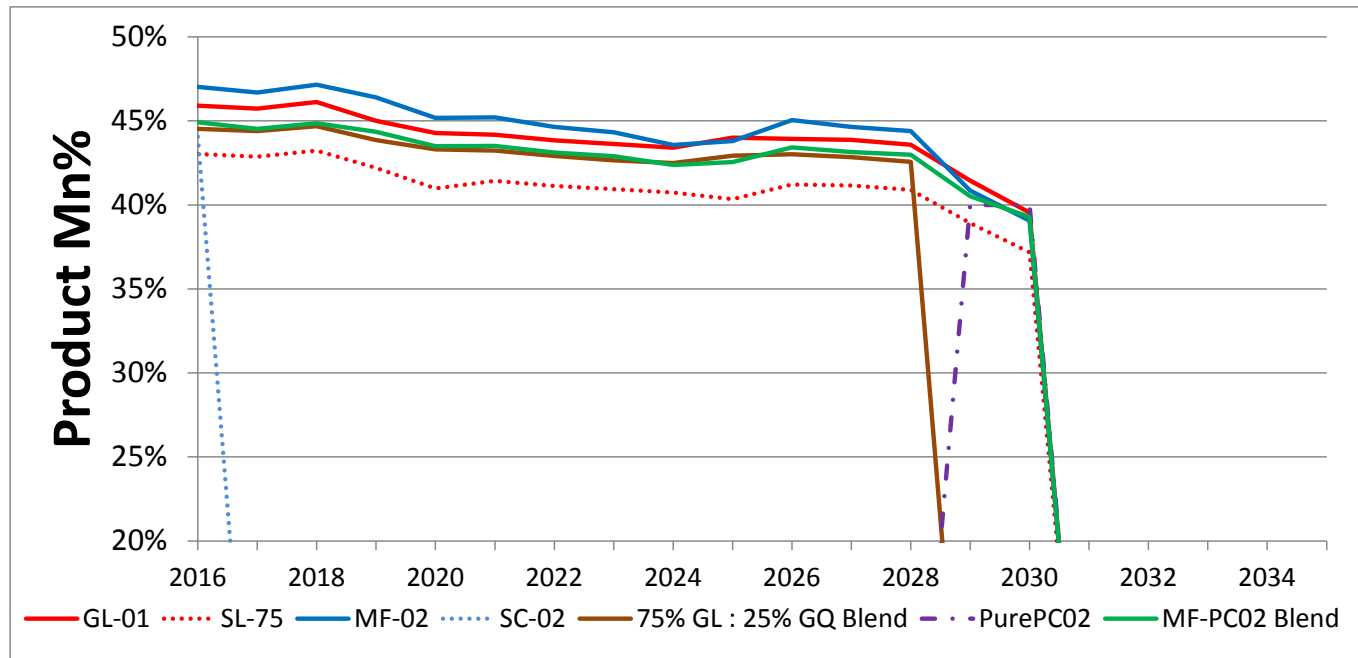


Figure 50 - Mn Grade profile

| Year | Mn (%) | Fe (%) | SiO ₂ (%) | Al ₂ O ₃ (%) | P (%) |
|------|--------|--------|----------------------|------------------------------------|-------|
| FY17 | 45.7 | 5.2 | 10.1 | 3.9 | 0.09 |
| FY23 | 43.6 | 5.1 | 12.2 | 4.6 | 0.08 |

Table 37 – GL Average Quality

| Year | Mn (%) | Fe (%) | SiO ₂ (%) | Al ₂ O ₃ (%) | P (%) |
|------|--------|--------|----------------------|------------------------------------|-------|
| FY17 | 46.7 | 5.1 | 9.1 | 3.5 | 0.10 |
| FY23 | 44.3 | 5.1 | 11.6 | 4.2 | 0.09 |

Table 38 – MF Average Quality

PC02 Sands

The drilling done on the sands stockpiles does not indicate any change in mineralogy over the life of the Reserve.

When sold as a Pure PC02 product the typical specifications are shown in Table 39. However the majority of the PC02 is planned to be sold in a 70% MF : 30% PC02 blend, with quality shown in Table 40. The advantage of a blended product is that it improves the pricing relativity of the PC02 component of the blended product.

| Mn (%) | Fe (%) | SiO ₂ (%) | Al ₂ O ₃ (%) | P (%) | CaO (%) | MgO (%) | H ₂ O(%) | Size(mm) |
|--------|--------|----------------------|------------------------------------|-------|---------|---------|---------------------|----------|
| 40.0 | 5.7 | 17.0 | 4.6 | 0.06 | 0.05 | 0.15 | 9.0 | -1.5 |

Table 39 - PC02 Typical Specifications

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| Year | Mn (%) | Fe (%) | SiO ₂ (%) | Al ₂ O ₃ (%) | P (%) |
|------|--------|--------|----------------------|------------------------------------|-------|
| FY17 | 44.5 | 4.7 | 11.3 | 4.8 | 0.08 |
| FY23 | 42.6 | 4.8 | 13.1 | 5.3 | 0.07 |

Table 40 – 70% MF : 30% PC02 Average Quality

Plant Capacity

GEMCO deposit

The LOA plan assumed the process plant has a feed capacity defined by the average annual feed multiplied by the annual hours (Table 41). G Quarry production was an additional 56Ktpa to give 50Ktpa product. At no time was the port limit of 5.9Mtpa (wet) reached.

| Year | FY2016 | FY2017 | FY2018 | FY2019 | FY2020 on |
|-----------------------------|--------|--------|--------|--------|-----------|
| Annual Production Hours (h) | 7121 | 7143 | 7164 | 7186 | 7207 |
| ROM Feed Rate (wet tph) | 1360 | 1370 | 1380 | 1390 | 1400 |
| Total Annual Feet (Mt wet) | 9.7 | 9.8 | 9.9 | 10.0 | 10.1 |

Table 41 - Concentrator Capacity

PC02 Sands

The PC02 plant is designed to product 0.5Mtpa (dry) product. To achieve this, an average feed rate of 1.4Mtpa (dry) with a peak of 1.7Mtpa (dry) is required. The plant nameplate capacity is 270 tph (dry) for 7,200 h/a, which gives a feed capacity of 1.9Mtpa (dry basis).

11.5 Environmental

GEMCO deposit

Status of Studies

The mining areas included in this Reserves statement are on existing mining leases with appropriate environmental approval.

Waste Characterization and Tailings Disposal

There are no known issues with spoil characterization or tailings disposal. Waste is returned to the previously mined voids. Tailings are stored in holding dams known as Tailings Storage Facilities (TSF). Additional TSFs are constructed as required.

Other

Other permitting requirements that occur in the normal course of business, such as discharge licenses and dam construction, are not considered to have a material effect on reserves.

PC02 Sands

The mining areas included in this Reserves statement are on existing mining leases with appropriate environmental approval. Tailings will be stored in the same TSF structures as the concentrator tailings. No extra permits are expected to be required for the PC02 plant operation.

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11.6 Infrastructure

GEMCO deposit

Sufficient infrastructure is available, or can be readily be made available, for the assumed production rates in the LOA plan that underpins the Reserve. As such the following issues are not applicable:

- appropriate infrastructure
- availability of land for plant development
- power
- water
- transportation
- the ease with which the infrastructure can be provided, or accessed.

The additional labour and accommodation requirements that arise from increased EME will be managed from the current GEMCO labour pool and township management strategies. Cost allowances have been made in the LOA plan for these items.

PC02 Sands

Figure 51 shows the expected PC02 plant layout and Figure 52 shows the expected PC02 port layout. The assumed infrastructure choices made in the DPS has been peer reviewed and approved. The key pieces of additional infrastructure to be constructed are:

- PC02 Plant including:
 - Power supply
 - Electrical reticulation and lighting
 - Water management and fire suppression
 - Compressed air reticulation
 - On-line tailing tie-in
 - Tailings disposal
 - Product load out conveyor and 300t product bin
- Port facilities including:
 - Covered Stockpile shed
 - Remediation of Product Reclaim Tunnel
 - Product Blending (PC02 with MF) setup.

The additional labour and accommodation requirements will be managed from the current GEMCO labour pool and township management strategies, and have been allowed for in the PC02 financial evaluation.

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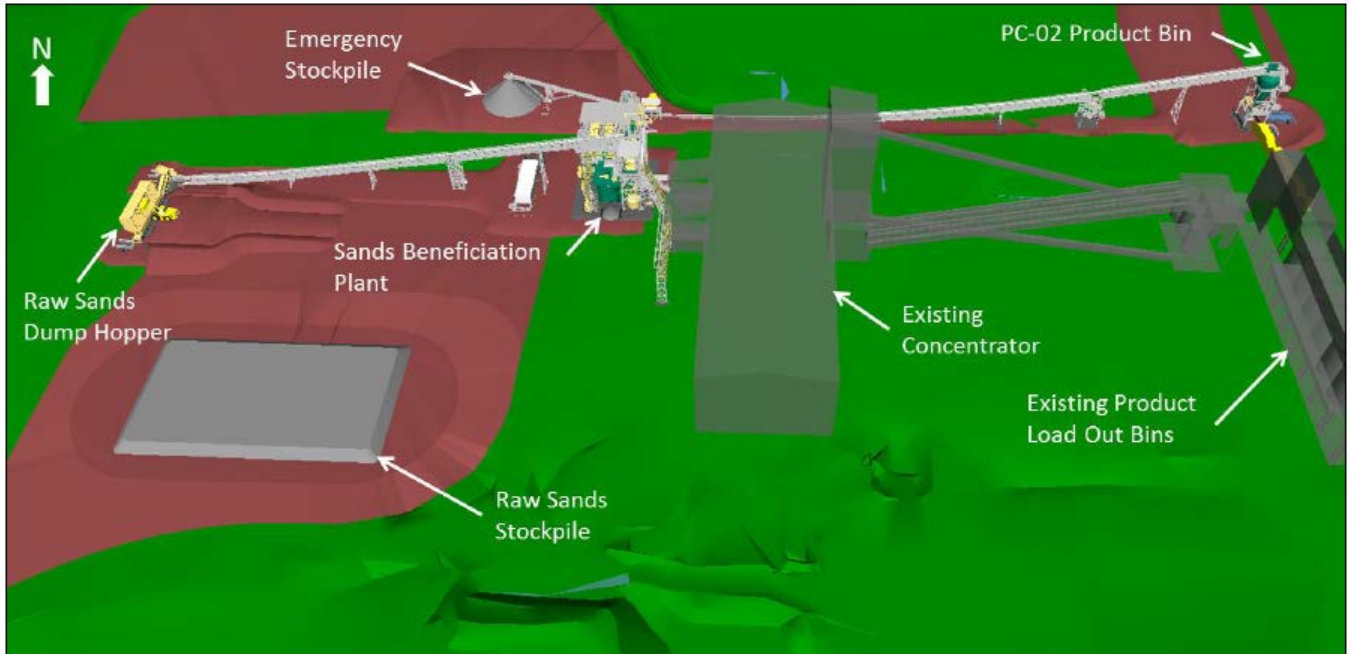


Figure 51 - PC02 Plant Layout

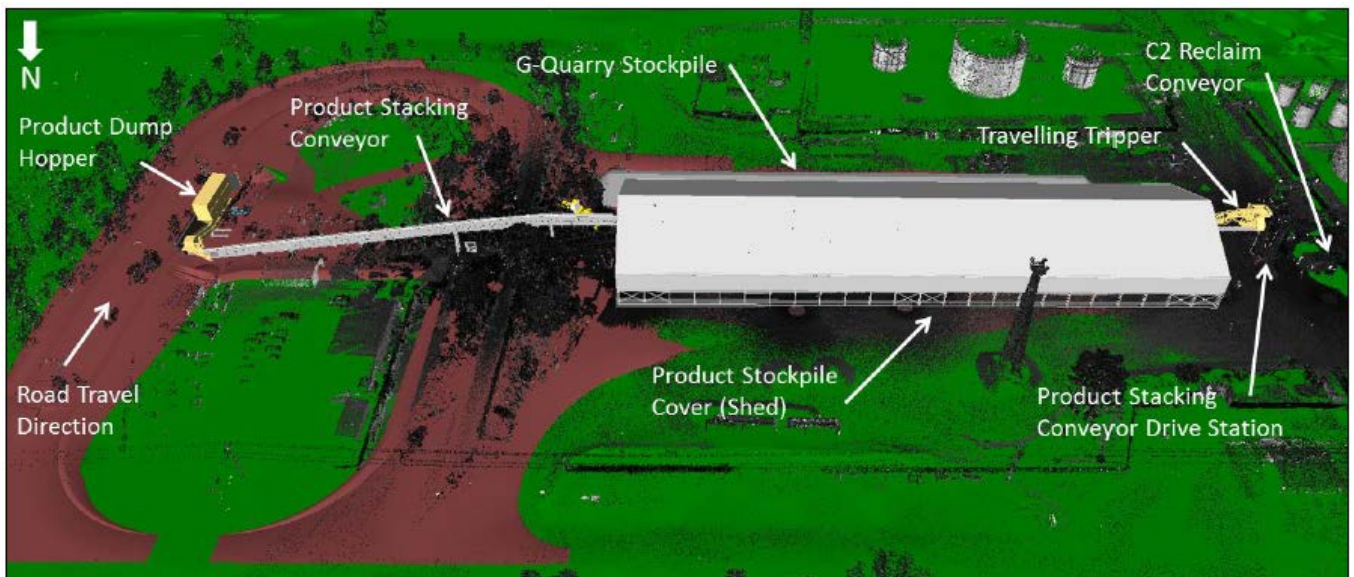


Figure 52 - PC02 Port Layout

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12. Market and commodity price assumptions

12.1 Cost factors

The LOA plan was optimized using Blasor LOA Stratiform (Blasor). The quantity outputs were put into a separate financial model for more detailed financial evaluation. The capital and operating costs were derived from the equipment hours and numbers required to meet the quantity schedule.

Cost Elements used in Pit Optimisation

The financial assumptions that were used within Blasor in order to generate the NPV optimised schedule are shown in Table 42. These costs are based on the previous 5YP costs, which were calibrated against the actual costs.

| | Units | Value | Comment |
|-----------------------------------|----------------|-------|----------------------------------------------------------------|
| Annual Fixed Cost | A\$M pa | 40 | Includes allowance for ancillary equipment |
| Mining Costs | | | |
| Clearing / Rehabilitation | A\$K / ha | 67 | |
| Topsoil Stripping | A\$/bcm | 7.71 | |
| Excavator | | | |
| Excavator | A\$/h | 1,255 | Includes allowance for ancillary equipment |
| Production Dozer | | | |
| Production Dozer | A\$/h | 473 | Includes allowance for ancillary equipment |
| Production Trucks | | | |
| Production Trucks | A\$/h | 430 | Includes allowance for ancillary equipment |
| Ore Drill And Blast Cost | | | |
| Ore Drill And Blast Cost | A\$/t | 0.31 | No ore blasting in A / AS or G Quarries |
| Ore Processing | | | |
| G Quarry Screening | A\$/ROM feed t | 2.42 | |
| PCS | A\$/ROM feed t | 2.90 | ROM EME and crusher |
| Scrubber | A\$/ROM feed t | 3.09 | Includes allowance for TSF construction costs |
| Additional Bypass Handling | A\$/Bypass t | 0.50 | On the product tonnes of Bypass |
| DMS | A\$/DMS feed t | 2.23 | The additional cost per tonne of feed prep output into the DMS |
| PC02 process | A\$/feed tonne | 3.31 | |
| PC02 Stockpile Reclaim | A\$/feed tonne | 2.08 | Not applied to the on-line feed component |
| Product Transport and Port | | | |
| Additional for PC02 | A\$/Product t | 2.26 | |

Table 42 - Costs used in Blasor for Optimisation

Project Capital and Sustaining Capital Costs

Apart from the PC02 project, the LOA Base Case is essentially a continuation of business as is at GEMCO. As such the main capital cost is the cost of additional mining fleet that is required as strip ratio increases. As mining fleet is added there are

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additional capital costs in the township to cope with additional operators. Some resource drilling costs are also considered capital costs.

The PC02 capital costs are based on the DPS study.

The main sustaining capital costs incurred at GEMCO are for:

- the replacement of existing EME or infrastructure
- the ongoing construction of TSF facilities
- Opening new quarry areas to allow mining to continue.

The capital cost assumptions used within the optimiser are shown in Table 43 and Table 44. The total capital costs in the financial model are shown in Table 45.

| | A\$M |
|-------------------------------------|--------------------------------------------|
| PC02 Plant and Port facilities | 147 |
| Access J Quarry | 30 |
| Southern Haul Road | 3 |
| Ore West of Highway | 5 |
| Cross Ndunga Creek | 5 |
| Mine Ndunga Creek (Diversion costs) | 10 |
| Mine Rowell Highway Ore | 80 |
| Additional D11 Dozer | 3.3 for 5,330 hours / annum |
| Additional excavator fleet | 30 gives an additional 6,051 hours / annum |

Table 43 - Capital Increments in Blasor

| | | |
|-------------------|----------------|------|
| Excavator | A\$/h | 133 |
| Production Dozer | A\$/h | 37 |
| Production Trucks | A\$/h | 42 |
| Ore Processing | A\$/ROM feed t | 1.09 |

Table 44 - Blasor Sustaining Capital Cost Allowance

| | A\$M |
|----------------------------------------------------------|------|
| PC02 Plant and Port facilities (approved growth capital) | 149 |
| Additional Equipment | 78 |
| Replacement EME | 274 |
| Pit Access / Opening Costs | 111 |
| Tailings and Water Management | 393 |
| Other Sustaining | 625 |
| Total | 1630 |

Table 45 – Capital Costs in Financial Model

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Operating Cost Estimation

Project operating costs have been built up using the LOA quantity schedule. Key production equipment hours were determined in the schedule. Ancillary equipment hours were determined by ratio calculations. These hours were then used to build up the operating costs within the GEMCO financial model. A summary of the average cost result from the GEMCO financial model is shown in Table 46.

| Excavator Prestrip | A\$/prime bcm | 4.78 |
|-------------------------|---------------|-------|
| Dozer Stripping | A\$/prime bcm | 2.27 |
| Ore Mining | A\$/ROM t | 4.27 |
| Concentrator Processing | A\$/Product t | 10.94 |
| PCO2 Processing | A\$/Product t | 14.11 |

Table 46 - Financial Model Operating Costs

Allowances for the content of Deleterious Elements

Changing Manganese grades, essentially from increasing amounts of deleterious materials in the products have been allowed for in the revenue calculations. They do not affect the cost estimates.

Derivation of Transport charges

Freight costs are included in the determination of the product price in the revenue calculations. The on Eylandt transport costs are included in the operating costs.

Basis for forecasting treatment and refining charges

The concentrator process operating costs are included in the financial model and have been calibrated with historic performance. The PCO2 processing costs are based on DPS estimates.

Penalties for failure to meet specification

This is not applicable for GEMCO ore. As the GEMCO ore specifications are revised annually there is no long term specification that has to be met.

Other downstream processing charges

All other downstream processing charges are included in the VIU revenue estimates.

Royalties payable

All royalties are included in the LOA financial modelling and a simplified calculation is used in Blasor. The different Royalties have different calculations for capital allowance, but are essentially applied to "Revenue – Operating Cost – Capital Recognition" at the rates shown in Table 47. Ore that is shipped to TEMCO has a discounted royalty applied.

| Royalty | Rate |
|---------|-------|
| NT | 20% |
| GEAT | 1.25% |
| ALC | 1.33% |

Table 47 - Royalty

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Closure costs

Closure costs are not applied to the Optimiser model but a cost of A\$593M (real) is allowed in the GEMCO financial model. A\$24M of this is applied before mining finished, A\$523M of this occurs in the first 5 year after mining has finished, with the balance used for ongoing monitoring and remediation.

12.2 Revenue factors

Manganese is priced by MTU (a 10kg lump of metal), and the value of each MTU depends on the grade of the Manganese. The relationship between grade and the standard unit price used in Blasor is shown in Table 48.

The base price and exchange rates used in Blasor, are shown in Table 49. These are updated to the most recent forecasts within the financial model. The base price accounts for demand, supply and stock situations including customer analysis, competitor analysis, identification of major market windows and volume forecasts.

The long term mining limit is determined within Blasor, based on the economic assumptions, and is checked by ensuring positive cash flow for each year of mining within the financial model.

| Product | Formula Equation | a | b | Sinter | SL |
|------------------------------------------------------|----------------------------------------------|--------|--------|--------|------|
| Oxide Lump (GL and Bypass lump) | $P = a * Mn + b$ | 0.0205 | 0.0966 | | |
| Oxide Fines (All Other products including blends) | $P = [(a * Mn + b) * SL - Sinter / Mn] / SL$ | 0.0205 | 0.0966 | 30 | 5.50 |

| Variable | Unit | Description |
|----------|-----------|-------------------------------------------|
| P | % | Realised Price % relative to SL benchmark |
| Mn | % | Manganese content |
| a | | Coefficient |
| b | | Constant |
| Sinter | US\$/dmt | Sintering Cost |
| SL | US\$/dmtu | SL Price Reference |

Table 48 - VIU Relativity Calculation

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| Financial Year | 44% Mn CIF China USD/ mtu real | USD/AUD real |
|----------------|--------------------------------|--------------|
| 2015 | \$4.83 | 0.92 |
| 2016 | \$5.05 | 0.90 |
| 2017 | \$5.15 | 0.89 |
| 2018 | \$5.21 | 0.88 |
| 2019 | \$5.27 | 0.87 |
| 2020 | \$5.33 | 0.86 |
| 2021 | \$5.40 | 0.86 |
| 2022 | \$5.46 | 0.85 |
| 2023 on | \$5.52 | 0.84 |

Source: FY15 CPP mid prices update_20140331.xlsx & Valuation Exchange Rate Forecasts.xls (May 14 protocols)

Table 49 - Base Price and Exchange Rate used in Blasor Optimisation

12.3 Market assessment

The Market assessment is made by the Marketing team when they are developing the base price protocols. This market assessment has not been “second guessed” by the Competent Person. The market assessment is considered:

- the demand, supply and stock situation
- consumption trends and factors likely to affect supply and demand into the future
- customer and competitor analysis
- identification of likely market windows for the product
- price and volume forecasts and the basis for these forecasts
- saleable product specifications.

12.4 Economic

Relevant Economic assumptions can be found in the commercially sensitive financial model. Other economic factors not stated in the revenue or cost sections are given in Table 50.

| | |
|-------------------------------------|----------|
| NPV (1 Jan 2015) | US\$2.6B |
| Discount Rate | 7.5% |
| Inflation Rate Australia after FY22 | 2.4% |

Table 50 - Other NPV factors

The NPV is most sensitive to changes to the revenue assumptions (Figure 53). However, even under a “Low” pricing scenario, which has benchmark prices of US\$2.90 - \$3.01 / dmtu, with no change in exchange rate, cash flow is positive until FY2028. This would only result in a Reserve reduction of 2.0Mt from the orebody and 1.5Mt from PC02, which is quite small compared to the overall Reserve. That is, the Reserve is not sensitive to realistically anticipated changes in economic assumptions.

