Metro Mining Completes Bauxite Hills Pre-Feasibility Study and Announces Maiden Ore Reserve

Highlights

- Bauxite Hills Project Pre-Feasibility Study completed for bauxite mine producing 2 million tonnes Direct Shipping Ore (DSO) per year for 21 years*.

- Mine Plan is based on a total resource (indicated and inferred) of 61.5 million tonnes (49.9% total Al_2O_3, 12.2% SiO_2) (Table 1)

- Mine Plan includes the JORC 2012 Probable Ore Reserve, identified to date, of 12.1 million tonne (49.9% total Al_2O_3, 36.6% THA, 7.4% RxSi) Direct Shipping Ore (DSO) (Table 1)

Bauxite Hills Project

Metro Mining Limited is pleased to announce the completion of its Bauxite Hills Project Pre-Feasibility Study (PFS) by MEC Mining. The PFS describes an open pit operation producing 2 million tonnes per year DSO bauxite*. The results of the PFS are included in a separate release.

The Bauxite Hills mine and port project is situated 95 km north of Weipa on Queensland's Cape York Peninsula and five kilometres south-east of the port at Skardon River (see Figure 1). Western Cape York is world-renowned for its deposits of high-quality, export-grade bauxite.

The recent drill hole results and geological modelling confirm that the resource at Bauxite Hills is suitable for Direct Shipping Ore (DSO) that is planned to be transhipped via the Skardon River. The Company recently completed a resource upgrade for its Bauxite Hills Project - refer Table 1 below and ASX Announcement 16 February 2016.

The production of DSO allows the development of a mine with lower capital and lower operating costs than a mine producing a beneficiated bauxite product by avoiding a number of significant costs, including:

- reduced infrastructure costs with no requirement for a large beneficiation plant; and
- significantly reduced water, energy and tailings dam requirements.

The PFS has identified a Probable Ore Reserve of 12.1 million tonne (49.2 % total Al_2O_3, 36.6% THA, 7.4% RxSi) Direct Shipping Ore (DSO) JORC 2012 Probable Reserve (Table 1) based on the borehole analysis completed to date. Analysis of the BH1 boreholes drilled previously at 160m centres is underway and further resource and reserve updates are anticipated in the second quarter of this year.

There is a low level of geological confidence associated with inferred mineral resources and there is no certainty that further exploration work will result in the determination of indicated mineral resources or that the production target itself will be realised.
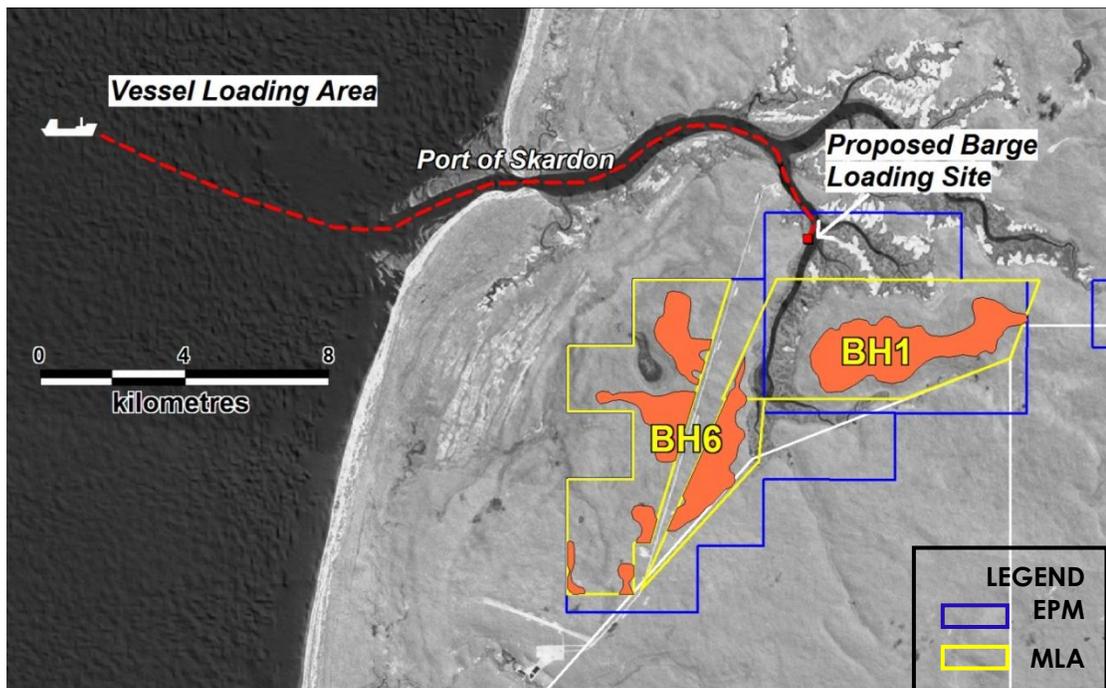
Mining