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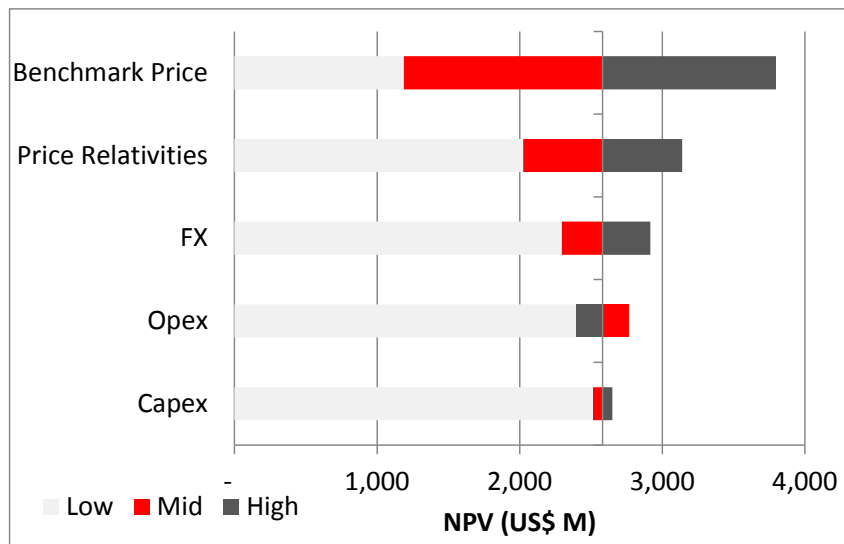


Figure 53 - Effect on NPV

12.5 Others

Naturally Occurring Risks

There are no naturally occurring risks that materially affect the Reserve. Tsunami, cyclone, earthquake, storm surge or other natural events could cause short term mining delays and infrastructure damage, but will not materially affect the Reserve Estimate.

GEMCO maintains an Asset Risk Register and control system to mitigate any potential risks to the operation.

Status of Agreements with Key Stakeholders – Social Licence to Operate

GEMCO maintains a working relationship with the Traditional Owners and has regular meetings with representatives of the Traditional Owners regarding mining related issues. The Northern Territory Government remains supportive of the mining activities at GEMCO.

GEMCO's obligations are chiefly embodied in various lease documents including Mineral Leases and Special Purpose Leases, a Letter of Understanding dated 13 May 1965 and an Agreement dated 16 September 2006. These documents cover Mining operations, the township, welfare of Aborigines, the Eastern Exploration Leases and other aspects ancillary to the Company's operations.

A process exists at GEMCO where final consent to mining is not given by the traditional owners until the area is about to be cleared. This is considered part of the normal course of business. Occasionally approval will be denied, such as when a previously unknown sacred site is encountered, and as such a risk exists that there will be areas included in the Reserves that will not be accessible to mining. This is only likely to result in minor changes to the Reserve and does not affect the wholesale viability of the mining project.

There are 2 areas within the LOA plan that will require additional consultation and approval beyond the "normal course of doing business". These areas remain in the schedule, but are not included in the Reserve. That is, they are given the same Reserve status as Inferred Resource. Once the additional consultation and traditional owner approvals are given they will be included in the Reserve. The areas and the schedule contribution are:

- The quarries immediately adjacent to Angurugu, AN2, AN3, ANE – 3.4Mt (dry)
- The blocks beneath the existing Ndunga Creek line – 0.5Mt(dry).

Legal Arrangements

There are no known legal issues or arrangements that affect the reserve estimate.

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Marketing Arrangements and Issues

Only short term (less than 5 years) marketing arrangements exist at GEMCO. None affect the reserve estimate.

Some of the GEMCO products, particularly the PC02 blends, are classified as “Group A Cargo” under the International Maritime Solid Bulk Cargoes (IMSBC) Code. This recognises that a cargo that may liquefy in a ships hold while at sea, risking instability because of movement of the cargo, leading to listing, delays or possibly foundering of the ship.

The Transportable Moisture Limit (TML), according to the IMSBC Code, is the maximum moisture content of a cargo, which may liquefy, which is considered safe for carriage in ships that are not specifically designed for carrying potentially liquefying cargos. The TML is a proportion of the Flow Moisture Point, which is defined by a set of prescribed tests.

Adherence to the TML requirements has been a critical consideration for PC02, and has also prevented pure G Quarry ROM product being shipped. Operational controls have been put into place and it is not expected that TML issues will affect the total Reserve.

Government Agreements and Approvals

As a working operation GEMCO has in place the necessary approvals for mining and fosters a working relationship with its stakeholders to maintain these. There are no unresolved matters that materially affect the reserve estimate.

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13. Ore Reserve estimation

The Reserve is based on the FY2015 Resource estimate, generated in July 2014 and described in the preceding sections. The declared Reserves are scheduled in the current LOA Optimised Base Plan. The declared Reserves are a subset of the Resources. That is, the Resource is inclusive of the Reserve.

Site Visits

The Competent person for Reserves has weekly contact with site personnel and was last on site in May 2014. The site visit indicated some areas that mining was unlikely to occur as well as other areas where the mine extents could be changed. The mining blocks used in this Reserve estimate have been adjusted to include these changes.

13.1 Reserve generation

Basis of selection of the reserve pit shell/ stopes for design purposes

Not applicable – strip mining techniques are used. Strips are sized appropriately for the excavation equipment and limits are based on cut-offs and optimisation.

Provide a table/ chart showing the ore tonnage and value vs pit shell number.

Not Applicable – The mine operates a strip mining techniques and economic analysis is done on a time period basis.

Reconciliation of the reserve pit design to the design optimal pit shell.

An optimal pit shell is not created with a strip optimiser. Rather strips are laid out based on physical restrictions and cut-off assessments. Strips go beyond the expected economic limit (or ultimate pit shell) with the actual mining limit determined by the optimiser.

Tabulate grade-tonnage curves on the mineable ore with cut-offs.

The GEMCO model relies on annual blending to determine product grade. As such the economic cut-off is a combination of depth, yield, blended product grade and pricing protocol for the year of mining. That is, the deposit is not categorised on in-situ grades and as such grade tonnage curve is not included.

Production Schedule Used in Reserve Estimation

The production schedule used in the reserve estimation is shown in Figure 54 and Figure 55.

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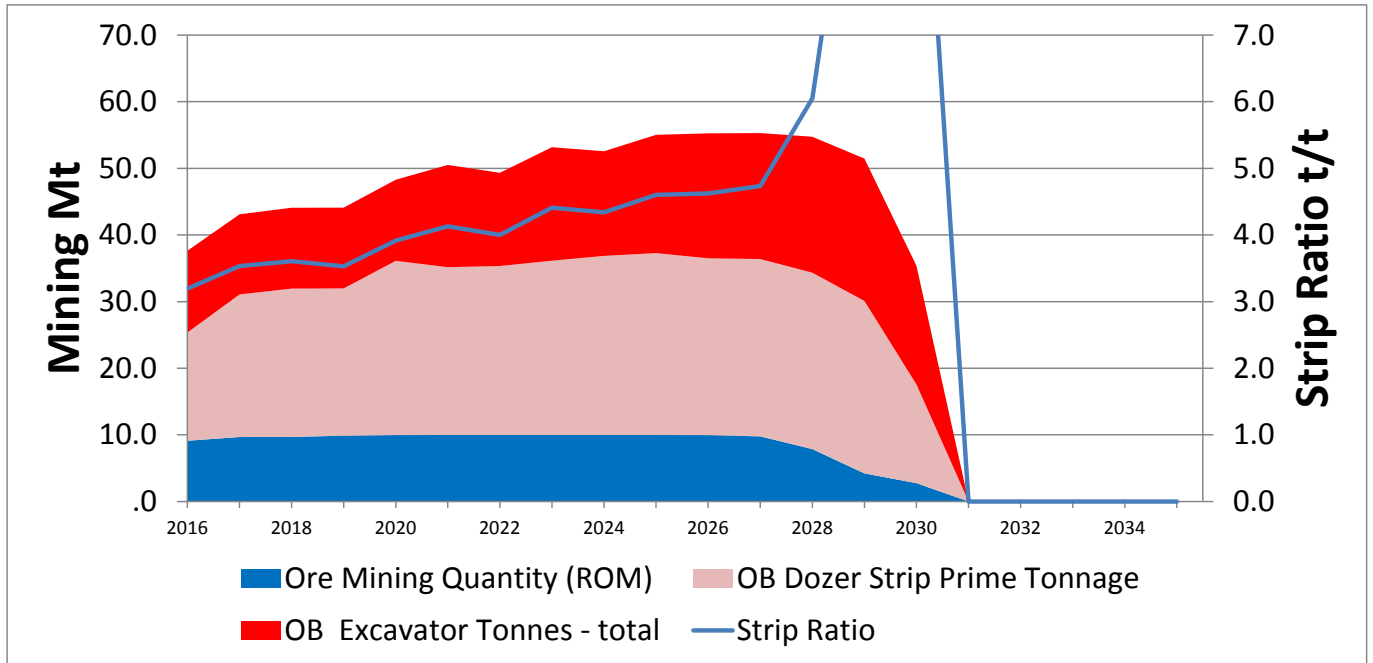


Figure 54 - Mine Production Schedule

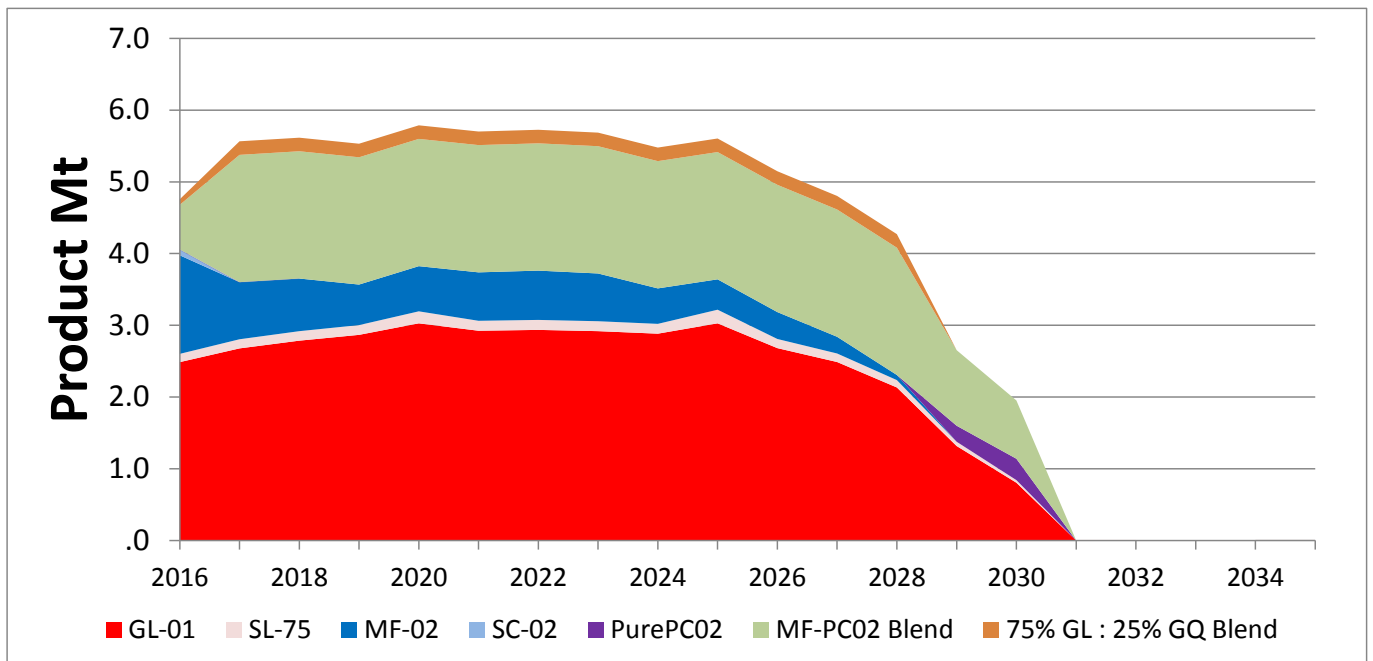


Figure 55 - Product Schedule

Sensitivity

The modifying factor that most affect the ROM reserve is the overall Resource Recovery. This is a combination of the Recovery factor and mining access assumptions. These have a direct effect on the ROM Reserve, Product Reserve. That if actual recovery is only 95% of the planned recovery there will be a corresponding 5% decrease in the Reserve.

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The other key modifying factor is yield. This has no effect on the ROM Reserve, but proportionally affects the Product Reserve and has a 2-fold effect on value. For example if actual yield was 95% of the predicted yield, there would be a 5% reduction in product tonnes and a 10% reduction in value.

Figure 53 shows the sensitivity to financial modifying factors and Figure 56 shows the relative effects of the “Low” assumptions, with a 10% reduction in recovery and yield being defined as low.

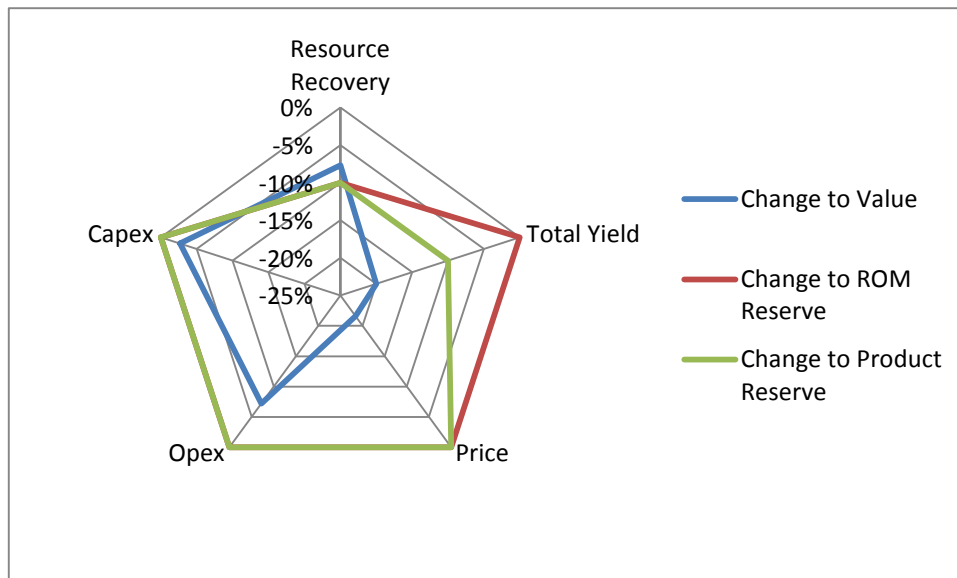


Figure 56 - Sensitivity

It is not practical to test the effect of changing cut-off grade as it is a parameter that is used to create the Resource Model. However as part of the CAP planning processes several scenarios were run where various thicknesses of the sub-bot horizon, which is generally less than 40% Mn (product), showed that the potential value uplift by mining this material was not material. A limiting strip ratio is not used to define the Reserve, rather the Reserves are defined by an NPV optimised Blasor schedule. The ROM reserve is not sensitive to changes in cost or revenue parameters, but is very sensitive to Resource Recovery parameters (Figure 56).

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Comparison with Previous Estimate

Appendix 2 shows the Reserve declaration. A comparison between the current declaration and last year's declaration is shown in Table 51.

| | | 2014 Annual report Ore Reserves | | | 2015 projected Ore Reserves | | | Change |
|-------|--------------|------------------------------------|--------------|------------|--------------------------------|--------------|------------|-------------|
| | | Mt | %Mn | % Yield | Mt | %Mn | % Yield | % |
| Sands | Proved | | | | | | | |
| | Probable | | | | 7.6 | 40.0% | 33% | 100% |
| | Total | | | | 7.6 | 40.0% | 33% | 100% |
| ROM | Proved | 78 | 45.0% | 58% | 60 | 45.3% | 55% | -23% |
| | Probable | 16 | 42.6% | 57% | 22 | 43.2% | 55% | 37% |
| | Total | 94 | 44.6% | 58% | 82 | 44.8% | 55% | -13% |

Table 51 - Comparison

The key differences are:

- Approval of the PC02 Sands project, enabling a portion of the sands stockpile Resource being declared a Reserve.
- 9.9Mt depletion for FY2015.
- 3.5Mt reduction and reclassification of 6Mt of Measured Resource to Probable Reserve based on the Competent Person's opinion of uncertainty within the geological models, particular with differences between the Resource model and the STGM.
- The balance is due to other minor classification changes and changes to mining extents.
- There are some minor positive and negative changes due to revising the block layout and the included quarries, but the net result does not change the overall Reserve.
- Yield has been reviewed based on the FY2015 and FY2014 actual performance, resulting in a 3% reduction in predicted yield for the ROM Reserve. This does not affect the ROM Reserve total, but does affect the expected product tonnes.

Typical Cross Section

A representative quarry cross section is shown in Figure 57. Figure 44 shows a cross section for the sands reclamation.

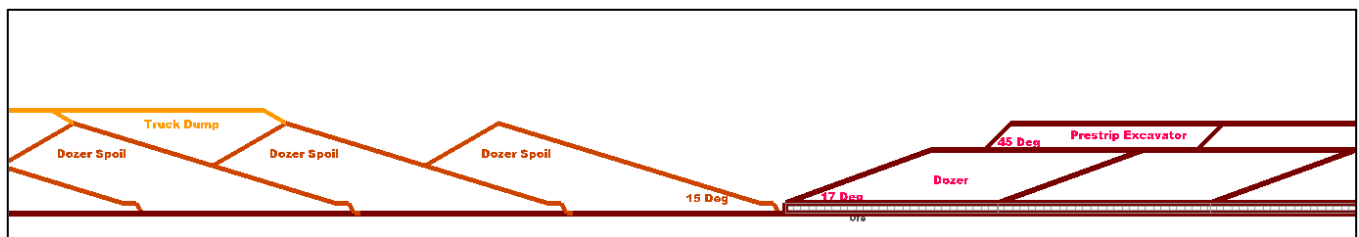


Figure 57 - Typical cross section

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14. Ore Reserve Statement

14.1 Classification

Measured and Indicated Resources are generally converted directly to Proved and Probable Reserves respectively. The exceptions for the FY2015 Reserve with the reasons for the change, which have been done to reflect the Competent Person's view of the deposit, are:

- Access / Cultural – Blocks adjacent to Angurugu require more than “the normal course of doing business” approval from the traditional owners (Figure 58) resulting in 3.4Mt being excluded from the Reserve.
- Access / Environmental / Cultural – Ndunga Creek Blocks require more than “the normal course of doing business” approval from the traditional owners (Figure 59) resulting in 0.5Mt being excluded from the Reserve.
- Processing Assumptions – Currently G Quarry is not fed to the concentrator, and as such there is insufficient knowledge of the concentrator performance / yield of G Quarry feed (see section - Metallurgical Test Work). As such the 6.1Mt of G Quarry scheduled to be fed from year 10 is not included in the Reserve.
- CAP material is not being mined as planned in the LOA resulting in 1.3Mt being excluded from the Reserve.
- Uncertainties with the STGM and Resource Model in the CW, F5, and ES areas has resulted in 6.6Mt of Measured Resource being classified Probable Reserve. There is more explanation of the STGM issues below.
- Uncertainties with the STGM and Resource Model in eastern side of C quarry has resulted in 3.5Mt being excluded from the Reserve.
- Experience during FY2015 has indicated that there seems to be additional yield prediction problems away from the paleo plateaus (see section - Metallurgical Test Work). To estimate this uncertainty, the areas where the orebody is less than 1.5m thick were examined. There is 5Mt of Measured Resource and 2.5Mt of Indicated Resource within the LOA plan from areas that are less than 1.5m thick. No classification change has been made to these areas as it is felt this quantity is covered by other reclassifications, and it is inappropriate to “double up” on the downward reclassification of Resources for Reserves.

Of the 22Mt of Probable Reserve 6.6Mt, or 30%, is from Measured Resources. There is 10.6Mt of Measured Resource and 0.7Mt of Indicated Resource within the LOA schedule that is not included in the Reserve.

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Figure 58 - Reclassification Around Angurugu

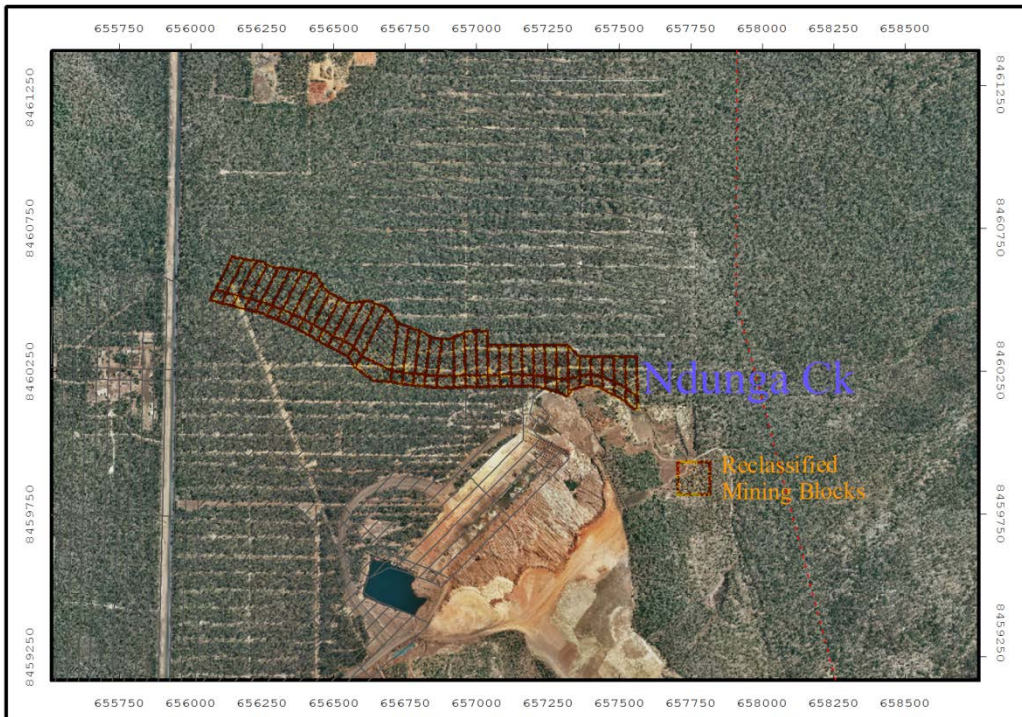


Figure 59 - Reclassification of Ndunga Creek Blocks

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STGM Issues

GEMCO has starting using a Short Term Grade Control Model (STGM) to as a basis for the short term planning, including the budget. The differences between the STGM and the Resource model were examined as a means of providing a de-facto review of the Resource Model and the confidence of the Reserve Categorisation applied (Bryant, 2015).

This review gave the following outcome shown in Table 52.

| STGM Block Model | Quarries | Resource Ore Volume (bcm) | Reserve Ore Volume (bcm) | STGM Ore Volume (bcm) | Difference to Resource | Difference to Reserve |
|-----------------------|--------------|---------------------------|--------------------------|-----------------------|------------------------|-----------------------|
| AS1_AREA.bmf | ASN | 1,008,670 | 857,369 | 852,833 | -15% | -1% |
| CQE_AREA.bmf | CN, CM, C | 1,447,201 | 1,374,841 | 1,064,094 | -26% | -23% |
| DQS_AREA_20150318.bmf | DS | 3,209,909 | 3,049,414 | 3,094,900 | -4% | 1% |
| EQW_AREA_20150325.bmf | ES, W1 | 1,819,482 | 1,728,508 | 1,448,924 | -20% | -16% |
| F2W_AREA.bmf | F2W, CW | 464,953 | 441,706 | 356,861 | -23% | -19% |
| F3N_AREA.bmf | F3N | 1,272,029 | 1,272,029 | 1,243,385 | -2% | -2% |
| F5E_AREA.bmf | F5E | 338,027 | 321,125 | 290,015 | -14% | -10% |
| F5N_AREA_20150227.bmf | F5N | 168,779 | 160,340 | 140,481 | -17% | -12% |
| | | | | | | |
| | Total | 9,729,051 | 9,205,333 | 8,491,494 | -13% | -8% |

Table 52: Comparison of future mining blocks within the STGM model areas

Due to the differences, and ongoing issues relating to the accuracy of both the STGM and the Resource Model, Table 53 was used to guide the classification of the Reserve. The outcome is 6.6Mt of Measured Resource is downgraded to Probable Reserve, and 3.5Mt of Measured and Indicated Resource is not classified as Reserve due to the quantity differences. A South has a higher ore loss assumption built into the Reserve, so is not reclassified.

| Quantity Difference STGM vs Resource Models | Categorisation effect | Quarries affected |
|------------------------------------------------|-----------------------------------------------------------------------------------------------------------|---------------------------|
| < 10% | No change | F3N, DS |
| > 10% & < 25% | Measured and Indicated Resource become Probable Reserve | CW, F2W, F5E, F5N, ES, W1 |
| > 25% | Measured and Indicated Resource do not become Reserve (but are still in valuation like Inferred Resource) | CN, C, CS |

Table 53 - Reclassification Parameters

14.2 Discussion of relative accuracy / confidence

The Ore Reserve statement has been prepared in accordance to the JORC Code, 2012 Edition by a Competent Person. As such the Competent Person has determined the relative accuracy and confidence in the Ore Reserve estimate is appropriate for the Competent Person to declare a reserve. There have been no significant changes to the Resource or Reserve estimation processes throughout FY2015.

The Competent Person has not used statistical or geostatistical procedures to quantify the relative accuracy of the Reserve as the Competent Person believes the most significant factors that affect the accuracy and hence confidence of the estimate

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cannot have meaningful statistical distributions applied for analysis. These factors have been covered elsewhere in the document and are:

- Mining Recovery
- Yield
- Access restrictions due to cultural considerations
- Product revenue.

Sensitivity analysis has shown that within the expected variations of the above factors the deposit remains economically viable, and as such there is no material effect on the ROM reserve. That is there are no applied modifying factors that have a material impact on the Ore Reserve viability.

There is a significant amount of operating history and drilling within the GEMCO operating areas. The resource modelling techniques are well understood and provide a good representation of what is mined for the majority of the mining areas. The assumption of 95% mining recovery was used in the FY2014 Reserve and is used in this Reserve.

There is a veto process in effect at GEMCO where the traditional owners can stop mining activities in culturally significant areas. However the deposit is shallow enough and the mining process is flexible enough to work around these areas. They will have an effect on the short term mine plan, but are unlikely to have a material effect on the overall Reserve.

The Reserve should be considered a global estimate. Historically there have been local variations of areas access is allowed, mining recovery and concentrator yield, and these are expected to continue into the future.

14.3 Ore Reserve declared

A summary of the Ore Reserve for 30 June 2015 (FY2015) is shown in Table 54 and Table 55. A full declaration is provided in Appendix 2. The changes from the 30 June 2014 statement are shown in Table 56. An explanation of changes can be found in the notes below Table 51.

| Category | ROM Tonnes (dry Mt) | Mn Head Grade (% dry basis) | Indicative yield (%) (dry product / dry ROM) | Mn Product grade (% dry basis) | Marketable Reserve (dry Mt product) | Contained Metal (dry Mt) |
|--------------|------------------------|--------------------------------|-------------------------------------------------------|--------------------------------------|----------------------------------------------|-----------------------------|
| Proved | 60 | 33.4 | 55% | 45.3% | 33 | 15 |
| Probable | 22 | 32.0 | 55% | 43.2% | 12 | 5.2 |
| Total | 82 | 33.0 | 55% | 44.8% | 45 | 20 |

Table 54 - GEMCO Orebody Reserves

Key notes are:

- The Resource Model that underpins the Reserve has a 40% product Mn cut-off
- 1m thick ore cut-off on the periphery of the deposit, otherwise a 0.5m thickness cut-off.
- 40m wide strips. Bench height dictated by geology.
- BHPB provided pricing protocols used in the Blasor Optimiser to define ultimate mining limits.
- Mining and Metallurgical recovery based on reconciliation data.
- Based on a blended schedule – Proved and Probable Ore is not discretely processed separately from other scheduled ore.
- The yield uplift from the on-line PCO2 processing is not included in the Reserve.
- Some Measured Resource has been downgraded to Probable Reserves to reflect the Competent Person's confidence in the estimate, as per section 14.1. Some Measured and Indicated Resource has not been included in the Reserves to reflect the Competent Person's confidence in the estimate, as per section 14.1. Inferred ore is included in the schedule but not the Reserve.

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| Category | Feed / ROM Tonnes (dry Mt) | Mn Head Grade (% dry basis) | Indicative yield (%) (dry product / dry ROM) | Mn Product grade (% dry basis) | Marketable Reserve (dry Mt product) | Contained Metal (dry Mt) |
|--------------|----------------------------------|--------------------------------|-------------------------------------------------------|--------------------------------------|----------------------------------------------|-----------------------------|
| Proved | | | | | | |
| Probable | 7.6 | 22.3 | 33% | 40.0% | 2.5 | 1.0 |
| Total | 7.6 | 22.3 | 33% | 40.0% | 2.5 | 1.0 |

Table 55 - GEMCO PC02 Sand Reserves

Key notes are:

- No Head Grade cut-off.
- BHPB provided pricing protocols used in the Blasor Optimiser to define ultimate mining limits.
- Metallurgical recovery based on DPS data.
- Based on a blended schedule – PC02 output is blended with MF02 for shipping.
- Inferred ore is included in the schedule but not the Reserve. On-line tailings processing is expected to occur but is not included in the Reserves.

| Category | ROM Tonnes(dry Mt) |
|----------|--------------------|
| Proved | -18 |
| Probable | +13 |
| Total | -5 |

Table 56 - Changes from 30 June 2014

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15. Reconciliation

15.1 Mine production FY 2015

The mine production for the full FY2014 is summarised in Table 57. This is actual to 31March 2015 then forecast. Full production data is in Appendix 6.

The reconciliation of mine productivity, as defined by annual plant feed which is the production bottleneck, is shown in Table 58.

To meet the requirement of a cost reconciliation, the previous C1 costs and the first 5 years of the LOA Base plan is shown in Table 59. The long term cost is in line with previous years.

| | Tonnes (wet Mt) |
|-------------------------|----------------------------|
| ROM Mined | 9.4 |
| Concentrator Feed | 9.9 |
| Concentrator Production | 4.9 |
| ROM Product Production | 0 |
| Sales | 4.9 |

Table 57 - FY2015 Production

| | FY2015 Tonnes (wet Mt) |
|-----------------------------------------------|---------------------------------------|
| FY2014 LOA | 9.5 |
| FY2015 Budget | 9.5 |
| FY2015 Actual (actual to March then forecast) | 9.9 |

Table 58 - FY2015 Productivity Reconciliation – Annual Plant Feed

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| Year | C1 Cost per tonne (US\$) |
|------------|--------------------------|
| FY2010 | 54.94 |
| FY2011 | 60.16 |
| FY2012 | 66.70 |
| FY2013 | 60.89 |
| FY2014 | 56.42 |
| FY2015 Ref | 71.99 |
| FY2016 LOA | 71.50 |
| FY2017 LOA | 65.88 |
| FY2018 LOA | 63.12 |
| FY2019 LOA | 61.02 |
| FY2020 LOA | 62.93 |

(For FY2015 on C1 is estimated from the LOA valuation model as: Total operating costs / total sales)

Table 59 - Cost Reconciliation

15.2 Ore Reserves reconciliation

A summary of the reconciliation of the FY2015 Reserve model is shown in Table 60. A summary tabulation of the YTD F3 reconciliation is shown in Table 61. The full reconciliation data is provided in Appendix 4.

After the poor yield performance of the original LOA model, the yield was re-estimated for the Reserves. The F3 performance of both models is shown in Table 60.

Most of the differences in the reserve F3 factor are a result of the F2 performance. Essentially less ore than expected was recovered from the mining areas. The key reasons for this were:

- The full depth of the orebody was not mined in some areas, particularly ASC. This issue has been subsequently addressed with more diligent day-to-day geological control of the mining operations.
- Ore was patchy around the outer extents of the deposit. The resolution of the Resource Model and drilling is not sufficient to accurately represent these isolated local effects and in some places ore was not present where it was expected.
- Moisture adjustments effect. The wet basis F2 reconciliation, which assumes the mined and plan feed moisture is 10%, gives a reconciliation result of 97%, which is a result of the above 2 points. However once the "actual" moisture of 13.6% of the plant feed was used, the actual dry tonnes fed to the concentrator reduced significantly and the F2 reconciliation was 93%.
- Because of the large ROM stocks it is difficult to determine if the poor recovery is actual, or merely a result of errors with the stock balancing. For this reason a rolling 2 year period is used to set the modifying factors.

| Dry ROM tonnes (Mn Grade in brackets) | Q1 | Q2 | Q3 | YTD |
|-------------------------------------------|-----|-----|-----|------------|
| Grade control / Reserve (% basis) F1 | | | | 98% (100%) |
| Process feed / Grade control (% basis) F2 | | | | 93% |
| Market sales / Reserve (% basis) F3 | 99% | 81% | 93% | 90% (99%) |
| Market sales / LOA model (% basis) | 94% | 79% | 90% | 87% (99%*) |

* Not a true F3, rather a comparison of expected and actual bin grades.

Table 60 - Tonnage Reconciliation

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| Actual Data | YTD Dry tonnes | Source |
|------------------------------------------------|----------------|--------------------------------------------------------------------------------|
| Concentrator Feed | 6,373,063 | 1SAP tonnes, Moisture from Mass balance & Ampla |
| Total Product | 3,470,889 | 1SAP tonnes, Moisture from Mass balance & Ampla |
| Actual Yield | 54% | |
| | | |
| Reserve Model Mined Area | | |
| Reserve Mined Area tonnes | 6,513,679 | Polygon interrogation of LOA model, assumed moisture including ore left behind |
| Mined Area Total Product | 3,531,935 | Polygon interrogation of LOA model, assumed moisture adjusted for bypass |
| Mined Area Yield | 54% | |
| | | |
| PCS | | |
| Opening PCS Stock | 1,304,422 | 1SAP tonnes, Assumed moisture |
| Opening PCS Expected Product t | 674,461 | From PCS master blend waterfall |
| Opening PCS Stock Expected Yield | 52% | From PCS master blend waterfall |
| Closing PCS Stock | 636,975 | 1SAP tonnes, Assumed moisture |
| Closing PCS Expected Product t | 331,207 | From PCS master blend waterfall |
| Closing PCS Stock Expected Yield | 52% | From PCS master blend waterfall |
| | | |
| Reserve Model Expected Adjusted for PCS | | |
| Expected Concentrator Feed | 7,181,126 | Calculation |
| Expected total product | 3,875,189 | Calculation |
| Expected Yield | 54% | |
| | | |
| F3 Reconciliation | 90% | Actual / Expected Product |
| Feed Reconciliation | 90% | Actual / Expected Concentrator Feed |

Table 61 - Tabulation of F3 Reconciliation

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15.3 Plan compliance

The special plan compliance, including appropriate plans, is included in Appendix 6, with a summary in Table 62 and Table 63. Generally speaking the intent of the LOA is being followed in the budget path. The actual path shows some variation to the budget path due to operational constraints, changes to geology and changes to start point. The key mining areas are reflected in the actual mining, but the precise mining blocks are not as well reflected.

| Ore | Parameters | Planned and Mined (A) | Planned and Not Mined (B) | Total Plan (A+B) | Mined outside Plan (C) | Total Mined (A+C) |
|----------------------------------------------------------------------------------------|-----------------|-----------------------|---------------------------|-------------------|------------------------|-------------------|
| Production Budgeted (Approved Plan implemented at the beginning of the Financial Year) | Tonnes | 5.4Mt | 3.3Mt | 8.7Mt | 3.6Mt | 9.0Mt |
| | Grade†/ Quality | 49%Mn @ 55% Yield | 48%Mn @ 51% Yield | 48%Mn @ 54% Yield | 49%Mn @ 55% Yield | 49%Mn @ 55% Yield |

Table 62 - Plan Compliance

| Item | FY2015 Budget | FY2015 Actual/Forecast (From April) |
|-------------------------------|---------------|-------------------------------------|
| Waste Mined (Mt wet) | 28.3 | 28.8 |
| Ore Mined (Mt wet) | 9.8 | 9.4 |
| Concentrator Feed (Mt wet) | 9.9 | 9.5 |
| Concentrator Product (Mt wet) | 5.0 | 4.9 |

Table 63 - Planned Quantity Comparison

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16. Independent audit and review

The reviews and audits for the last two years are tabulated below. No material issues were identified during these reviews.

| Audit reference, date | Author | Consent to use report in BHPB public reporting |
|---------------------------------------------------------------------------------------------------------|------------------------------------|------------------------------------------------|
| Group Risk Assessment and Assurance (RAA) Mine Planning and Ore Reserves (MPOR) Audit, March 2014 | RAA | N/A |
| AMN Business LoA review with Group Resource Business Optimisation (RBO), March 2014 | AMN/TGE | N/A |
| Group TGE geological database audit, August – September 2014 | TGE | N/A |
| Mineral Expert's Report - November 2014. | CSA Global (External) | Yes |
| Review of GEMCO Reserve Model Predicted Yield, January 2015. | Ehrig et al (Independent internal) | N/A |
| Group TGE Resource & Reserve Risk Review FY2015. March 2015, Final report not yet available (29/4/2015) | Deependra Bhardwaj, Jhon Espinoza | N/A |

Table 64 - Independent audits and reviews

All findings from the previous audit relating to the Mineral Resource and Ore Reserves have been addressed.

Findings from the most recent risk review simply highlighted known issues that are being continually worked on. No new issues were found.

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17. Risk and opportunity assessment

As a result of the significant operational history, there is a good understanding of the local geology, resource and mining methodologies at GEMCO. Consequently there are no major Resource or Reserve risks associated with the project that are likely to materially impact the declared Mineral Resource or Ore Reserve. Neither Resources or Reserves feature on the Asset Risk Register, however tenements and associated relationships with the traditional owners with regards to access to tenements are included.

The outcome of the LOA Risk Workshop is shown in Figure 60 and outlines the main Reserve Risks (LOA16 Risk Workshop, 2014). Several of the identified risks are for tonnages that are not included in the final Reserve, namely:

- Mining Adjacent to Angurugu
- G Quarry Resource
- Predictability of Resource Model.

Two of the other key risks would result in variations to mining cost or mining rates and continuity, but are unlikely to have a major impact on Reserves, and are:

- Tailings Storage Facility Strategy
- Concentrator Production Rates.

The remaining risk of “Unforeseen restriction in gaining access to a new area” relates specifically to J quarry. At risk is approximately 5Mt of Reserve. Currently the risk is being managed through the ongoing relationships developed with the traditional owners and within the community by the external affairs team. No change to this management is expected in the near future.

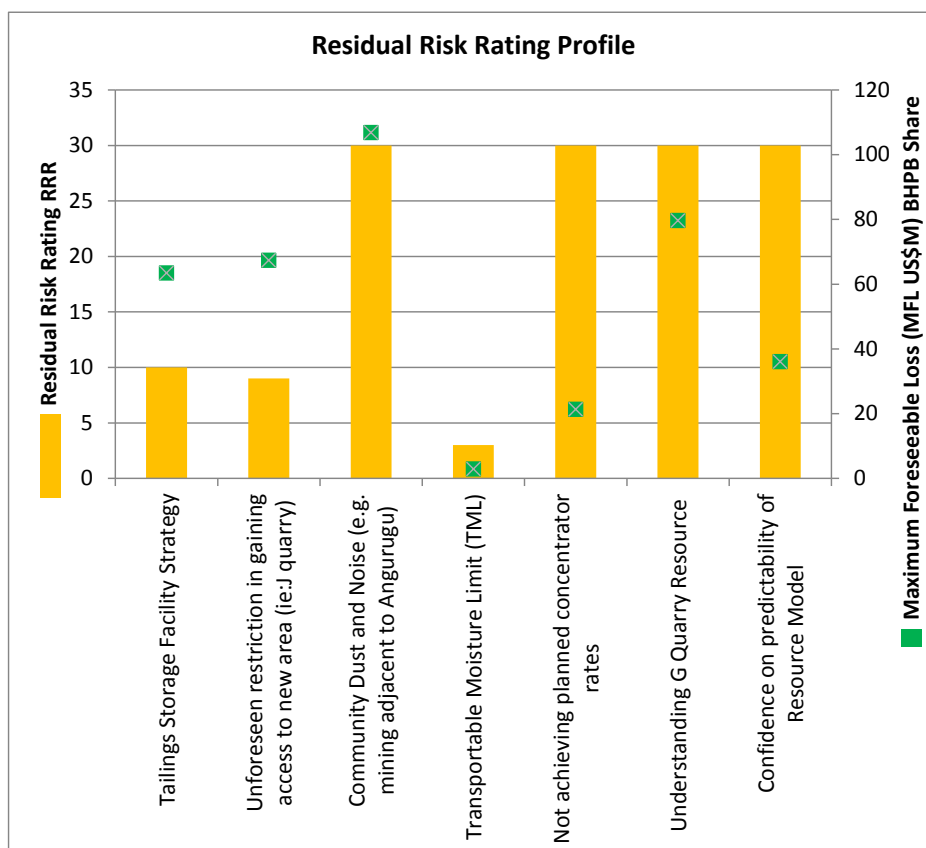


Figure 60 - LOA Risks

COMPETENT PERSON REPORT

South32 - GEMCO

The key Reserve opportunities and the potential Reserve uplifts are:

- 6.1Mt - G Quarry into concentrator. By undertaking some metallurgical test work or ore tests to allow the G quarry component planned to be fed into the concentrator to be included in the reserves, and allowed to be fed at optimal rates into the concentrator.
- 3.4Mt – Mining Adjacent to Angurugu. By planning an appropriate mining method and engaging with the traditional owners and Angurugu community, formal permission to mine these areas would result in their inclusion in Reserves.
- When the Mass Balance Project consistently gives reliable results the on-line feed portion of the PC02 Sands project will be able to be included in Reserves. This will not add any ROM reserves but should result in a 2-3% yield uplift of the deposit Reserves.
- Approximately 20Mt - The approval of the Eastern Leases Project could add approximately 20Mt to the Reserve Base. This project is not expected to be approved until FY2021.

COMPETENT PERSON REPORT

South32 - GEMCO

18. Conclusions and recommendations

The Resource Competent Person is satisfied the Mineral Resource has been estimated and reported in accordance with the guiding principles of the JORC Code (2012 Edition).

The Reserves Competent Person is satisfied the Ore Reserve has been estimated and reported in accordance with the guiding principles of the JORC Code (2012 Edition).

Once embedded, and providing reliable information, the STGM Project and Mass Balance Project will enable the improvement of the annual Mineral Resource and Ore Reserve estimates. These results will provide better yield, lump/fines split, density and reconciliation information for modelling. This will be an ongoing process for the remainder of the Mine's operation. That is there will not be a one-off outcome change based on these projects, rather another layer of information that can be used to support the Resource and Reserve Estimate.

COMPETENT PERSON REPORT

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Pudovskis, M. (BHP Billiton) – Geological Services Drillhole Database Audit
Terry, J. (BHP Billiton) – October 2008 - Recommendations for Improvements to Grade Control and production modelling at GEMCO
Wesson, A. (BHP Billiton). Groote Eylandt resource modelling for two sand tailings dams memorandum (6 November 2012).

COMPETENT PERSON REPORT

South32 - GEMCO

Appendix 1. Competent Persons nomination letter and CV



CURRICULUM VITAE

David Hope

Academic Qualifications

Bachelor Science (Geology), University of Newcastle (1993)
Graduate Certificate Geostatistics, Edith Cowan University (2003)

Certifications and Affiliations

Australian Institute of Mining and Metallurgy (Member)



Career History

| | |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2011-present | BHP Billiton – Manganese Australia Manager Geological Services. Responsible for development of the geological strategy within BHP Billiton's Australian Manganese Assets. Functional management includes, managing the planning and delivery of brownfield exploration; geological data management and resource modelling; and tenure management. |
| 2010-2011 | Snowden Mining Consultants Senior Consultant. Projects include client technical support, independent audits and reviews, project evaluations, mining system optimisation and resource modelling in a variety of commodities worldwide including gold, coal, copper, manganese and bauxite. |
| 2007-2010 | BHP Billiton - GEMCO Technical Services Superintendent. Responsible for the management and supervision of all geological, mine planning, quality control and marketing liaison, laboratory and survey services. Other tasks included the identification, development and implementation of improvement strategies (including Lean and Six Sigma) in all production related areas. |
| 2006-2007 | BHP Billiton - GEMCO Senior Resource Geologist. Responsible for data management and the geological modelling of mining and exploration leases. Budgeting, scheduling, planning and management of annual exploration drill campaigns. Also involved in the development and supervision of continuous improvement projects. |
| 2005-2006 | Gold Fields St Ives Senior Geologist. Responsible for underground grade control and resource modelling. Implementation of mining risk analyses in conjunction with long and short term mine plans. Opportunity analysis and targeting of remnant mining areas for incremental addition to the production schedule. Budgeting, scheduling, planning and supervision of surface and underground operational and extensional drill programs. |

COMPETENT PERSON REPORT

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| | |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2003-2005 | KCGM Project Mine Geologist. Involved in all aspects of grade control of the Fimiston Open Pit including grade modelling via multiple lode domaining and gold/sulphur co-simulation for ore podding. As well as the design and management of in pit RC grade control and resource definition drilling and the compilation and presentation of weekly production schedule data (including ROM blend fingers and grade control drilling). |
| 2002-2003 | Bulong Nickel Operations Senior Resource Geologist. Responsible for database management, grade control and resource modelling as well as exploration planning and management. |
| 1999-2002 | Cawse Nickel Operations Resource (later Senior) Geologist. Responsible for the development of grade control and resource models, in addition to prospectivity analysis of geological targets for medium and long term mine planning. |
| 1998-1999 | Cawse Nickel Operations Mine Geologist. Responsible for all aspects of grade control, as well as the supervision of drilling contractors, pit technicians and graduate geologists. |
| 1997-1998 | Australian Gold Resources Project Geologist. Responsible for project appraisal, evaluation and development of exploration leases. |
| 1994-1997 | Great Central Mines Exploration Geologist. Responsible for the generation, development, and modelling of exploration targets. |
| 1993-1994 | Peak Gold Mines Geologist. Involved in all aspects of grade control, as well as the planning and supervision of exploration and resource definition drilling. |

COMPETENT PERSON REPORT

South32 - GEMCO



COMPETENT PERSON NOMINATION

11 February 2015

BHP Billiton Mineral Resource and Ore Reserve Reporting Designation of Competent Person

In accordance with *GLD 022 Tenement Management, Exploration Results, Resource and Reserve Reporting* and in compliance with the Australasian Code for Reporting of Mineral Resources and Ore Reserves 2012 (JORC Code), and US SEC Industry Guide 7, BHP Billiton herewith designates **David Hope** to prepare reports and signoff as Competent Person for:

- Mineral Resources

for **GEMCO** for the period ended 30th June 2015.