The mining model assumes open pit mining using loaders and trucks comprising top soil stripping and retention and overburden removal in advance of progressive panel mining followed by overburden replacement and rehabilitation using topsoil followed by regeneration of primary vegetation species. No blasting is envisaged based on bauxite mining operations elsewhere in the Weipa area.

Classification

The Mineral Ore Reserve in BH6 has been classified as Probable which reflects the Indicated status of the bauxite resource. This classification appropriately reflects the Competent Person's confidence in the Mineral Resource estimates refer Appendix 1. Table 1 below shows the resource and reserves in BH1 and BH6

Table 1: Bauxite Hills – DSO Mineral Resource and Ore Reserve Estimates (Refer Appendix 1)

Area	Category	DSO[2] Tonnes (Mt)[1]	DSO Bauxite Qualities (Dry Basis)			
			Total SiO_2 (%)	Total Al_2O_3 (%)	THA[3] (%)	RxSi[4] (%)
BH1	Inferred Resource (Dry *In-situ*)	31.2	9.1	51.5	40.7	6.2
BH6	Indicated Resource (Dry *In-situ*)	30.3	15.5	48.4	35.5	8.0
TOTAL Resource		61.5	12.2	49.9	37.8	7.1
BH6	Probable Reserve[5] (ROM @ 10% Moisture)	12.1	14.8	49.2	36.6	7.4

[1] For BH1 and BH6 the tonnages are calculated using the following default bulk densities determined from a program of sonic drilling; 1.6g/cm^{3} for BH1 and 2g/cm^{3} for BH6. Actual values are used where measurements have been taken
[2] DSO or "Direct shipping ore" is defined as bauxite that can be exported directly with minimal processing and beneficiation.
[3] THA is trihydrate available alumina (gibbsite alumina + kaolinite alumina – low temperature desilication product (DSP) alumina) at 150^0C.
[4] RxSi is reactive silica at 150^0C.
[5] Probable Reserve - the probable reserve is included in the BH6 Indicated resource

Appendix 1: JORC Code, 2012

Table 1 Estimation and Reporting of Ore Reserves

Criteria	JORC Code explanation	CP Comments
Mineral Resource estimate for conversion to Ore Reserves	• Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve. • Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves	• BH6 = Indicated resource and BH1 = Inferred resource. Pit optimisation was conducted to determine the mineable reserves. BH6 resource is reported as economically mineable reserve = 12.1 MT (see tables below) • All mineral reserve include in the mineral resource. Nothing outside the resource is considered as ore reserves.
Site visits	• Comment on any site visits undertaken by the Competent Person and the outcome of those visits. • If no site visits have been undertaken indicate why this is the case.	• No site visits undertaken by the mining reserves CP. • It is not an operating mine and it was decided that site visit is not required. All information necessary are obtained by electronic data.
Study status	• The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves. • The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that	• Pit optimisation study was conducted in order to determine the economic mining limit of the ore resource (Refer 5.2 in the report). • A detailed Pre-Feasibility Study has been conducted incorporating open pit optimisation, ultimate pit shells to determine the economical mining limit, mine production schedule and economic analysis.