With reference to the foregoing, the Curriculum Vitae of David Hope presenting qualifications, experience and professional body affiliation to fulfill the role of Competent Person is set out in the attachment to this letter of designation. He is a member of the AusIMM. His membership is valid until 31/12/2015.

David Hope declares by signature to this letter of designation that he is clearly satisfied in his own mind that he understands the requirements of the JORC Code and US SEC Industry Guide 7 and can face his peers and demonstrate competence in the commodity, type of deposit and situation under consideration.

Digitally signed
by Hope, David
Date: 2015.02.11
10:20:24 +10'00'

Signed in acceptance
Competent Person

Date

Digitally signed by Emond, Michael
DN: dc=net, dc=bhpbilliton, dc=ent,
dc=apac, ou=Stainless Steel
Materials, ou=Corporate, ou=Users
EO, cn=Emond, Michael
Date: 2015.02.11 12:56:49 +08'00'

Signed endorsement
Business Coordinator
Michael Emond

Date

Signed approval
Head of Resource Planning and Development Manganese Australia
Benjamin Yaksich

Date

11/2/2015

11 February 2015

Mineral Resources and Ore Reserves^[1] Reporting Configuration for Manganese

A member of the BHP Billiton Group, which is headquartered in Australia
Registered Office: 180 Lonsdale Street, Melbourne, Victoria 3000, Australia
ABN 48 004 928 077

COMPETENT PERSON REPORT

South32 - GEMCO



COMPETENT PERSON NOMINATION

11 February 2015

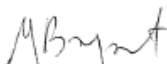
BHP Billiton Mineral Resource and Ore Reserve Reporting Designation of Competent Person

In accordance with *GLD.022 Tenement Management, Exploration Results, Resource and Reserve Reporting* and in compliance with the Australasian Code for Reporting of Mineral Resources and Ore Reserves 2012 (JORC Code), and US SEC Industry Guide 7, BHP Billiton herewith designates Mark Bryant to prepare reports and signoff as Competent Person for:

- Ore Reserves for GEMCO for the period ended 30th June 2015.

With reference to the foregoing, the Curriculum Vitae of Mark Bryant presenting qualifications, experience and professional body affiliation to fulfil the role of Competent Person is set out in the attachment to this letter of designation. He is a member of the AUSIMM. His membership is valid until 31/12/2015.

Mark Bryant declares by signature to this letter of designation that he is clearly satisfied in his own mind that he understands the requirements of the JORC Code and US SEC Industry Guide 7 and can face his peers and demonstrate competence in the commodity, type of deposit and situation under consideration.


Signed in acceptance
Competent Person

11/2/2015
Date


Signed endorsement
Business Coordinator
Michael Emond

Digitally signed by Emond, Michael
DN: cn=mi, o=bhpbilliton, dc=vent,
dc=apac, ou=Stainless Steel Materials,
ou=Corporate, ou=Users ED, cn=Emond,
Michael
Date: 2015.02.11 12:53:02 +08'00'

Date


Signed approval
Head of Resource Planning and Development - GEMCO
Ben Yaksich

11/2/2015
Date

COMPETENT PERSON REPORT

South32 - GEMCO

Mark Bryant

Principal - Bryant Mining Pty Ltd
BE Mining (Hons), MAusIMM(CP), RPEQ

Phone 0421 252 324
Email markbryant@minserve.com.au

Mark has 20 years' experience in the mining industry. He has a broad range of technical consulting and practical mining experience in planning and operations roles. To complement his practical experience he has a high technical ability and is a competent and current user of the Vulcan and Xpac mine planning tools.

His industry background includes a period at Premier Coal Mine where he was involved in all aspects of operational process and planning. Experience included various planning roles within the daily to 5 year time frame, environmental officer duties, drill and blast planning and supervision, and production planning and supervision of shovel and excavator operations.

Mark has had extensive dragline short and medium term planning experience at Goonyella Riverside and Norwich Park Mines as both employee and consultant. Additionally, he has been the drill and blast engineer at Goonyella Riverside.

During a 2 year period of underground experience at Appin and Eloura operations he worked with the longwall and development crews, supervised contract drillers and had practical involvement in the management of the ventilation and methane drainage systems.

Key skills include mine design and scheduling, planning system development, optimization studies, costing and financial evaluation, reserve statement generation and general study management.

Selected Professional Experience

- BHP Billiton Manganese Australia (GEMCO) - Technical Mine Planning advice and assistance, including long-term optimisation studies using "Blasor" software
- Northern Energy Corporation - Extensively involved in the Elimatta Pre-feasibility and Feasibility mining studies looking at all mining aspects of the operation, particularly reserves, mining methods and life of mine scheduling
- Queensland Energy Resources Ltd - Option evaluation, conceptual pit and dump design, reserving, working methods, scheduling and costing of large oil shale deposits. Development of the long term scheduling system
- MacArthur Coal - Managed a conceptual mining study looking at the application of conveyor mining systems to the Codrilla deposit. Included a financial comparison between methods and conventional mining techniques. Has been the competent person for the estimation and reporting of Reserves for Coppabella Mine, Middlemount Mine, Codrilla Mine, Moorvale Mine, and Olive Downs North
- Tarong Energy Corporation Technical Services Panel - Was a member of the mining technical services panel for the Kunoon Deposit. Panel members provide mining advice and specialist mining technical services on all aspects of mine planning and operations including evaluation of the Kunoon deposit to enable a decision on the future fuel sources for the Tarong and Tarong North Power Stations.
- Poitrel Mine - Extensively involved in the Pre-feasibility and Feasibility mining studies looking at all aspects of the mining operation, particularly reserves, mining methods, life of mine scheduling, boxcut design, dump design, site layout and water management. Subsequently has contributed with ongoing planning assistance and reserve estimation
- Norwich Park Mine - General planning assistance for both dragline and contractor truck and excavator operation. Developed the boxcut design, dump layout and short term scheduling sequences for North and South Leichhardt Pits
- Lampunot Deposit - Process and Numbers Audit of Lampunot Deposit Reserves.

Specific Experience for BHPB Competent Person for GEMCO Reserves.

- Gemco Competent Person for Reserves since 2012.
- Reserves statements for Macarthur Coal operations for 5 years - Coppabella, Moorvale, Middlemount, Codrilla, Olive Downs North. Block modeling techniques were used to generate the Reserves for Moorvale, Codrilla and Olive Downs North.
- Reserve statements for Bowen Basin Coal - Lake Vermont Mine and Satellite areas.
- Previously been the Reserve Estimator for BMC's Poitrel Mine
- 5 years experience with generating quantities and qualities for oil shale deposits - stratigraphic deposits modeled with a block model as with GEMCO.
- During 2 years of Short and Medium Term mine planning at Premier Coal Mine quantities and qualities were regularly generated for use in the Mine Plans. This deposit was modeled using block modeling techniques that are directly applicable to the GEMCO model.
- Process and Numbers Audit of Lampunot Deposit Reserves gives previous experience with the BHPB ore reserve processes.
- 18 months of GEMCO site interaction including generation of scheduling quantities for short, medium and long term mine plans.

COMPETENT PERSON REPORT

South32 - GEMCO

Appendix 2. Mineral Resource and Ore Reserve Declaration

The full Reserve declaration is contained the electronic database.

| Total Resource (inclusive of that used in Ore Reserves) as at end June 2015 (These mineral resource numbers will be used for reporting) | | | | | | | | | | | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------|---------|------------------------|------|---------|---------------------|------|---------|------------------------|------|---------|------------------------------|------|---------|
| Ore Type | Cut-off | Measured Resources (A) | | | Indicated Resources | | | Inferred Resources (C) | | | Total Resources 2015 (A+B+C) | | |
| | | Tonnes dmt millions | Mn % | Yield % | Tonnes mt million | Mn % | Yield % | Tonnes dmt milli | Mn % | Yield % | Tonnes dmt millions | Mn % | Yield % |
| ROM Sands | 40 0 | 105 | 45.2 | 48 | 25 | 43.4 | 47 | 35 | 42.8 | 48 | 165 | 44.3 | 48 |
| | | | | | 13 | 20.8 | | 2.3 | 20.0 | | 15 | 20.7 | |

Figure 61 - Submitted Resource

| Ore Reserves As at June 2015 (These Ore Reserve numbers will be used for reporting) | | | | | | | | | | | | | |
|-------------------------------------------------------------------------------------|-----------------|---------------------|------|---------|--------------------------|------|---------|--------------------------|------|---------|-----|------|----|
| Ore Type | Cut-off | Proved Reserve (G) | | | Probable Ore Reserve (H) | | | Total Ore Reserves (G+H) | | | | | |
| | | Tonnes dmt millions | Mn % | Yield % | Tonnes dmt milli | Mn % | Yield % | Tonnes dmt milli | Mn % | Yield % | | | |
| ROM Sands | % Mn prot 0% | 60 | 45.3 | 55 | 22 | 43.2 | 55 | 82 | 44.8 | 55 | 7.6 | 40.0 | 33 |
| | | | | | 7.6 | 40.0 | 33 | | | | | | |

Figure 62 - Submitted Reserve

SECTION 1: GENERAL INFORMATION

1. Deposit/mine name: GEMCO

2. BHP Billiton Interest (%): 60

3. Location: Australia

4. Grouping: Manganese

5. Deposit/Mine status: Existing Mine
(Existing mine, in Development, Project, or Sold)

6. Is this data planned for external release? Yes

7. Ore & Deposit Type (brief description of type/style and development status if relevant)

GEMCO mines manganese on Groote Eylandt NT. The mineralisation is sedimentary in origin, hosted by marine terrigenous sediments. The deposit is confined to shallow marine, Cretaceous sediments adjacent to Proterozoic terraces defining a Late Albian (ca100Ma) shoreline. The deposit exists as stratiform disseminated Mn oxides, siliceous massive and high grade pisolitic manganese and massive mangite with beds up to 11m thickness. Laterisation processes have resulted in supergene enrichment during the Quaternary. The ore is in part semi - unconsolidated and in part hard and massive. The manganese ore occurs as free pisolitic or cemented lithoclasts within a sandy host and has to be separated by means of "washing" or heavy media separation from the host.

Please read GLD.022 Tenement Management, Exploration Results, Resource and Reserve Reporting before completion of the remainder of this declaration.
Please ensure this spreadsheet is ALWAYS MACRO ENABLED so the audit validation checks are switched on.

SECTION 2: MINERAL RESOURCE REPORTING

1. MODEL DATE:

14-Apr-2015

2. MODEL NAME / VERSIO

rmapr15.bmf

3. ESTIMATION METHODOLOGY OF THE MINERAL RESOURCE (Eg. polygon, ID squared, kriging):

April 2015 GEMCO model - The principal estimation methodology used for grade estimation is Ordinary Kriging (OK). Parameters such as density are assigned according to stratigraphic layer and geological domain. Yields are assigned according to measured yield and are estimated using OK. Two stratigraphic domains are constructed for the estimation representing the mining horizons. Planimetric domains are treated as soft boundaries to improve local estimates. Two OK estimation passes are used with un-estimated blocks being assigned background values. November 2012 sands model - This model was estimated using a two-dimensional

4. METHOD USED TO CLASSIFY THE RESOURCE (where a drill spacing is not used, the equivalent drill spacing should be provided.)

| | | | | | |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--|----------|--------------------------|
| Method: | The Resource is classified using minimum one metre ore thickness @ a cut-off of >= 40% Mn product grade. Ore Reserves are classified as relative material which will be mined in production with Ore Reserves and depletion to the beneficiation plant. Grades | | | | |
| Equivalent drill spacing | Measured | 60m x 120m and 60m x 60m | | Proved | 60m x 120m and 60m x 60m |
| | Indicated | 120m x 120m | | Probable | 120m x 120m |
| | Inferred | 240m x 240m | | | |

5. PREVIOUS YEAR'S RESOURCE:

as at 30 JUNE 2014

DO NOT LOAD - WILL AUTOMATICALLY LOAD FROM DATABASE

| Ore Type | Cut-off | Measured Resources | | | Indicated Resources | | | Inferred Resources | | | Total Resource 2014 | | | Total Resource - Metal Balance 2014 |
|-----------|---------|---------------------|------|---------|---------------------|--------------|---------|--------------------|--------------|---------|---------------------|--------------|---------|-------------------------------------|
| | | Tonnes dmt millions | Mn % | Yield % | Tonnes dmt mill | Mn % | Yield % | Tonnes dmt mill | Mn % | Yield % | Tonnes dmt million | Mn % | Yield % | Mn dmt millions |
| ROM Sands | 40 0 | 94.6 | 46.1 | 48.0 | 46.3 12.8 | 43.6 20.8 | 47.0 | 33.5 2.3 | 42.7 20.0 | 49.0 | 174.4 15.1 | 44.8 20.7 | 48.0 | 7,812.0 310.7 |

5a. Total Resource (inclusive of that used in Ore Reserves) as at end June 2014 (these mineral resource numbers are used for reporting)

| Ore Type | Cut-off | Measured Resources | | | Indicated Resources | | | Inferred Resources | | | Total Resource 2014 | | | Total Resource - Metal Balance 2014 |
|-----------|---------|---------------------|------|---------|---------------------|--------------|---------|--------------------|--------------|---------|---------------------|--------------|---------|-------------------------------------|
| | | Tonnes dmt millions | Mn % | Yield % | Tonnes dmt mill | Mn % | Yield % | Tonnes dmt mill | Mn % | Yield % | Tonnes dmt million | Mn % | Yield % | Mn dmt millions |
| ROM Sands | 40 0 | 95 | 46.1 | 48 | 46 13 | 43.6 20.8 | 47 | 34 2.3 | 42.7 20.0 | 49 | 175 15 | 44.8 20.7 | 48 | |

6. RESOURCE DEPLETION DUE TO MINE PRODUCTION (Depletion Tonnes value should be negative, grades are positive. Total Metal should be negative.)

| Ore Type | Production Depletion of: Measured Resources | | | Production Depletion of: Indicated Resources | | | Production Depletion of: Inferred Resources | | | Production Depletion of: Total Resource Tonnes and Grade | | | Production Depletion of: Total Metal |
|----------|---------------------------------------------|------|---------|----------------------------------------------|------|---------|---------------------------------------------|------|---------|----------------------------------------------------------|------|---------|--------------------------------------|
| | Tonnes dmt millions | Mn % | Yield % | Tonnes dmt mill | Mn % | Yield % | Tonnes dmt mill | Mn % | Yield % | Tonnes dmt million | Mn % | Yield % | Mn dmt millions |
| ROM | -9.5 | 48.5 | 50.0 | 0.0 | 50.2 | 50.0 | | | | -9.5 | 48.5 | 50.0 | -459.0 |

Are positive tonnages being entered in the above depletion table?

No

Comment on the entry of positive tonnages in the above depletion table

7. RESOURCE CHANGES FOR OTHER REASONS

For other changes specify + or - for the tonnage and describe below in the explanation

| Ore Type | Changes to Measured Resources | | | Changes to Indicated Resources | | | Changes to Inferred Resources | | | Changes to Total Resource Tonnes and Grade | | | Changes to Total Metal |
|----------|-------------------------------|------|---------|--------------------------------|------|---------|-------------------------------|------|---------|--------------------------------------------|------|---------|------------------------|
| | Tonnes dmt millions | Mn % | Yield % | Tonnes dmt mill | Mn % | Yield % | Tonnes dmt mill | Mn % | Yield % | Tonnes dmt million | Mn % | Yield % | Mn dmt millions |
| ROM | 21.0 | | | -17.6 | | | 1.0 | | | 4.4 | | | 151.3 |

Are you entering grades in the above changes table?

No

Comment on the entry of grades into the above changes table

No grades or yields have been entered into the above table

8. Internal explanation for changes (categorise changes into - additional exploration / drilling, geological interpretation, model, or classification, and add comment)

| | |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Resource interpretation and model update | There have been no material changes to the interpretation of the geological model. However additional material has been included in the resource based on minor changes to the ore extraction practices in the previous two years and following recommendations from an RAA audit in 2014. Additions include the thin |
| Change to Resource model methodology | |
| Results from drilling activities | A total of 942 additional drillholes have been incorporated into the resource model in both the mining and exploration areas. This has resulted in improved confidence in grade continuity especially in the exploration areas where 630 holes were added. |
| Classification changes | The additional drilling has resulted in the conversion of Potential Mineralisation to Resource and the upgrading of Inferred to Indicated and Measured Resource. |
| Other changes (explain) | Saved sites sterilised in the FY14 Ore Reserve have been now also been excluded from the Mineral Resource. This is a reduction of 3.5Mn in the A South and C Quarry areas. |

9. THIS YEAR'S RESOURCE:

as at 30 JUNE 2015

| Ore Type | Cut-off | Measured Resources (A) | | | Indicated Resources | | | Inferred Resources (C) | | | Total Resources 2015 (A+B+C) | | | Total Metal |
|-----------|---------|------------------------|------|---------|---------------------|--------------|---------|------------------------|--------------|---------|------------------------------|--------------|---------|------------------|
| | | Tonnes dmt millions | Mn % | Yield % | Tonnes dmt mill | Mn % | Yield % | Tonnes dmt mill | Mn % | Yield % | Tonnes dmt million | Mn % | Yield % | Mn dmt millions |
| ROM Sands | 40 0 | 106.1 | 45.2 | 48.0 | 28.7 12.8 | 43.4 20.8 | 47.0 | 34.5 2.3 | 42.6 20.0 | 49.0 | 169.3 15.1 | 44.3 20.7 | 48.0 | 7,504.2 310.7 |

9a. Total Resource (inclusive of that used in Ore Reserves) as at end June 2015 (These mineral resource numbers will be used for reporting)

| Ore Type | Cut-off | Measured Resources (A) | | | Indicated Resources | | | Inferred Resources (C) | | | Total Resources 2015 (A+B+C) | | |
|-----------|---------|------------------------|------|---------|---------------------|--------------|---------|------------------------|--------------|---------|------------------------------|--------------|---------|
| | | Tonnes dmt millions | Mn % | Yield % | Tonnes dmt mill | Mn % | Yield % | Tonnes dmt mill | Mn % | Yield % | Tonnes dmt million | Mn % | Yield % |
| ROM Sands | 40 0 | 106 | 45.2 | 48 | 29 13 | 43.4 20.8 | 47 | 35 2.3 | 42.6 20.0 | 49 | 169 15 | 44.3 20.7 | 48 |

Please confirm that the reported totals are correct:

Yes

10. Check Balance is calculated as: Last Year's Resource less depletion plus other changes less This Year's Resource = Check Balance

The value should be 0. If not, please check your inputs to ensure they balance out.

| | | | | | | | | | | | | | | | |
|-----------------------------|-----|--|-----|--|-----|--|-----|--|-----|--|-----|-----|-----|-----|-----|
| CHECK BALANCE (Should be 0) | 0.0 | | 0.0 | | 0.0 | | 0.0 | | 0.0 | | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 |
|-----------------------------|-----|--|-----|--|-----|--|-----|--|-----|--|-----|-----|-----|-----|-----|

11. MATERIALITY: As the Resource Competent Person, if your project is material, do you believe this new resource or change to the pre-existing resource is likely to be material (review using BHP Billiton's materiality criteria provided in Appendix 9 of the Competent Person's report template)?

No

12. Exclusive Mineral Resources (Additional to the Resources converted to JORC Ore Reserves) as at end June 2015

| Ore Type | Cut-off | Measured Resources (D) | | | Indicated Resources | | | Inferred Resources (F) | | | Total Excl. Resources 2015 (D+E+F) | | |
|----------|---------|------------------------|------|---------|---------------------|------|---------|------------------------|------|---------|------------------------------------|------|---------|
| | | Tonnes dmt millions | Mn % | Yield % | Tonnes dmt mill | Mn % | Yield % | Tonnes dmt mill | Mn % | Yield % | Tonnes dmt million | Mn % | Yield % |
| | | | | | | | | | | | | | |

13. Note: The additional Inferred Resource (F) should be equal to the Total Inferred Resource (C above) i.e. no Inferred converted to reserve, if this is not the case please explain below:

SECTION 3: ASX (JORC) ORE RESERVES REPORTING

- Ore Reserve Model date: 30-Apr-2015
- Please confirm that the Ore Reserves are scheduled from within the current approved Life of Asset Optimised Base Plan (GLD.034) Yes
- Please list the Reserve Estimation and Life of Asset Plan names/ versions/ files GEMCO - LOA16

| | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 4. Assumptions and factors used in calculating reserves: a. In situ Density: density is as per the Resource model. Density is assigned by domain, stratigraphic layer and ore horizon. c. Mining recovery: 95.0% Mining recovery comment: Mining Recovery factor introduced based on FY13 & FY14 reconciliations e. Pricing Assumptions (state which Commodity and Pricing Protocol, eg Cu price protocol, Sept 28 2012) Price Protocol: SL Mn - September 2014 JORC pricing used: 5.62 SEC pricing used: LT Price Exchange rate used (if applicable): 0.85 h. Details of Independent 3rd party Reviews or Audits carried out in the past 3 years on Reserves or Reserves: In 2010, QG conducted a Resource model review (Jackson et al). In 2011 QG conducted the Snowden 2010 resource model update review as part of the GEEP2b submission. In 2011 Snowden conducted a Mineral Resource audit on the 2011 QG model, and QG conducted an Ore Reserve audit. QG also conducted a short review in 2014 on density from the grade control drill results. | | b. Plant recovery: Reconciled Yield (based on Resource Yield and previous 2 years reconciliation FY13 Q3 to FY15Q2) d. Mining Dilution: 0.0% Mining Dilution comment: No dilution to match reconciliation findings. f. Moisture content: Resource: Resource estimated on a dry basis Moisture content: Reserve: Reserve estimated on a dry basis g. Strip Ratio (state units): JORC reserve: 11.6 wet TOB / wet ROM Ore 1 SEC reserve: i. Details of internal BHPB reviews or audits (Please specify if Group RAA audit or Group RBO evaluation or other internal review have been carried out): Audit of the geological database, August/September 2014/Review of GEMCO Reserve Model Predicted Yield, February 2015. Review of PC02 Sands Reserve, March 2015 | |
| j. Other comments/explanatory notes (thickness limits, impurity grades, exchange rates, acquisitions etc): | | | |

| | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 5. Tenement Details a. Expiry date Status of the mining tenement/leases: 16/9/2031 b. Are the reserves quoted under JORC within fully permitted tenements? Yes c. Is extraction of the quoted reserves scheduled for within the period of the mining lease? Yes d. If not, is lease renewal 100% assured for the full period of scheduled extraction? e. Other Comments on leases (eg, acquisition, relinquishment details etc.) | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

| 6. PREVIOUS YEAR'S RESERVE DO NOT LOAD - WILL AUTOMATICALLY LOAD FROM DATABASE | | | | | | | | | | | | | |
|--------------------------------------------------------------------------------|---------|----------------|----------------------|------|------------------------------------------------------------|------|------|------|------|---------------------|------|--|--|
| Ore Reserves As at June 2014 | | | | | Not Required, included in database from the 2014 reporting | | | | | Recoverable Product | | | |
| Ore Type | Cut-off | Proved Reserve | Probable Ore Reserve | | Total Ore Reserves | | | | | | | | |
| ROM | 40 | 78.2 | 45.0 | 58.0 | 16.0 | 42.6 | 57.0 | 94.2 | 44.6 | 57.8 | 24.3 | | |

| 6.a. Ore Reserves As at June 2014 (These Ore Reserve numbers will be used for reporting) | | | | | | | | | | | | |
|------------------------------------------------------------------------------------------|---------|----------------|----------------------|----|------------------------------------------------------------|------|----|----|------|---------------------|--|--|
| Proved Reserve | | | | | Not Required, included in database from the 2014 reporting | | | | | Recoverable Product | | |
| Ore Type | Cut-off | Proved Reserve | Probable Ore Reserve | | Total Ore Reserves | | | | | | | |
| ROM | 40 | 78 | 45.0 | 58 | 16 | 42.6 | 57 | 94 | 44.6 | 58 | | |

| 7. 2015 JORC Reserve depletion due to FY 2015 Mine Production (to be estimated from Reserve Model, only for Operating Mines). Depletion Tonnes should be negative, grade will be positive, Recoverable product should be negative. | | | | | | | | | | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|----------------|----------------------|------|---------------------|------|------|------|--|---------------------|--|--|
| Production from each category | | | | | ROM Production from | | | | | Recoverable Product | | |
| Ore Type | Cut-off | Proved Reserve | Probable Ore Reserve | | Total Ore Reserves | | | | | | | |
| ROM | Mn Prod | -9.9 | 48.3 | 55.0 | -9.9 | 48.3 | 55.0 | -2.6 | | | | |

Are positive tonnages being entered in the above depletion table?
 Comment on the entry of positive tonnages in the above depletion table:

| 8. Production from other sources | | | | | 9. Explanation for production from sources not in the Ore Reserve: | | | | |
|----------------------------------|---------|----------------|----------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|
| Ore Type | Cut-off | Proved Reserve | Probable Ore Reserve | | Note: The addition of the JORC reserve depletion due to production' and the 'production from sources not in the Ore Reserve' should sum to the total production for FY 2015. | | | | |
| | | | | | | | | | |

| 10. JORC Reserve changes other than from production depletion (June 2015 Reserve - June 2014 Reserve + Production for FY 2015) explain below | | | | | | | | | | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------|---------|----------------|------------------|--|-------------------|------|------|------|------|--------------------|------|--|
| Delta | | | | | Changes to | | | | | Changes to Product | | |
| Ore Type | Cut-off | Proved Reserve | Probable Reserve | | Total Ore Reserve | | | | | | | |
| Sands | | | | | 7.6 | 40.0 | 33.0 | 7.6 | 40.0 | 33.0 | 1.0 | |
| ROM | | -8.3 | | | 6.0 | | | -2.3 | | | -1.7 | |

Are you entering grades in the above changes table?
 Comment on the entry of grades into the above changes table:
 The total Mn metal product also includes an adjusted yield which does not affect the ROM numbers.

| | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 11. Internal explanation for changes (categorise changes into Resource changes, classification, mining parameters, metallurgical, economic or other) Classification changes: 6.6Mt of previously Proved has been down-graded to Probable and 3.5Mt removed to reflect the Competent Persons view of the geological uncertainty Change to Reserve modelling methodology: Change to Mining parameters: Change to Metallurgical parameters: Change to Economic parameters: Other changes (explain): Changes to block layout and Reserve extents to reflect the areas the Competent Person considers approval to mine from the Traditional Owners will be given as "a normal part of doing business" made a minor net 1.2Mt (positive) | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

| 12. JORC - June 2015 BHPB Ore Reserve Estimate: | | | | | | | | | | | | |
|-------------------------------------------------|---------|--------------------|----------------------|------|--------------------------|------|------|------|------|---------------------|------|--|
| Ore Reserves As at June 2015 | | | | | Probable Ore Reserve (H) | | | | | Recoverable Product | | |
| Ore Type | Cut-off | Proved Reserve (G) | Probable Reserve (G) | | Total Ore Reserves (G+H) | | | | | | | |
| ROM | Mn prod | 60.0 | 45.3 | 55.0 | 22.0 | 43.2 | 55.0 | 82.0 | 44.8 | 55.0 | 20.0 | |
| Sands | 0% | | | | 7.6 | 40.0 | 33.0 | 7.6 | 40.0 | 33.0 | 1.0 | |

| 12.a. Ore Reserves As at June 2015 (These Ore Reserve numbers will be used for reporting) | | | | | | | | | | | | |
|-------------------------------------------------------------------------------------------|---------|--------------------|----------------------|----|--------------------------|------|----|-----|------|--------------------------|--|--|
| Proved Reserve (G) | | | | | Probable Ore Reserve (H) | | | | | Total Ore Reserves (G+H) | | |
| Ore Type | Cut-off | Proved Reserve (G) | Probable Reserve (G) | | Total Ore Reserves (G+H) | | | | | | | |
| ROM | Mn prod | 60 | 45.3 | 55 | 22 | 43.2 | 55 | 82 | 44.8 | 55 | | |
| Sands | 0% | | | | 7.6 | 40.0 | 33 | 7.6 | 40.0 | 33 | | |

Please confirm that the reported totals are correct: Yes
13. Check Balance is calculated as: Last Year's Reserve less depletion plus other changes less This Year's Reserve = 0
 The value should be 0, if not, please check your inputs to ensure they balance out.

| | | | | | | | | | | | | |
|-----------------------------|-----|--|-----|--|-----|--|-----|--|-----|--|-----|--|
| CHECK BALANCE (Should be 0) | 0.0 | | 0.0 | | 0.0 | | 0.0 | | 0.0 | | 0.0 | |
|-----------------------------|-----|--|-----|--|-----|--|-----|--|-----|--|-----|--|

14. MATERIALITY: As the Reserve Competent Person, if your project is material, do you believe this new reserve or change to the pre-existing reserve is likely to be material (review using BHP Billiton's materiality criteria provided in Appendix 9 of the Competent Person's report template)? No

USE OF INFERRED MINERAL RESOURCES IN DEVELOPING THE MINE PLAN

15. Has Inferred Resource been used to set the mining limits for the Ore Reserve above that has been estimated under JORC (yes/no) Yes No

16. As per GLD.022, if Inferred Resources have been used to define the mine plan or mining limits (yes to the above question) then please:

EITHER complete a formal risk assessment on the inclusion of Inferred Resource in the Mine Plan **OR** complete a mine plan without any Inferred Resource material.

- Include keypoint and file name of risk assessment regarding having Inferred Resource material in the mine plan here **OR** complete the tables below for the Reserves without Inferred Resource in the mine plan.

Risk of using inferred in Mine plan was covered in the FY15 Resource and Reserve Risk Review completed with the Technology Geoscience and Engineering group on 26/3/2015. The inferred in the plan stated includes the measured and indicated that was in the plan but not included in the Reserve for other reasons.

17. 2015 Inferred Resource within the mine plan

| Ore Type | Cut-off | Tonnes dmt millions | Mn % | Yield % |
|-----------|---------|------------------------|---------|------------|
| ROM Sands | 0% | 1.4 | 40.0 | 29.0 |

18. Ore Reserve as at the end of June 2015 without the use of Inferred Resource to define the Mining Limit

* Note: This reserve is not used for reporting purposes, it is entered as a comparison to understand the effect of the inferred resource on mine limits.

| Ore Type | Cut-off | Proved Reserve | | | Probable Ore Reserve | | | Total Ore Reserves | | | Recoverable Product | | | |
|----------|---------|------------------------|---------|------------|----------------------|---------|------------|--------------------|---------|------------|---------------------|--|--|--|
| | | Tonnes dmt millions | Mn % | Yield % | Tonnes dmt mill | Mn % | Yield % | Tonnes dmt mill | Mn % | Yield % | Mn dmt millions | | | |
| | | | | | | | | | | | | | | |

19. Comment on the Reserve without Inferred Resource.

SECTION 4: SEC ORE RESERVES REPORTING

- 1. Have you done a Cashflow Test on the stated reserves?
- 2. Write the name of Cashflow Test report File
- 3. Is there a difference between the JORC and SEC Reserves?

4. If "YES" above, discuss the major reasons for the difference between the current BHPB JORC and SEC compliant reserve statements:

5. SEC - PREVIOUS YEAR'S ORE RESERVE:

DO NOT LOAD - WILL AUTOMATICALLY LOAD FROM DATABASE

| SEC Ore Reserves As at June 2014 | | | | | Not Required, included in database from the 2014 reporting | | | | | Recoverable Product | | | | | |
|----------------------------------|---------|--------------------|------|---------|------------------------------------------------------------|------|---------|--------------------------|------|---------------------|-----------------|--|--|--|--|
| Ore Type | Cut-off | Proven Reserve (I) | | | Probable Ore Reserve (J) | | | Total Ore Reserves (I+J) | | | Mn dmt millions | | | | |
| | | Tonnes | Mn % | Yield % | Tonnes dmt mill | Mn % | Yield % | Tonnes dmt mill | Mn % | Yield % | | | | | |
| ROM | 40 | 78.2 | 45.0 | 58.0 | 15.0 | 42.6 | 57.0 | 94.2 | 44.6 | 57.8 | 24.3 | | | | |

5.a SEC Ore Reserves As at June 2014 (These Ore Reserve numbers will be used for reporting)

| SEC Ore Reserves As at June 2014 (These Ore Reserve numbers will be used for reporting) | | | | | Not Required, included in database from the 2014 reporting | | | | | Recoverable Product | | | | | |
|-----------------------------------------------------------------------------------------|---------|--------------------|------|---------|------------------------------------------------------------|------|---------|--------------------------|------|---------------------|-----------------|--|--|--|--|
| Ore Type | Cut-off | Proven Reserve (I) | | | Probable Ore Reserve (J) | | | Total Ore Reserves (I+J) | | | Mn dmt millions | | | | |
| | | Tonnes | Mn % | Yield % | Tonnes dmt mill | Mn % | Yield % | Tonnes dmt mill | Mn % | Yield % | | | | | |
| ROM | 40 | 78 | 45.0 | 58 | 16 | 42.6 | 57 | 94 | 44.6 | 58 | | | | | |

6. SEC Reserve changes other than from production depletion (June 2015 Reserve - June 2014 Reserve + Production for FY 2015) explain below

| Delta Ore Type | Changes to Proven Reserve | | | Changes to Probable Reserve | | | Changes to Total Ore Reserve | | | Changes to Product | | | | | |
|----------------|---------------------------|------|---------|-----------------------------|------|---------|------------------------------|------|---------|--------------------|--|--|--|--|--|
| | Tonnes dmt millions | Mn % | Yield % | Tonnes dmt mill | Mn % | Yield % | Tonnes dmt mill | Mn % | Yield % | Mn dmt millions | | | | | |
| Sands ROM | -8.3 | | | 6.0 | 40.0 | 33.0 | -2.3 | 40.0 | 33.0 | -1.7 | | | | | |

Are you entering grades in the above changes table?

Comment on the entry of grades into the above changes table

7. Ore Reserves at June 2015

| Ore Type | Cut-off | Proven Reserve (I) | | | Probable Ore Reserve (J) | | | Total Ore Reserves (I+J) | | | Recoverable Product | | | | |
|----------|---------|--------------------|------|---------|--------------------------|------|---------|--------------------------|------|---------|---------------------|--|--|--|--|
| | | Tonnes | Mn % | Yield % | Tonnes | Mn % | Yield % | Tonnes | Mn % | Yield % | Mn dmt millions | | | | |
| ROM | | 60.0 | 45.3 | 55.0 | 22.0 | 43.2 | 55.0 | 82.0 | 44.8 | 55.0 | 20.0 | | | | |
| Sands | 0% | | | | 7.6 | 40.0 | 33.0 | 7.6 | 40.0 | 33.0 | 1.0 | | | | |

7.a Ore Reserves at June 2015 (These Ore Reserve numbers will be used for reporting)

| Ore Type | Cut-off | Proven Reserve (I) | | | Probable Ore Reserve (J) | | | Total Ore Reserves (I+J) | | |
|----------|---------|--------------------|------|---------|--------------------------|------|---------|--------------------------|------|---------|
| | | Tonnes | Mn % | Yield % | Tonnes | Mn % | Yield % | Tonnes | Mn % | Yield % |
| ROM | | 60 | 45.3 | 55 | 22 | 43.2 | 55 | 82 | 44.8 | 55 |
| Sands | 0% | | | | 7.6 | 40.0 | 33 | 7.6 | 40.0 | 33 |

Please confirm that the reported totals are correct:

8. Check Balance. Calculated as: Last Year's Reserve less depletion plus other changes less This Year's Reserve = 0
The value should be 0. If not, please check your inputs to ensure they balance out.

| | | | | | | | | | | | | | | | |
|-----------------------------|-----|--|-----|--|-----|--|-----|--|-----|--|-----|--|-----|--|-----|
| CHECK BALANCE (Should be 0) | 0.0 | | 0.0 | | 0.0 | | 0.0 | | 0.0 | | 0.0 | | 0.0 | | 0.0 |
|-----------------------------|-----|--|-----|--|-----|--|-----|--|-----|--|-----|--|-----|--|-----|

SECTION 5: RESERVE LIFE

RESERVE LIFE - Reserve life is calculated as the total stated reserves divided by approved nominated production rate.
If your asset DOES NOT follow this methodology or if the calculated number in step 2 is not a whole number, use ALTERNATE RESERVE LIFE box below with commentary on how the reserve life has been calculated.

1. APPROVED NOMINATED PRODUCTION RATE (mtpa)

2. CALCULATED RESERVE LIFE
Reserve Life calculated from the above production rate and stated reserves in Sections 3 and 4.

| | |
|-----------------------------------------------------------|------|
| JORC Reserve - Years | 9.4 |
| SEC Reserve - Years | 9.4 |
| JORC Reserve plus Inferred Resource included in mine plan | 13.3 |

3. COMMENT ON CALCULATED RESERVE LIFE

9Mtpa (dry) from the ROM source and 0.5Mtpa (dry) from the sand source.

4. ALTERNATIVE RESERVE LIFE
Reserve Life calculated on a DIFFERENT BASIS other than by nominated production rate and stated reserves

| | |
|-----------------------------------------------------------|------|
| JORC Reserve - Years | 10.0 |
| SEC Reserve - Years | 10.0 |
| JORC Reserve plus Inferred Resource included in mine plan | 15.0 |

5. COMMENT ON REASON FOR, AND CALCULATION OF, ALTERNATIVE RESERVE LIFE

Rounded up to whole years for the Reserve life, and chaged to match the actual LOA plan for the Reserve + inferred life.

SECTION 6: MINE RECONCILIATION

Reconciliation factors for FY 2015

See Mine planning network website, Reconciliation Project for further details of the reconciliation

1. Period of reconciliation from: 01-Jul-2014 2. To: 31-Mar-2015

3. Reconciliation ore type: ROM

| | Tonnes | Mn | Yield | | |
|-------------------------------------------------------------|--------|-------|-------|--|--|
| 4. Grade control model / Reserve model on a % basis, F1: | 98.0% | | | | |
| Process feed / Grade control model on a % basis, F2: | 93.0% | | | | |
| Recoverable product sales / Reserve model on a % basis, F3: | 90.0% | 99.0% | ##### | | |

5. Names of STGC, Reserve Model etc: Reserve_model = (atFY14MnIno)V4.bmf + 201504 Gemco FY2015 Final Reserve Calculations.xlsx

6. Quarterly reconciliation results: 20150429 NS MnAus Recon FY15 Q3 Dry Basis Reserve V1.xlsx

7. Comment: Functional mandate has F1 and F2 done by site, F3 done by Reserves Competent Person. The site reconciliations have been adjusted for moisture to give a dry basis reconciliation. Because of the difficulty in

NOTE: Input the reconciliation data for the overall mine output which combines the ore types, if it is not suitable or possible to combine the ore types then input the reconciliation for the main ore type and state below which ore type has been input. Reconciliation on the other ore types should be included in the Competent persons report. Note that the reconciliation should be the % ratio and for the metal or qualities based on the tonnes x metal or quality and include allowance for intermediate stocks movements where applicable.

SECTION 7: COMPETENT PERSONS

1. COMPETENT PERSONS (JORC - 2004) or Recognised Mining Professional

| Mineral Resource CPs | | Resource CP 1 | Resource CP 2 | Ore Reserve CPs | Reserve CP1 | Reserve CP2 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|---------------|-------------------------------------------------------------------------------|-----------------------------------------|----------------------------------|-------------|
| Name: | David Hope | | | Name: | Mark Bryant | |
| Position Title: | Manager Geological Services | | | Position Title: | Principal, Bryant Mining Pty Ltd | |
| Qualifications: | BSc (Geology), Grad Cert Geostats | | | Qualifications: | BE (Mining) | |
| AIMM/AIG or ROPO membership | MAusIMM | | | AIMM/AIG or ROPO membership | MAusIMM | |
| Membership Number | 208221 | | | Membership Number | 111383 | |
| Membership of other professional bodies | | | | Membership of other professional bodies | | |
| Brief Description of relevant experience. | | | Brief Description of relevant experience. | | | |
| Over 10 years resource modelling experience. With significant exposure to the modelling of weathered, lateritic and stratigraphic ore deposits (including Manganese, Nickel, Coal and Bauxite). | | | Over 15 years mine planning and operational experience in stratified deposits | | | |
| Mailing Address: | GPO Box 1389, Brisbane QLD 4001 | | | Mailing Address: | PO Box 10581 Bnsbane Qld 4000 | |
| Telephone: | (+61 7 32377136 | | | Telephone: | 61421252324 | |
| Fax: | (+61 7 32377111 | | | Fax: | | |
| E-mail: | David.Hope@bhpbilliton.com | | | E-mail: | markbryant@minserve.com.au | |
| Signed | | | | Signed | | |
| Date | | | | Date | | |
| Resource CP 3 | | Resource CP 4 | Reserve CP3 | Reserve CP4 | | |
| Name: | | | | | | |
| Position Title: | | | | | | |
| Qualifications: | | | | | | |
| AIMM/AIG or ROPO membership | | | | | | |
| Membership Number | | | | | | |
| Membership of other professional bodies | | | | | | |
| Brief Description of relevant experience. | | | Brief Description of relevant experience. | | | |
| Mailing Address: | | | | Mailing Address: | | |
| Telephone: | | | | Telephone: | | |
| Fax: | | | | Fax: | | |
| E-mail: | | | | E-mail: | | |
| Signed | | | | Signed | | |
| Date | | | | Date | | |
| Resource CP 5 | | Reserve CP5 | | | | |
| Name: | | | | | | |
| Position Title: | | | | | | |
| Qualifications: | | | | | | |
| AIMM/AIG or ROPO membership | | | | | | |
| Membership Number | | | | | | |
| Membership of other professional bodies | | | | | | |
| Brief Description of relevant experience. | | | Brief Description of relevant experience. | | | |
| Mailing Address: | | | | Mailing Address: | | |
| Telephone: | | | | Telephone: | | |
| Fax: | | | | Fax: | | |
| E-mail: | | | | E-mail: | | |
| Signed | | | | Signed | | |
| Date | | | | Date | | |
| 2. Business Leader / Asset Leader Acknowledgment | | | 3. Comments (e.g. Additional Competent Persons) | | | |
| Name: | | | | | | |
| Title: | | | | | | |
| Signed | | | | | | |
| Date | | | | | | |
| | | | Approval for Public Release <input checked="" type="checkbox"/> Yes | | | |

SECTION 8: ANNUAL REPORT PREVIEW

For information being released externally, this page shows what the Mineral Resource and Ore Reserve information will look like in the Annual Report lodged with the ASX and the Ore Reserve Information that will be included in the 20F document lodged with the SEC.
 Only the key footnotes are provided here for review.
 For Ore Reserves in both cases, the CP must choose which reserve data and reserve life should be submitted to the ASX and SEC.
 Modifications to format and layout may occur to these tables prior to their inclusion in the Annual Report and 20F. The CP will review the final drafts and provide a Consent to Publish Form before publication.
 After review of this data, please go to the bottom of this page for your endorsement/approval or rejection.

This data is for EXTERNAL release

ASX Mineral Resources

The Resource CP believes the new resource or changes to the pre-existing resource are material (as per the current JORC Code): NO

| Ore Type | As at 30 June 2015 | | | Measured Resources (A) | | | Indicated Resource | | | Inferred Resources (C) | | | Total Resources 2015 (A+B+C) | | | Total Resource as at 30 June 2014 | | | BHP Billiton |
|-----------|--------------------|---------------------|------|------------------------|-------------------|--------------|--------------------|-------------------|------------|------------------------|---------------------|--------------|------------------------------|---------------------|--------------|-----------------------------------|----------|--|--------------|
| | Cut-off | Tonnes dmt millions | Mn % | Yield % | Tonnes mt millior | Mn % | Yield % | Tonnes mt millior | Mn % | Yield % | Tonnes dmt millions | Mn % | Yield % | Tonnes dmt millions | Mn % | Yield % | | | |
| ROM Sands | 40 0 | 106 | 45.2 | 48 | 29 13 | 43.4 20.8 | 47 | 35 2.3 | 42.6 20 | 49 | 169 15 | 44.3 20.7 | 48 | 175 15 | 44.8 20.7 | 48 | 60 60 | | |

David Hope

Cut-off Grades

| Ore Type | Mineral Resources |
|----------|-------------------|
| | |

Annual Report Resource Footnote:

A detailed explanation is required for the BHPB ASX Annual Report if the resource has changed by more than 5% (exclusive of production depletion) from the previous year.

Cut-off grades: >40%Mn washed product and >= 1m ore thickness for ROM, > 0%Mn in situ for Sands. Mineral Resource ROM tonnes are stated as in situ, manganese grades are given as per washed ore sample and should be read together with their respective tonnage yields. Mineral Resource Sands tonnes and manganese grades are reported as in situ.

ASX Ore Reserves

The Reserve CP believes the new reserve or changes to the pre-existing reserve are material (as per the current JORC Code): NO

For ASX reported Ore Reserves: Reserve: JORC
Reserve Life: JORC

| Ore Type | Cut-Off | As at 30 June 2015 | | | Proved Reserve (G) | | | Probable Ore Reserve (H) | | | Total Ore Reserves (G+H) | | | Reserve Life based on JORC Reserve | Total Ore Reserve as at 30 June 2014 | | | Reserve Life based on JORC Reserve | BHP Billiton Interest % |
|-----------|---------|---------------------|------|---------|--------------------|------------|----------|--------------------------|------------|----------|--------------------------|------|---------|------------------------------------|--------------------------------------|----------|--|------------------------------------|-------------------------|
| | | Tonnes dmt millions | Mn % | Yield % | Tonnes mt millior | Mn % | Yield % | Tonnes mt millior | Mn % | Yield % | Tonnes dmt millions | Mn % | Yield % | | | | | | |
| ROM Sands | 0% | 60 | 45.3 | 55 | 22 7.6 | 43.2 40 | 55 33 | 82 7.6 | 44.8 40 | 55 33 | 10 10 | | | | 11 11 | 60 60 | | | |

Mark Bryant

Cut-off Grades

| Ore Type | Cut-off Grade | Moisture | Metallurgical Recovery / Process |
|----------|---------------|----------|----------------------------------|
| | | | |

Annual Report Reserves Footnote:

A detailed explanation is required for the BHPB ASX Annual Report if the reserve has changed by more than 5% (exclusive of production depletion) from the previous year.

Previous Year's footnote to be updated: (1) Cut-off grades: >= 40%Mn washed product and >= 1m ore thickness for ROM,(2) Approximate drill hole spacings used to classify the reserves were: Proved 60m x 120m and 60m x 60m; Probable 120m x 120m,(3) Metallurgical recovery: See yield in Ore Reserves table,(4) Ore delivered to process plant,(5) Ore Reserve tonnes are stated as ROM, manganese grades are reported as expected product and should be read together with their respective tonnage yields.

SEC Ore Reserves

For ASX reported Ore Reserves: Reserve: SEC
Reserve Life: SEC

| Ore Type | Cut-Off | As at 30 June 2015 | | | Proven Reserve (I) | | | Probable Ore Reserve (J) | | | Total Ore Reserves (I+J) | | | Reserve Life based on SEC Reserve | Total Ore Reserve as at 30 June 2014 | | | Reserve Life based on SEC Reserve | BHP Billiton Interest % |
|-----------|---------|---------------------|------|---------|--------------------|------------|----------|--------------------------|------------|----------|--------------------------|------|---------|-----------------------------------|--------------------------------------|----------|--|-----------------------------------|-------------------------|
| | | Tonnes dmt millions | Mn % | Yield % | Tonnes mt millior | Mn % | Yield % | Tonnes mt millior | Mn % | Yield % | Tonnes dmt millions | Mn % | Yield % | | | | | | |
| ROM Sands | 0% | 60 | 45.3 | 55 | 22 7.6 | 43.2 40 | 55 33 | 82 7.6 | 44.8 40 | 55 33 | 10 10 | | | | 11 11 | 60 60 | | | |

Mark Bryant

SEC 20-F Reserves Footnote:

A detailed explanation is required for the BHPB SEC 20-F submission if the reserve has changed by more than 5% (exclusive of production depletion) from the previous year.

Previous Year's footnote to be updated: (1) Cut-off grades: >= 40%Mn washed product and >= 1m ore thickness for ROM,(2) Approximate drill hole spacings used to classify the reserves were: Proven 60m x 120m and 60m x 60m; Probable 120m x 120m,(3) Metallurgical recovery: See yield in Ore Reserves table,(4) Ore delivered to process plant,(5) Tonnes are stated as ROM, manganese grades are reported as expected product and should be read together with their respective tonnage yields.

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Appendix 3. Mineral Resources Ore Reserves and Mine Planning Governance Checklist

The checklist lists the minimum criteria required to address governance requirements in the preparation and reporting of the Mineral Resources and Ore Reserves. The headings in the table are consistent with the current Technology, Geoscience and Engineering *Mineral Resources Ore Reserves and Mine Planning Audit Protocol*. The methodology, areas of practice and minimum risk controls are therefore compatible with the scope and objectives of the internal audit.

The governance checklist sets out the minimum risk controls required for each of the seven key risk issues related to Mineral Resources, Ore Reserves and Mine Planning:

Governance;

Resource Data Management;

Mineral Resources Estimation;

Ore Reserves Estimation;

Directional Planning; and

Delivery Planning

It is intended that the Competent Person(s) at the reporting asset or operation would, during or following completion of the Mineral Resources and Ore Reserves statement, check off the estimation and reporting process against the checklist criteria and include the completed checklist in the Competent Person's Report in *Appendix 3*.

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Geology, Mineral Resources, Ore Reserves and Mine Planning Internal Audit Protocol

MINERAL RESOURCES, ORE RESERVES AND
MINE PLANNING GOVERNANCE CHECKLIST

| | |
|----------------------------|----------------------------|
| ASSET | Manganese Australia |
| OPERATION / PROJECT | GEMCO |
| Period covered | FY2015 |
| Competent Person: | |
| Mineral Resources: | David Hope |
| Ore Reserves: | Mark Bryant |

| Risk Issue | Risk | Minimum Risk Controls | Completed / Comment |
|---------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Mineral Resources and Ore Reserves Governance | 1.1 Reporting of Mineral Resources and Ore Reserves are not in compliance with JORC code.. | <p>Nomination of the appropriate Competent Person/s for Mineral Resources and Ore Reserves estimation and reporting is in place.</p> <p>The Competent Person understands the responsibilities and obligations for JORC.</p> <p>The Mineral Resources and Ore Reserves declarations are produced and authorised in accordance with <i>the Companys prevailing policy</i>.</p> <p>A Competent Persons report for the Mineral Resources and the Ore Reserves is prepared annually containing the substantiating documentation for the declaration.</p> <p>The Competent Person provides consent for publishing Mineral Resources and/or Ore Reserves by completing a Competent Person Consent to Publish form annually prior to the public release of the Annual Report and Form 20-F.</p> | <p>COMPLETED</p> <p>David Hope (Mineral Resource)</p> <p>Mark Bryant (Ore Reserve)</p> <p>The Mineral Resource and Ore Reserve are authorised in accordance with GLD.022</p> |
| | 1.2 Mineral rights and land title are not secure. | A formal documented tenure management system is in place and a nominated responsible manager to identify and trigger actions, requirements and maintain title/tenure. | Tenure is managed using the 1SAP Minerals Land and Tenement Management (MLTM) system. There is a designated tenure specialist and the Manager Asset Planning is responsible for the management |

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| | 1.3 | <p>Compilation and reporting of Mineral Resources and Ore Reserves does not comply with Sarbanes Oxley criteria for key spreadsheets and databases.</p> <p>The key, site based, databases and working files (including spreadsheets) used in the estimation and transfer of Mineral Resources and Ore Reserves to the Annual Report declaration must be nominated and the below controls assessed.</p> <p>Nominate the key files/databases here:</p> <table border="1"> <tr> <td>grjul14.gdm.isis – geological database</td> </tr> <tr> <td>grjul14.bmf – resource model</td> </tr> <tr> <td>grFY15MiningV4.bmf – mining model</td> </tr> <tr> <td>LOA16V2 Base.blx – Blasor Schedule</td> </tr> <tr> <td>201504 Gemco FY2015 Final Reserve Calculations.xlsx</td> </tr> </table> | grjul14.gdm.isis – geological database | grjul14.bmf – resource model | grFY15MiningV4.bmf – mining model | LOA16V2 Base.blx – Blasor Schedule | 201504 Gemco FY2015 Final Reserve Calculations.xlsx | |
| grjul14.gdm.isis – geological database | | | | | | | | |
| grjul14.bmf – resource model | | | | | | | | |
| grFY15MiningV4.bmf – mining model | | | | | | | | |
| LOA16V2 Base.blx – Blasor Schedule | | | | | | | | |
| 201504 Gemco FY2015 Final Reserve Calculations.xlsx | | | | | | | | |
| | 1.3.1 | <p>Data is not adequately secured from unauthorised use.</p> <p>Access to the database or spreadsheets must be restricted to only those individuals who require access, and password protection must be in place.</p> | There is restricted access to all relevant work areas and the declaration database | | | | | |
| | 1.3.2 | <p>Versions are not appropriately managed and controlled.</p> <p>The name of the spreadsheet must describe the purpose of the spreadsheet, the date or version modified.</p> | Files named as per protocol: <i>YYYYMMDD MnAus root subject content version</i> | | | | | |
| | 1.3.3 | <p>Data is not backed up on a regular basis and able to be restored.</p> <p>Spreadsheets / databases must be saved on the computer network server that is regularly backed up in accordance with <i>the Companys prevailing Information Management security policy.</i></p> | Backup is in accordance with the IM standards | | | | | |
| | 1.3.4 | <p>Adequate documentation is not maintained.</p> <p>Documentation of the functions of the spreadsheets and databases exists and includes the processes that are dependent on or interface with the spreadsheet / database.</p> | Resource and reserve process documentation compiled by Competent Persons | | | | | |
| | 1.3.5 | <p>Data input and output is not appropriately managed and changes are not controlled.</p> <p>User requirements (reasons for change, desired output) must be formally defined and documented before major changes are made.</p> <p>Where the spreadsheet interfaces with another application or where data is obtained from another report, the interface and/or input must be tested against the source to ensure that input is accurate and complete.</p> <p>Error checking and balancing calculations must be incorporated into the functionality of the spreadsheet.</p> | Version control via file naming convention and also Documentum Links/interfaces tested to ensure data transfer integrity Error checks incorporated into spreadsheet design | | | | | |

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| 2. Resource Data Management | 2.1 | <p>Incorrect conventions are used in developing Mineral Resources and/or the Ore Reserves.</p> | <p>Clear documentation is used which is communicated throughout the operation or project and includes:</p> <ul style="list-style-type: none"> • the units used; • the Coordinate System, its relationship to World Coordinates and its limitations; • definition of Reduced Level; • the grid system including definition of grid north. | <p>COMPLETED</p> <p>All survey data is captured and modelled using the MGA 1994 grid convention (53L). There is no truncation of either the coordinate system or the reduced level (RL).</p> |
| | 2.2 | <p>Processes are not in place for scoping, planning, obtaining permitting approvals and executing exploration / drilling programmes to ensure timely data coverage for long term, medium and short term planning.</p> | <p>The processes for planning, obtaining permitting approvals and executing exploration / drilling programmes, including risk assessment and mitigating controls are aligned with the CAP requirements.</p> <p>Data requirements are based on local regional understanding of the geology and hydrogeology.</p> <p>The exploration / drilling program has defined the drill hole spacing required to capture sufficient information to enable geological, geometallurgical and hydrogeological modelling at the required level of confidence and to enable quantification of uncertainty and risk/opportunity.</p> <p>The exploration / drilling plan has been developed by suitably qualified and experienced geologists and approval to implement the plan has been received.</p> <p>The exploration /drilling program has been carried out as designed and the parameters which will ultimately form the basis to the mining method, a mine plan and schedule as well as the metallurgical processing methods have been collected and are adequate for the purpose.</p> <p>A drill hole spacing analysis has been undertaken and the variability of both the economic and deleterious qualities and the number and quality of the holes (recovery, hole diameter, drilling method) is adequate for the resource classification applied and planning requirements.</p> <p>The drilling grid includes a pattern of closely spaced holes and captures the short range variability likely to be encountered during mining and required for grade control.</p> | <p>Procedures in place for drillhole planning and permit to clear. Risks are detailed in the exploration and drilling risk register and reviewed biannually</p> <p>Drillhole spacing analysis was completed in 2014 and outlined in “20140619 MnAus grade control value proposition memo”</p> <p>Drill plans are developed by experience geologists in consultation with Resource CP.</p> <p>Drilling is designed and sampled and analysed to account for the mining and processing methods</p> <p>Drillhole spacing analysis was completed in 2014 and outlined in “20140619 MnAus grade control value proposition memo”</p> <p>Multiple quarry areas have been drilled with variogram cross drilling to assist with the definition of short scale variability</p> |
| | 2.3 | <p>Insufficient or inaccurate data are collected because the logging and sampling procedures in place to capture</p> | <p>Logging standards and procedures for drill hole surveys and orientation, quantitative mineralogy have been developed, are actively used and are appropriate for the qualities and parameters to be modelled.</p> <p>Measures are in place to ensure drill holes have been oriented, geotechnical structures have been</p> | <p>Logging and sampling procedures in place</p> <p>All holes are drilled vertical which is appropriate for this style of mineralisation</p> |

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| Risk Issue | Risk | Minimum Risk Controls | Completed / Comment |
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| | geological, geotechnical, hydrogeological etc. parameters are inadequate. | <p>logged and characterised and downhole surveys have been completed.</p> <p>Quality assurance and quality control (QAQC) has been undertaken to validate the method used to conduct downhole surveying especially for deep holes.</p> <p>Processes are in place to ensure that the stored data are current, have been validated and can only be accessed by relevant approved employees/contractors.</p> <p>The process/management system used to ensure that the data has been checked and audited, controlled access is in accordance with design and adequate backups are available.</p> <p>Processes are in place to ensure that stored samples are current, that sufficient information is captured in terms of physical retention, i.e. photographs or scans of samples, to be able to regenerate or update models.</p> <p>A documented sample dispatch management and laboratory receipt system is in place and the laboratory data collection system is automated for example, LIMS system or equivalent.</p> | <p>QAQC samples are collected/inserted in accordance with the relevant procedure</p> <p>Data is stored in the geological database which includes flags to code data as valid/invalid, and is accessible to only approved personnel</p> <p>Sample chip trays are stored in the Ndunga Shed</p> <p>Samples are dispatch according to the relevant site procedure and receipted at the external laboratory according to the relevant procedure and recorded in the LIMS</p> |
| 2.4 | Work quality and consistency of performance and results cannot be verified because documented sampling and analytical processes are not available with respect to capturing geological, geotechnical, hydrogeological etc. activities | <p>Assay protocols are appropriate for the minerals being analysed and are clearly documented, communicated and understood.</p> <p>HSEC and QAQC procedures of the chosen analytical laboratories have been reviewed and accepted at the start of a contract and annually thereafter.</p> <p>QAQC procedures and processes are adequately designed, formulated and documented, results are communicated to the geology department regularly for example at least quarterly and there are mechanisms in place to deal with "out of specification" results or other spurious values.</p> <p>Periodic regular reviews of QAQC and performance metrics are undertaken by the asset and feedback is provided to the laboratories in a timely manner.</p> <p>Laboratory audit inspections are undertaken/organised regularly e.g. at least quarterly by the Geology Department and standard reference materials are matrix matched to the mineralisation being sampled and assayed.</p> <p>The geologists responsible for monitoring and designing sampling protocols and other QAQC systems are conversant with the design and functioning of these procedures.</p> | <p>The external laboratory provides appropriate procedures</p> <p>Procedures are review with each contract and assessed during each laboratory audit (approximately monthly)</p> <p>Internal and external QAQC procedures are in place.</p> <p>The external laboratory provides monthly performance and QAQC reports</p> <p>Internal QAQC results are reviewed monthly and discussed at the monthly meeting</p> <p>Laboratory audits are conducted at least monthly at the external lab.</p> <p>CRM's are submitted blind to the laboratory as part of the QAQC protocol. The lab also uses CRM's as part of their internal process. Only appropriate CRM's are selected for assessment</p> |

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| | 2.5 Staff undertaking the exploration/drilling programmes are inadequately trained. | <p>Adequate training and supervision of geologists is undertaken and suitable reference materials are available to ensure consistency of logging and other data capture processes or technologies.</p> <p>Geological personnel have been trained and have achieved a level of competence to perform logging, mapping and data collection.</p> <p>Drillers and sampling crews are competent in sampling practices (if the drillers are actually taking the samples) and records of training are kept.</p> <p>Quantitative data collection tools are used if possible for example, Hylogger, Hy-chips, Corescan, equotip, labspec, point load tests, geophysical, downhole tool and there is evidence that operators of these tools are adequately trained.</p> <p>Calibration of these tools is undertaken regularly.</p> <p>Samples of geological reference materials commonly encountered on site are displayed and are used for training geologists, samplers and drillers or for calibrating quantitative data capture tools such as Corescan.</p> | <p>Personnel are trained annually and a specimen library is also available for reference</p> <p>Samplers are trained to adhere to the relevant procedures</p> |
| | Available supporting documentation | <ul style="list-style-type: none"> • Documentation of conventions. • Drill logging procedures manual. • Sampling procedures and protocols. • Current or last drill contract and scope. • QAQC procedures and reports • Training material and records | |
| 3. Mineral Resources Estimation | 3.1 The geological model is unreliable | <p>Documented procedures elaborate the rationale for selection of method of estimation including estimation parameters and mining selectivity (SMU) assumptions.</p> <p>An implicit 3D model or plans and sections are available which honour the data and interpretations of the models.</p> <p>Geological domains have been constructed from the observations and are used when generating the resource estimates.</p> <p>The geological interpretation is consistent with geological understanding in all directions.</p> <p>Density is measured on a sufficient number of samples to enable it to be estimated into blocks or it has been established through regression analysis or lithological average and assigned.</p> <p>Inferred Resources estimated by extrapolation (rather than interpolation) have been clearly identified and described both in text and visually,</p> | <p>An study was previously completed to assess the appropriateness on the SMU</p> <p>Sections are available which demonstrate the models honour the data</p> <p>Geological domains were reassessed in 2010 and updated on the basis of this analysis</p> <p>The interpretation is consistent with the style of mineralisation</p> <p>Diamond core data has been used to establish in situ bulk density values for the different domains</p> <p>There has been no</p> |

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| | | for example, the maximum distance applied to the extrapolation. | extrapolation of grades in the GEMCO resource |
| | 3.2 Resource model parameters and qualities have not been reliably estimated into the model | <p>The estimate includes physical characteristics, for example, density, moisture and geotechnical parameters.</p> <p>A clear documented process exists for local estimation into block size consistent with the data spacing and the planned selective mining unit:</p> <ul style="list-style-type: none"> honouring the domains; with appropriate search criteria. | <p>The resource is modelled on a dry basis and bulk density is assigned rather than estimated</p> <p>Grades are estimated into the parent block according to the relevant procedure</p> |
| | 3.3 Resource model validation has not been reliably undertaken | <p>There is a process for model validation and it is appropriate.</p> <p>Reconciliation of tonnage and grade/quality from mine production is used as input to understand variability of the deposit and uncertainty in estimation.</p> <p>Visual and statistical checks such as swath plots and declustered means of composites to test both local and global estimation validity have been carried out.</p> | <p>Model validation is conducted according to the relevant procedure</p> <p>Reconciliations are conducted in accordance with GLD.002</p> <p>Visual and statistical checks are required under the validation procedure</p> |
| | 3.4 Mineral Resources have not been appropriately classified | <p>The classification method is documented for each unique estimation domain.</p> <p>A drillhole spacing optimisation study has been used to support the classification.</p> <p>Classification has been undertaken on a block by block basis or on parcels of ore which make up quarterly or annual production volumes</p> | Classification method is outlined in the relevant procedure and the CP report |
| | 3.5 A grade control model has not been generated from additional drilling and data collected post resource definition drilling and geological mapping | <p>A procedure for generating and maintaining a grade control model is in place.</p> <p>The additional information captured is sufficient in number and quality to generate reliable resource estimates to enable generation of accurate grade control models after incorporating modifying factors.</p> <p>Grade control model data is routinely applied to update the long term resource model.</p> | <p>A grade control modelling procedure is in place and managed by site.</p> <p>Grade control RC drilling is included in the resource model</p> |
| | 3.6 Cut-off grade/quality has not been considered in the determination of the Mineral Resources | <p>There is a process to assess the economic extraction of new or known mineralisation within the reporting limits.</p> <p>The reporting limit for the Mineral Resources estimate takes into account the high case flat real anchor price or an alternative method e.g. geological boundary.</p> | Cut-off grade analyses have been completed regularly |

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| Risk Issue | Risk | Minimum Risk Controls | Completed / Comment |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | 3.7 An Independent Audit has not been conducted following a material or significant change in Mineral Resources | <p>There is a process in place to trigger the requirement for an Independent Audit.</p> <p>Authorisation for the appointment of an auditor (and the audit scope) is obtained in accordance with the Companys prevailing policy requirements.</p> <p>The scope of the review is clearly defined and carried out, considers JORC guidelines, and an action plan to remediate shortcomings is in place.</p> <p>Specify the date of the last independent audit for Mineral Resources:</p> | There has been no material change to the resource and consequently no independent audits conducted. However as part of the South32 demerger CSA Global was engaged to provide a Mineral Experts Report which could be deemed to be an independent audit. |
| | 3.8 The potential mineralisation of an asset or project has not been fully assessed where such mineralisation occurs beyond the extents of the classified Mineral Resources | <p>The Resource Range Analysis approach to estimate potential mineralisation is in accordance with the Companys prevailing policy requirements.</p> <p>The Resource Range Analysis has generated results for at least the Min, Mid and Max cases.</p> <p>Estimates have been made of in situ, recoverable and product potential mineralisation.</p> | The RRA was updated in 2014, this was aligned to the company's requirements. Estimates were made of in situ and where sufficient information was available of the recoverable potential mineralisation. |
| | Available supporting documentation | <ul style="list-style-type: none"> • Hard copy set of cross sections and bench plans with geological interpretation and resource • Resource estimation and evaluation documentation • Independent Audit reports including scoping document • Resource Range Analysis documentation | |
| 4. Ore Reserves Estimation | 4.1 The resource model used as the basis for Ore Reserves estimation is inaccurate or unsuitable to support the development of the Life of Asset Plan | <p>The resource model is of sufficient dimension and discretisation and contains sufficient information / parameters to enable the Life of Asset planning process to be conducted effectively.</p> <p>The resource model is documented and communicated to the Ore Reserves Competent Person through a formal process and is validated prior to use in developing the Life of Asset Plan.</p> | Model has been deemed appropriate for a global Reserve estimate by the competent person and a formal handover occurred 17/7/2014. |
| | 4.2 The basis for classification of the Ore Reserves into the confidence categories defined by JORC Code | <p>Conversion of Mineral Resources to Ore Reserves meets the requirements of JORC Code 2012 Edition and the Companys prevailing policy.</p> <p>Ore Reserves classification takes in to account uncertainty associated with Modifying Factors and Mine Planning Assumptions as required by JORC Code 2012 Edition.</p> | <p>Estimate has been prepared in accordance with the JORC Code 2012, and where they do not conflict with the code, the Company's Policies.</p> <p>The choice of the appropriate category of Ore</p> |

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| Risk Issue | Risk | Minimum Risk Controls | Completed / Comment |
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| | 2012 Edition (Proved and Probable)) is unsupported, inaccurate or inconsistent with statutory reporting | JORC Code 2012 Edition criteria for classification of Ore Reserves into Proved and Probable have been adhered to. | Reserves has been made by a competent person. |
| 4.3 | The Modifying Factors and Mine Planning Assumptions used to develop the Life of Asset Plan and Ore Reserves are unsupported or inaccurate. | <p>The geological, physical, chemical and structural characteristics of the orebody are taken into account when selecting the Selective Mining Unit (SMU) and choosing the mining method.</p> <p>Any variances in product / ore tonnes and quality / grade between that estimated by:</p> <p>(a) Reserve model data; and</p> <p>(b) Grade control modelling arising from modelling data that is both of a different density and collection type/method must be taken into account.</p> <p>The Modifying Factors, Mine Planning and Economic Assumptions used for the Life of Asset Plan are:</p> <p>(a) Supported by evidence, analysis and / or reference to the Companys prevailing policy on <i>Corporate Planning</i> and <i>Value Management</i> and approved by the relevant stakeholders to the Life of Asset Plan.</p> <p>(b) Current and validated and/or adjusted to improve Ore Reserves estimation, mine plan and/or operational performance.</p> <p>(c) Accurately measured and reconciled.</p> <p>Translation of Modifying Factors and Mine Planning Assumptions into Life of Asset Planning processes and Ore Reserves are correct.</p> <p>All key stakeholders are consulted in formulating the Life of Asset planning assumptions, objectives and communicating Life of Asset Plan outcomes.</p> | Completed – see document. Reconciliation accuracy hampered by inaccuracy and incomplete actuals data. |
| 4.4 | An Independent Audit has not been conducted following a material or significant change in Ore Reserves | <p>There is a process in place to trigger the requirement for an Independent Audit.</p> <p>Authorisation for the appointment of an auditor (and the audit scope) is obtained in accordance with the Companys prevailing policy requirements.</p> <p>The scope of the review is clearly defined and carried out, considers JORC guidelines, and an action plan to remediate shortcomings is in place.</p> <p>Specify the date of the last independent audit for Ore Reserves:</p> | <p>PC02 Sands reserves had an independent review.</p> <p>No requirements of other independent review.</p> <p>See document for last audit dates.</p> |

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| | Available supporting documentation | <ul style="list-style-type: none"> Model handover procedures and documentation Annual reserves evaluation report Annual reconciliation report | | |
| 5. Directional Planning | 5.1 | <p>The Health, Safety, Environmental and Community (HSEC) impacts of the mining and processing operations have not been adequately accounted for in the Life of Asset Plan or economic evaluation.</p> | <p>Key HSEC stakeholders support the Life of Asset planning assumptions, objectives and outcomes.</p> <p>Key HSEC commitments or restrictions are appropriately accounted for in the Modifying Factors and Mine Planning assumptions.</p> | LOA approved by the Asset Leadership Team. |
| | 5.2 | <p>The Life of Asset Plan authorised in accordance with the Company's prevailing policy is not executable and/or is unable to deliver its physical or economic objectives as scheduled.</p> | <p>Regulatory approvals (such as tenements, access to infrastructure) to execute the Life of Asset Plan are in place or are reasonably expected to be in place within the timeframes anticipated.</p> <p>Existence of, or access to appropriate and adequate enabling infrastructure (for example power, water, land, labour) is sufficient to support the Life of Asset Plan.</p> <p>The range of uncertainty in the Modifying Factors and Mine Planning Assumptions is adequately captured within the Life of Asset Plan and its Economic Evaluation.</p> <p>Mine configuration and available work space are adequate to enable mining equipment to achieve expected capacity.</p> <p>The Life of Asset Plan is validated against marketing plans to ensure saleability requirements and/or specifications are met.</p> <p>Material risks to the Life of Asset Plan are identified and management controls implemented.</p> <p>Life of Asset Plan is current, available and mine design criteria and key design parameters and constraints are defined and based on sound engineering and technical studies.</p> | Checked – see document LOA approved by Asset Leadership Team. |

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| Risk Issue | Risk | Minimum Risk Controls | Completed / Comment |
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| | Available supporting documentation | <ul style="list-style-type: none"> Life of Asset Plan | |
| 6. Delivery Planning | 6.1 Inconsistencies between planning horizons (Life of Asset, 5 Year Plan and 2 Year Budget) result in a material negative impact on the technical feasibility and economic viability of the mine. | <p>Life of Asset Plan objectives and outcomes are cascaded into the Delivery Plan and Delivery Plan objectives and outcomes are cascaded into the Production Plans.</p> <p>Consistency is maintained between Modifying Factors / Mine Planning Assumptions in Life of Asset Plan, Delivery Plan and Production Plans.</p> <p>Material risks to Life of Asset, 5 Year Plan and Production Plans are identified and management controls are implemented.</p> <p>Asset management execute the Life of Asset and the Delivery Plan in accordance with the Companys prevailing <i>Corporate Planning</i> policy as well as the Production Plan.</p> <p>Asset management communicate the Life of Asset Plan, Delivery Plan and Production Plans and maintain accountability for delivering plan objectives.</p> | <p>All checked.</p> <p>The 5YP and budget path is based on the LOA path. Modifying factors are based on reconciliation of actual practice.</p> <p>Risk management processing in place.</p> <p>LOA approved by Asset Leadership Team.</p> |
| | 6.2 Delivery Plan and Production Plan objectives are not met as a result of actual operating performance. | <p>Delivery and Production Plans assumptions shall reflect achievable outcomes.</p> <p>Mine Plan compliance is effectively monitored and Delivery and Production Plans shall be implemented and followed as far as practicable.</p> | <p>Checked. LOA approved by Asset Leadership Team.</p> |
| | 6.3 Reconciliation processes are ineffective at quantifying any variance between actual operating performance and those expected from Mineral Resources and Ore Reserves Estimates, and mine plans; or are ineffective at facilitating improvements in operating performance, | <p>Reconciliation processes are in place to calculate and analyse production against forecast Ore Reserves using F1, F2, F3 reconciliation factors in accordance with the Companys prevailing policy.</p> | <p>In place.</p> |

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| Risk Issue | Risk | Minimum Risk Controls | Completed / Comment |
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| | plans and estimates. | | |
| | <i>Available supporting documentation</i> | <ul style="list-style-type: none"> • <i>Delivery and Production plans</i> • <i>Plan compliance documentation</i> • <i>Reconciliation documentation</i> • <i>Current weekly and monthly schedule</i> • <i>Annual operating plan</i> • <i>Annual review of performance</i> | |

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Appendix 4. Mineral Resources and Ore Reserves - reconciliation

Please see the reconciliation spreadsheet (20150429 NS MnAus Recon FY15 Q3 Dry Basis Reserve V1 pillars.xlsx) in the supporting documents for a legible version of this figure.

| ROM reconciliation - excludes G quarry | | | | | | |
|---------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------|-----------|-----------|---------|------------|
| Mining Volume: Based on Mined out areas - includes assumed ore loss, excludes G Quarry | | | | | | |
| | Units | FY15-Q1 | FY15-Q2 | FY15-Q3 | FY15-Q4 | FY15-Total |
| Survey Actual Ore Volume | bcm | 898,146 | 934,508 | 440,837 | - | 2,273,491 |
| Reserve Model Predicted Volume | bcm | 843,980 | 1,026,702 | 461,824 | - | 2,332,506 |
| Variation (actual vs model) | % | 6% | -9% | -5% | 0% | -3% |
| F2 Mining Tonnage: excluding G Quarry | | | | | | |
| | Units | FY15-Q1 | FY15-Q2 | FY15-Q3 | FY15-Q4 | FY15-Total |
| Mining Ore Tonnage (Actual) | t(dry) | 2,361,675 | 2,413,715 | 1,221,092 | - | 5,996,482 |
| Reserve Model Predicted Tonnage | t(dry) | 2,279,501 | 2,723,795 | 1,434,324 | - | 6,437,619 |
| Variation (actual vs model) | % | 4% | -11% | -15% | 0% | -7% |
| Plant Feed Tonnage | | | | | | |
| | Units | FY15-Q1 | FY15-Q2 | FY15-Q3 | FY15-Q4 | FY15-Total |
| Feed Ore Tonnage (Actual) | t(dry) | 2,168,322 | 2,209,363 | 1,995,379 | - | 6,373,063 |
| Reserve Model Predicted Tonnage (PCS adjusted) | t(dry) | 2,210,768 | 2,612,539 | 2,281,759 | - | 7,105,066 |
| Variation (actual vs model) | % | -2% | -15% | -13% | 0% | -10% |
| Comments: Mismatch between reported mined and feed tonnages using assumed moistures. This indicates PCS stocks may be out of balance. | | | | | | |
| F3: Sales (and product inventory) to reserve model predicted product | | | | | | |
| With adjustments of the model mined area forward to the concentrator (ie model + PCS compared to actual) | | | | | | |
| F3: Lump Concentrate | | | | | | |
| | Units | FY15-Q1 | FY15-Q2 | FY15-Q3 | FY15-Q4 | FY15-Total |
| Lump Concentrate Production (actual) | t(dry) | 636,690 | 626,033 | 569,817 | - | 1,832,540 |
| Reserve Model Predicted Lump - adjusted for ROM stocks | t(dry) | 702,817 | 848,355 | 626,687 | - | 2,177,859 |
| Variation (actual vs model) | % | -9% | -26% | -9% | 0% | -16% |
| F3: Fine Concentrate | | | | | | |
| | Units | FY15-Q1 | FY15-Q2 | FY15-Q3 | FY15-Q4 | FY15-Total |
| Fine Concentrate Production (actual) | t(dry) | 517,920 | 601,334 | 519,095 | - | 1,638,349 |
| Reserve Model Predicted Fines - adjusted for ROM stocks | t(dry) | 466,552 | 657,813 | 544,585 | - | 1,668,949 |
| Variation (actual vs model) | % | 11% | -9% | -5% | 0% | -2% |
| Total F3 Variation | | -1% | -19% | -7% | 0% | -10% |
| Comments: | | | | | | |
| F3: Sales (and product inventory) to reserve model predicted product | | | | | | |
| MTU reconciliation (model adjusted to match concentrator - ie model + PCS compared to actual) | | | | | | |
| MTUs | | | | | | |
| | Units | FY15-Q1 | FY15-Q2 | FY15-Q3 | FY15-Q4 | FY15-Total |
| MTU (actual) | M dMTU | 55.0 | 58.8 | 51.1 | - | 164.9 |
| Reserve Model Predicted (adjusted for ROM stocks) | M dMTU | 56.3 | 68.1 | 75.0 | - | 199.5 |
| Variation (actual vs model) | % | -2% | -14% | -32% | 0% | -17% |
| Comments: | | | | | | |
| Moisture 0.0% | | | | | | |
| Other Discussed Information - SG | | | | | | |
| | Units | FY15-Q1 | FY15-Q2 | FY15-Q3 | FY15-Q4 | FY15-Total |
| SG Actual | | 2.63 | 2.58 | 2.77 | - | 2.64 |
| Reserve Model Predicted SG | | 2.70 | 2.65 | 3.11 | - | 2.76 |
| Variation (actual vs model) | | -2.6% | -2.6% | -10.8% | 0.0% | -4.4% |
| Comments: There is clearly something wrong with the ROM stocks | | | | | | |
| Other Discussed Information - Yield | | | | | | |
| | Units | FY15-Q1 | FY15-Q2 | FY15-Q3 | FY15-Q4 | FY15-Total |
| Model Yield (adjusted for PCS) | (dry/dry) | 52.9% | 57.7% | 51.3% | 0.0% | 54.1% |
| Actual Yield | (dry/dry) | 53.2% | 55.6% | 54.6% | 0.0% | 54.5% |

Figure 63- F3 Reconciliation Template

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Appendix 5. Independent audit reports

The geological database audit has been included as a separate document.

Results of other audits can be found in the reference documents.

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Appendix 6. Operations production year ending June 2015 and historical Operations data

As there is no head grade sampling, or weightometer before the ROM, all figures are based on polygon interrogation of the Reserve model (unless noted). The actual production data is based on the actual mining footprint for July to March, and the March forecast from April to June. All waste quantities are vertical blocks above ore. The polygons used in this calculation are shown in the figures within this section.

Production

Provide a summary of the fiscal year's mine production with comparison to the previous fiscal year (*Table 1*).

Table 1

| Production Ore Type | FY 2015 | | | FY 2014 | | |
|---------------------------------------|-------------|------------------|--------|-------------|------------------|--------|
| | Tonnes | Grade† / Quality | Metal* | Tonnes | Grade† / Quality | Metal* |
| ROM Plant Feed (from 1SAP & Forecast) | 9.9Mt (wet) | Not sampled | | 9.7Mt (wet) | Not sampled | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

*Only for Assets, producing metal. †In multi-commodity operations refer to the two major contributing metals or qualities.

Provide a summary of reserves planned and mined by category (*Table 2*). Indicate if mining has been done outside Proved and Probable Reserves (amend Table 2 to Business production).

Table 2

| Depletion Data – Pit only (not ROM stocks) – Estimated by polygon & the FY2015 geological models | | Production Budgeted (Plan implemented at beginning of FY15) | | | Actual Production Data | | |
|--------------------------------------------------------------------------------------------------|----------------------|-------------------------------------------------------------|-------------------|----------------|------------------------|-------------------|----------------|
| | | Tonnes | Grade† / Quality | Metal* | Tonnes | Grade† / Quality | Metal* |
| Ore Reserves | Proved | 8.7Mt | 48%Mn @ 54% Yield | | 9.0Mt | 49%Mn @ 55% Yield | |
| | Probable | 1.0 kt | 42%Mn @ 54% Yield | | 0.5kt | 50%Mn @ 56% Yield | |
| Exclusive resource | Measured & Indicated | 0 | | | 0 | | |
| | Inferred | 0 | | | 0 | | |
| | Waste | 24Mt | Not Applicable | Not Applicable | 22Mt | Not Applicable | Not Applicable |

*Only for Assets, producing metal. †In multi-commodity operations refer to the two major contributing metals or qualities.

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Spatial Plan Compliance

Provide production details to compare against budget and forecast for ore in the format provided below (*Table 3*).

Table 3

| Ore | Parameters | Planned and Mined (A) | Planned and Not Mined (B) | Total Plan (A+B) | Mined outside Plan (C) | Total Mined (A+C) |
|------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------------|---------------------------|-------------------|------------------------|-------------------|
| Production Budgeted (Approved Plan implemented at the beginning of the Financial Year) | Tonnes | 5.4Mt | 3.3Mt | 8.7Mt | 3.6Mt | 9.0Mt |
| | Grade†/ Quality | 49%Mn @ 55% Yield | 48%Mn @ 51% Yield | 48%Mn @ 54% Yield | 49%Mn @ 55% Yield | 49%Mn @ 55% Yield |
| | Metal* | | | | | |
| Last Forecast for the Financial Year (Latest revised forecast). This (March) forecast is the basis for the actuals reported. | Tonnes | 9.0Mt | 0Mt | 9.0Mt | 0Mt | 9.0Mt |
| | Grade†/ Quality | 49%Mn @ 55% Yield | | 49%Mn @ 55% Yield | | 49%Mn @ 55% Yield |
| | Metal* | | | | | |

*Only for Assets, producing metal. †In multi-commodity operations refer to the two major contributing metals or qualities.

Provide production details to compare against budget and forecast for waste in the format provided below (*Table 4*).

Table 4

| Waste | Parameters | Planned and Mined (A) | Planned and Not Mined (B) | Total Plan (A+B) | Mined outside Plan (C) | Total Mined (A+C) |
|------------------------------------------------------------------------------------------------------------------------------|------------|-----------------------|---------------------------|------------------|------------------------|-------------------|
| Production Budgeted (Approved Plan implemented at the beginning of the Financial Year) | Tonnes | 14Mt | 10Mt | 24Mt | 8Mt | 22Mt |
| Last Forecast for the Financial Year (Latest revised forecast). This (March) forecast is the basis for the actuals reported. | Tonnes | 24Mt | | 24Mt | | 24Mt |

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Highlight the cause under appropriate category which resulted in spatial non-compliance using the spatial compliance to plan controlling factors assessment template provided below (*Table 5*).

Table 5

| Class | Controls | Categories | Comments | Influence* (low/ medium/ high) |
|------------------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Internal Factors | Mineral Resource | Inadequate data or inaccurate data (for example, Geology, alteration, assay, structure, density) or estimation | As per next point. Drill density along the edge of the deposit affects the model precision. | |
| | | Conflicting data (Additional data producing conflicting results) (for example, Geology, alteration, assay, structure, density) | As the edge of the deposit was approached, particularly in the DW quarry, the expected ore quantity was not present. | medium |
| | Ore Reserve | Change in Mining Method | No change due to this | |
| | | Change in Mine Design | Changed understanding of Internal Modifying factors (for example, Geotechnical, hydro-geological, mining dilution, Mining loss, process recovery, labour and equipment) | C quarry was not mined as much as expected due to poor yield and mining recovery (compared to model). Some changes in ASC dues to poor equipment performance (and loss of confidence in the Resource Model) meaning no capacity for a boxcut extension |
| External Factors | | Changed understanding of External Modifying factors – Price Uncertainty | No change due to this | |
| | Other Factors | Market uncertainties (for example, Demand, quality) | No change due to this | |
| | | Bottleneck in processes (for example, Inadequate maintenance planning in the mine, process plant, availability of rail rakes/ ship/ port, power, supply (chemical, machinery, lubricants, tools, fuel)) | No change due to this | |
| | Business Interruptions | Natural (for example, Flood, earthquake) and other Factors (for example, Community, Government, Strike, Social unrest, Country unrest) | No change due to this | |

*low- 0-30%, medium- 30-70%, high >70%

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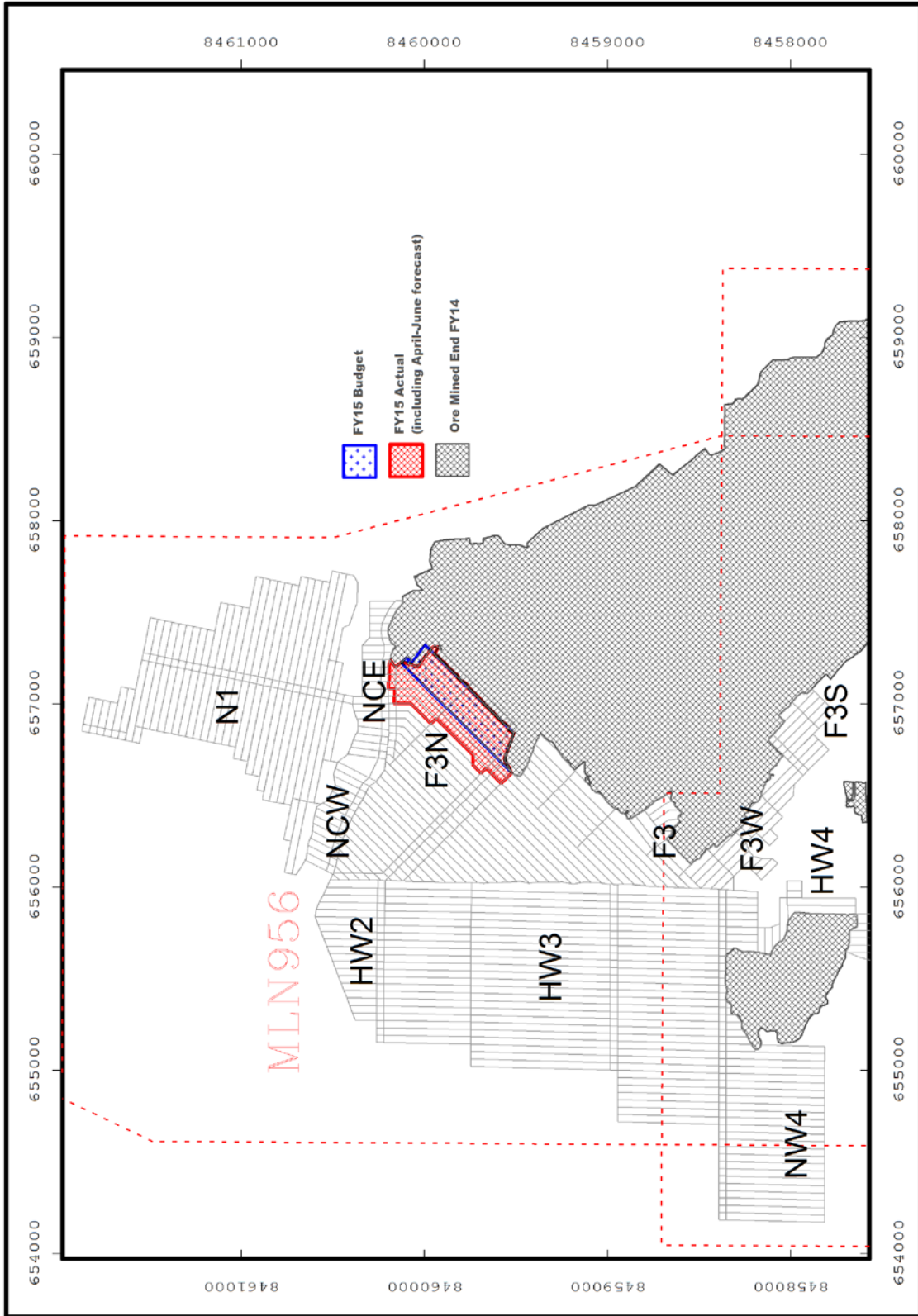


Figure 64 - Spatial Compliance F3N

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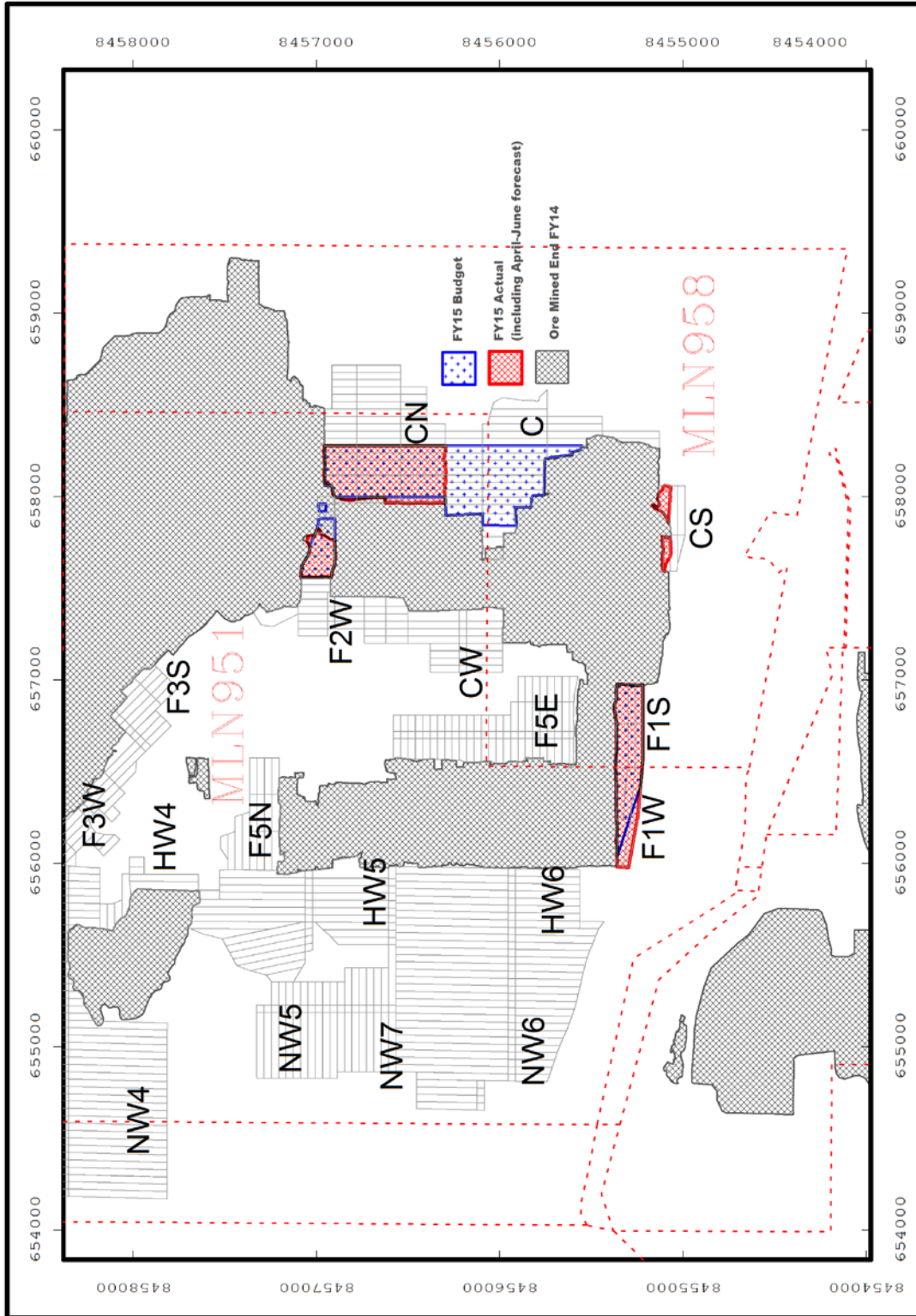


Figure 65 - Spatial Compliance C

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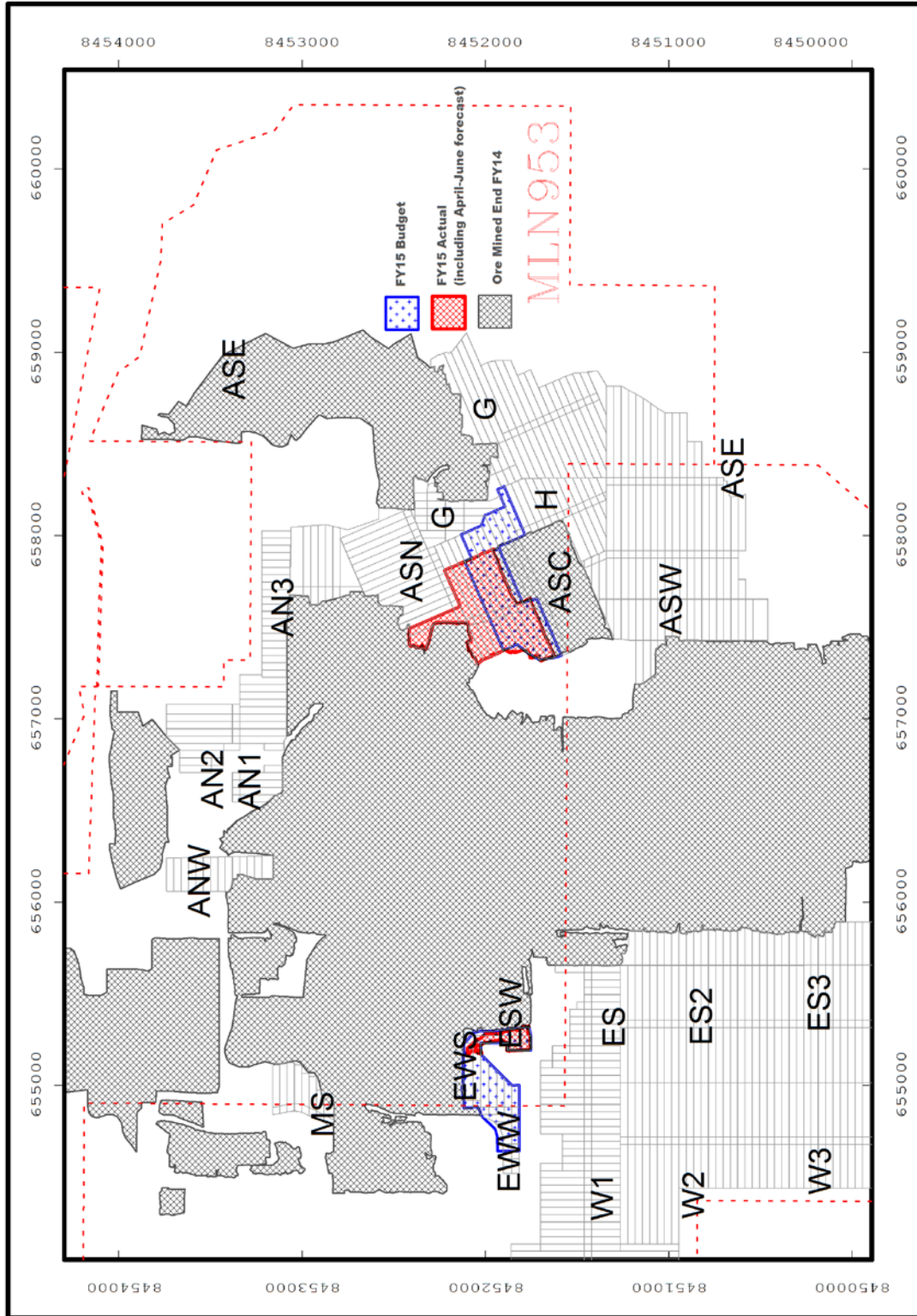


Figure 66 - Spatial Compliance AS and ES

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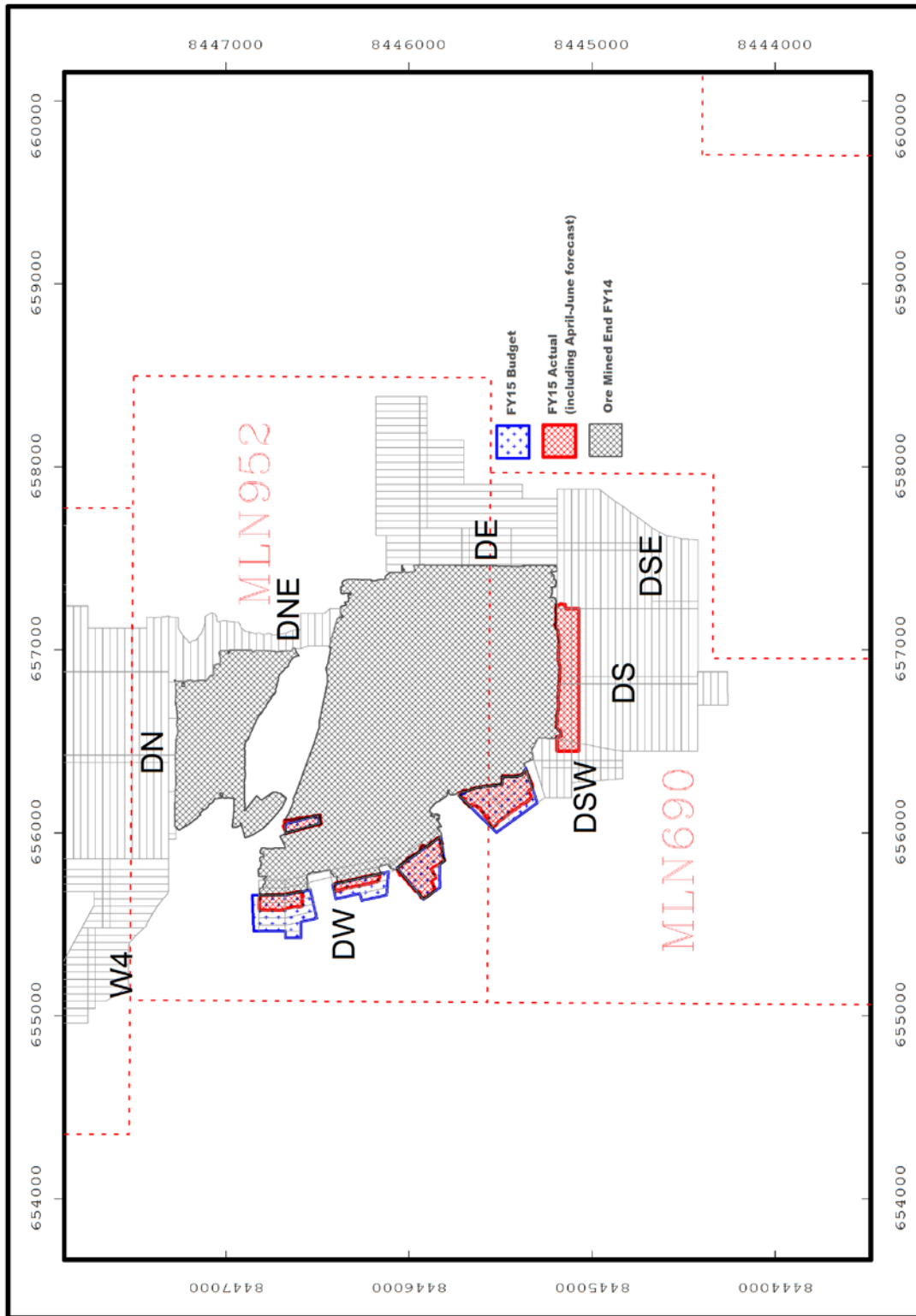


Figure 67 - Spatial Compliance DS

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Appendix 7. Mineral Resource and Ore Reserve - additional data

Additional information relevant to the deposit geology, Mineral Resource and Ore Reserves is available in the following eRooms:

- Manganese Exploration (<https://eroom.bhpbilliton.com/eRoom/Facility06/ManganeseExploration>)
 - Manganese Mineral Resources (<https://eroom2.bhpbilliton.com/eRoom/Facility37/ManganeseMineralResources>)
 - Manganese Australia CAP (<https://eroom2.bhpbilliton.com/eRoom/Facility25/ManganeseAustraliaCAP>)
 - South32 Exploration, Reserves & Resources (<https://eroom2.bhpbilliton.com/eRoom/Facility35/Al-NiCPRreporting>)
-

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Appendix 8. Potential Mineralisation estimation and reporting

Additional information relating to the Potential Mineralisation estimates is available in the following eRooms:

- Manganese Exploration (<https://eroom.bhpbilliton.com/eRoom/Facility06/ManganeseExploration>)
- Manganese Mineral Resources (<https://eroom2.bhpbilliton.com/eRoom/Facility37/ManganeseMineralResources>)

Furthermore information has been uploaded to the BRRD

(<http://resourcereserve.bhpbilliton.net/ResourceReserve/mineralisationDetails.aspx?d=GEMCO>)

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Appendix 9. Self-assessment checklist on materiality

The changes relating to the FY2015 Mineral Resource and Ore Reserve declarations are not deemed material under the guiding principles of the ASX Listing Rules or the JORC Code (2012 Edition).

For the Orebody Resources and Reserves the changes, excluding depletion, do not exceed 10%, so are not deemed material.

The following table is the checklist for the PC02 project. The self assessment does not indicate a material project however the Disclosure Committee (or South32 equivalent) will make the final decision as to whether a Project is deemed to be material.

| Check Factor / Criteria relevant to determining whether a Project may be a 'Material Project' | Result / Comment |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| whether an announcement in relation to the Project is likely to have a material effect on the price or value of The Company's securities; | No – unlikely to significantly change share price. |
| whether the actual and / or projected expenditure on the Project* is, or is likely to be, material at the Company level; | <US\$100M. Levels not set for South32, but not expecting this to be material. |
| whether the actual and / or projected revenue / EBIT from the Project* is, or is likely to be, material at the Company level; | Levels not set for South32, but not expecting this to be material. |
| whether The Company considers the Project will be a material asset in the medium to long term; | Just a small change to an existing asset. |
| whether the Board has approved the Project to proceed to execution; | Currently in execution. |
| the strategic importance of the Project to The Company, including whether The Company has made specific announcements in relation to the Project which suggest that the Project is a significant or important one for the Company; and | Not strategically significant – small incremental project. |
| the prominence given to the Project by The Company (for example, in presentations or other publications) and its significant relative to other Projects. | Not prominent. |

* It may be relevant to consider the thresholds applied by accounting standards when applying the quantitative tests – 10 per cent or greater of the applicable base amount (for example, the Project's EBIT contribution to the Company EBIT) is generally presumed material under the accounting standards and an amount which is equal to or less than 5 per cent of the base amount is generally presumed not to be material from a quantitative perspective.

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Appendix 10. Peer Review report

Date: 13/05/2015

To: **Competent Persons, Ore Reserves Coordinator, Head of Resource Planning and Development**

CC: **Mineral Resource and Ore Reserve Database, Senior Manager Resource Governance**

From: A Ntalo, D Mathebula

Subject: **Template: Appendix 10: Peer Review of CP Report for FY2015**

1. Business: South32
2. Asset: Manganese Australia
3. Title of the CP Report: Competent Person report GEMCO
4. Date of the Report: June 2015
5. General Comments about the CP Report: Complies with JORC Code, Table 1
 - a. Strengths: Deposit geology and resource estimation modelling sections well-articulated
 - b. Weaknesses: Drilling and sampling sections lacking a degree of detail
6. Verify that information provided in all sections of the Competent Person's Report is on an "if not why not" basis following JORC Table 1.
7. Audit during the Year: 2015
 - a. Evidence in the CP report of Implementation of major recommendations made by Independent Internal Auditors during the FY (List the three most important recommendations): RAA Audit findings that are highlighted as continuous must be reflected in the FY16 CP report
 - b. Any element identified which needs attention/ action / discussion (for example License renewal/ Environmental or any other permitting/ change in resource or reserve calculation methodology / reconciliation) not addressed in the CP report.
8. Suggested Improvement of the CP report (1 suggestion on materiality and 1 suggestion on transparency): Please refer to Point 5b .
9. Review of Individual Chapters in CP report (Ranking key at the bottom of Table on next page).
10. Final Review carried out before submission to confirm suggested changes
 - a. Confirmed on 14 May 2015

Name of the Reviewer, Mineral Resource: A Ntalo
Position: Chief Geologist, Mamatwan

Name of the Reviewer, Ore Reserve: D Mathebula
Position: Manager Production Planning, Wessels

COMPETENT PERSON REPORT

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| No. | Chapters | Materiality * | Transparency ** | CP Template *** |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|--------------------|
| 1 | Introduction | 1 | 1 | 1 |
| 2 | Work carried out during FY15 | 3 | 2 | 2 |
| 3 | Tenure | 1 | 1 | 1 |
| 4 | Deposit Geology | 1 | 1 | 1 |
| 5 | Data Acquisition | 3 | 3 | 2 |
| 6 | Reporting of Exploration Work | 1 | 1 | 1 |
| 7 | Resource Estimation | 1 | 1 | 1 |
| 8 | Mineral Resource Statement | 1 | 1 | 1 |
| 9 | Mineral Resource Range Analysis (RRA) and Potential Mineralisation reporting | 1 | 1 | 1 |
| 10 | General Mine Planning Criteria | 1 | 1 | 1 |
| 11 | Market and commodity price assumptions | 1 | 1 | 1 |
| 12 | Ore Reserve estimation | 1 | 1 | 1 |
| 13 | Ore Reserve statement | 1 | 2 | 2 |
| 14 | Reconciliation | 2 | 2 | 2 |
| 15 | Independent Audit and Review | 1 | 1 | 1 |
| 16 | Risk Assessment | 1 | 1 | 1 |
| 17 | Conclusions and Recommendations | 1 | 1 | 1 |
| - | References | 1 | 1 | 1 |
| - | Appendices Appendix 1 – Competent Persons Nomination letter and CV Appendix 2 – Mineral Resource and Ore Reserve Declaration Appendix 3 – Mineral Resources, Ore Reserves and Mine Planning Governance Checklist Appendix 4 – Mineral Resource and Ore Reserves – reconciliation Appendix 5 – Independent Audit Reports Appendix 6 – Operations production year ending June 20YY and historical Operations Data Appendix 7 – Mineral Resource and Ore Reserve - additional data Appendix 8 – Potential Mineralisation Estimation and Reporting Appendix 9 – Self Assessment Checklist on Materiality Appendix 10 – Peer Review of CP Report | | | |

| *Materiality | **Transparency | ***CP Template |
|----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|-----------------------|
| 1= Relevant information to carry out reasonable and balanced judgment | 1= Sufficient information with clear and unambiguous presentation | 1= Followed |
| 2= Additional information needed to make reasonable and balanced judgment (Can only be provided under confidentiality agreement) | 2= Sufficient information, but needs better presentation | 2= Partially Followed |
| 3= Additional information needed to make reasonable and balanced judgment | 3= Insufficient information | 3= Not Followed |
| 4= Irrelevant information | | |

Name of the Reviewer, Mineral Resource: A Ntalo

Position: Chief Geologist, Mamatwan

Name of the Reviewer, Ore Reserve: D Mathebula

Position: Manager Production Planning, Wessels

COMPETENT PERSON REPORT South32 - GEMCO

Appendix 11. Flow Sheets

18.1 Concentrator

A legible version is included as a PDF in the supporting documentation.

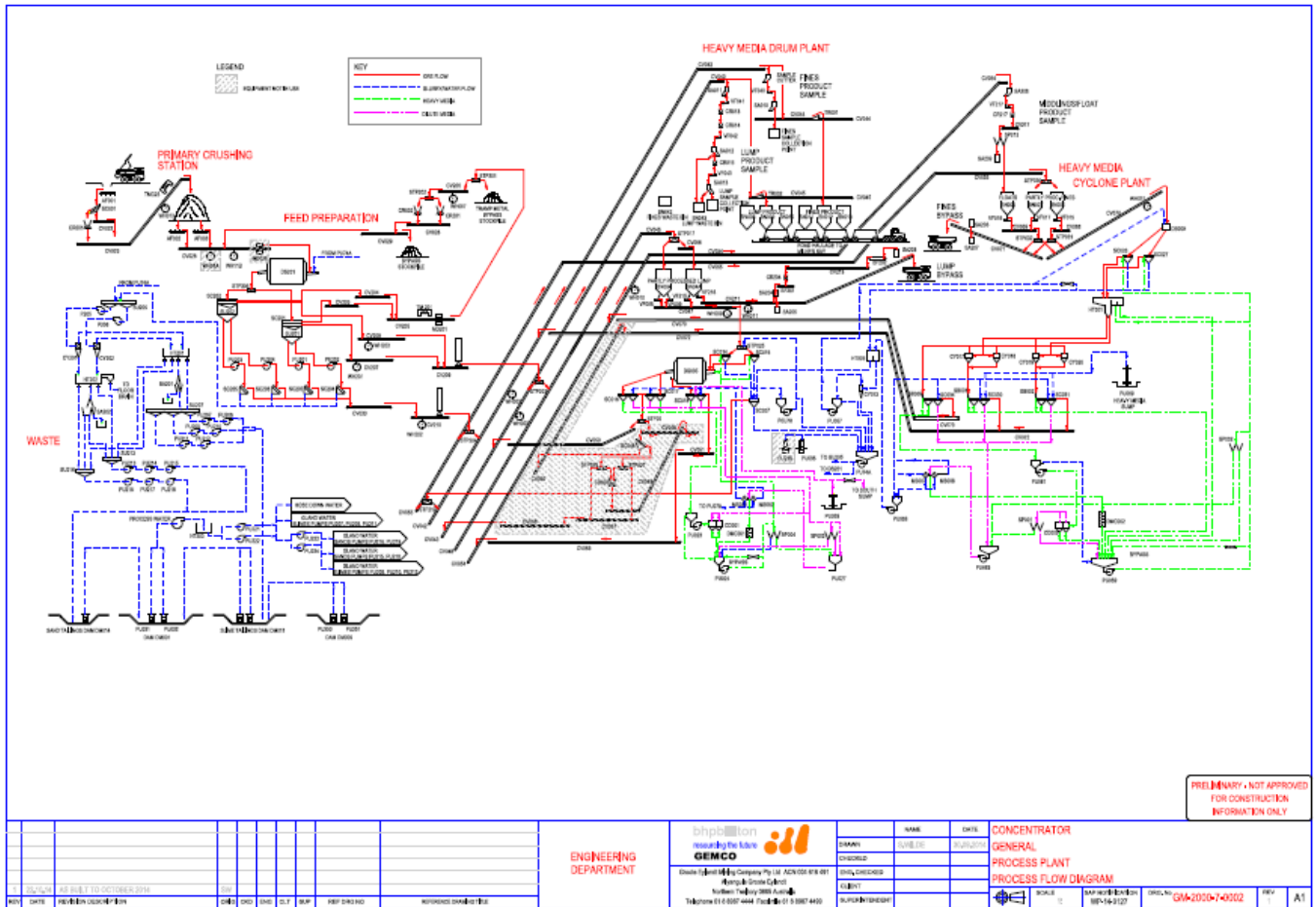


Figure 68 - Concentrator Flow sheet

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18.2 PC02 Sands

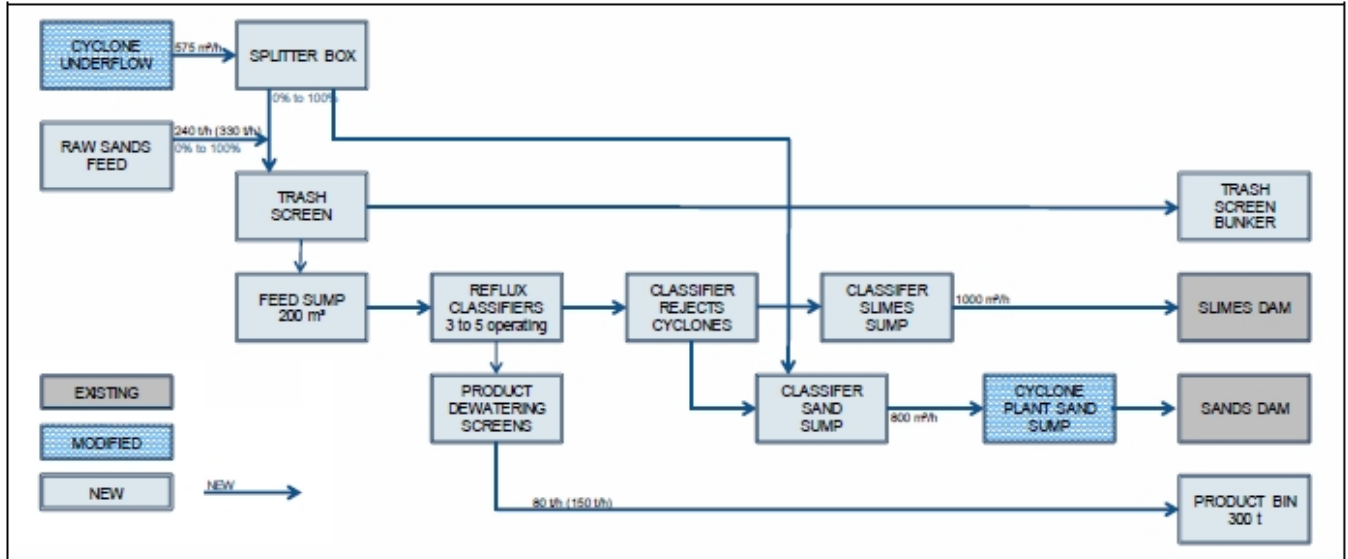


Figure 69 - PC02 Flow Sheet