Tables within the CP Comments for Mineral Resource estimate:

Area	Resource Category	Dry In-situ DSO[2] Tonnes (Mt)[1]	THA[3] (%)	RXSi[4] (%)
BH6	Indicated	30.3	35.5	8.0
BH1	Inferred	31.2	40.7	6.2
	TOTAL	61.5	37.8	7.1

Area	Reserve Category	Dry In-situ DSO tonnes	THA2 (%)	RxSi3 (%)
BH6	Probable	12,128,695	36.58	7.40

	material Modifying Factors have been considered.	
Cut-off parameters	• The basis of the cut-off grade(s) or quality parameters applied.	• Mineralised zones are defined by grades ≥45% total Al2O3 and ≤15% total SiO2.
Mining factors or assumptions	• The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design). • The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc. • The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control and pre-production drilling. • The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate). • The mining dilution factors used. • The mining recovery factors used. • Any minimum mining widths used. • The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion. • The infrastructure requirements of the selected mining methods.	• The Lerchs-Grossmann pit optimisation algorithm is utilised by Vulcan software to determine the extent of economically mineable ore reserves. Each block is evaluated based on the Metro Mining's base price and the discount factor based on grade variability. • Very simple mining method will be adopted to mine the bauxite ore – Pre-stripping will be done by one Front End Loader which removes the overburden soil. Once the bauxite ore is exposed the FEL will mine the bauxite down to the transition material. • Shallow deposit – pit slope parameters are to the natural angle of repose. The mined out pit will be back-filled by the overburden. • Shallow deposit – does not require geotechnical study. • Roof loss = 0.2m; Floor loss = 0.1m. Total loss = 0.3m incorporated in the ROM tonnes (Refer to figure 6 in the report). • 40m minimum mining width is used. • The inferred ore from BH1 is also utilised in the pit optimisation and the mining schedule. Further resolution will be required to classify this ore into indicated category. • Detailed infrastructure and capital requirement are mentioned in the report (Table 13 of the report).
Metallurgical factors or assumptions	• The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	• THA (trihydrate alumina) and RxSi (reactive silica) analyses have been undertaken an all beneficiated (+1.2mm) samples from BH6 as well as the composited, DSO bauxite samples from BH6. These results are used together with the results from the XRF analyses to calculate an estimated BA (boehmite alumina) content. The calculation makes the assumption that all Al_2O_3 is contained within gibbsite, boehmite and kaolinite and that all SiO_2 occurs in kaolinite and quartz. A small proportion of Al_2O_3 may occur in an amorphous form and result in a small error in the amount of calculated BA. A small number of negative BA numbers were reported from the calculation.
Environmental Factors or Assumptions	• Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project,	• An EIS has not been undertaken over the Bauxite Hills deposits. Small-scale mining of kaolin has been undertaken at the Skardon Mine located to the south of the BH6 deposit indicating that the district is not necessary regarded as 'greenfields'. • There are several environmentally sensitive areas surrounding the bauxite deposit but their location is accurately known; no bauxite resources have been included within these areas.

	may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	
Infrastructure	• The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.	• The infrastructure required for the project and the capital expenditure are mentioned in this report. This includes minimal fixed infrastructure for project flexibility.
Costs	• The derivation of, or assumptions made, regarding projected capital costs in the study. • The methodology used to estimate operating costs. • Allowances made for the content of deleterious elements. • The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co- products. • The source of exchange rates used in the study. • Derivation of transportation charges. • The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc. • The allowances made for royalties payable, both Government and private.	• The projected capital costs are obtained from the various suppliers of the Clients. • The operating cost such as loading cost, haulage cost etc., are calculated by the equipment operating parameters, haulage cost etc. • NIL • The Metro Mining's base price has been used as a part of CM Group's • USD 1.00 = AUD 0.81 • The haulage cost is calculated by the haul distance and equipment operating cost. Transportation cost from the load out point to the ship is done by barges. • The penalties/bonuses for the ore below/above specification has been incorporated in the open pit optimisation process. A block value is calculated based on the individual quality parameters for the block. • The Government royalties (10% of product) and traditional land owner's royalty (1.5% of product) has been built in the optimisation ore value.
Revenue factors	• The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc. • The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	• The penalties/bonuses for the ore below/above specification has been incorporated in the open pit optimisation process. A block value is calculated based on the individual quality parameters for the block. This information was supplied by the CM group as part of an independent marketing study. • Same as above.
Market assessment	• The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future. • A customer and competitor analysis along with the identification of likely market windows for the product. • Price and volume forecasts and the basis for these forecasts. • For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	• The market study completed by CM group for Metro Mining considered product specification options, market demand, global trade limitation. The full details of which are fully explored in the 2015 Pre-Feasibility study.

Economic	• The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc. • NPV ranges and sensitivity to variations in the significant assumptions and inputs.	• The mine production schedule results were incorporated for revenue/cash flow and the NPV is calculated based on the capital expenditure and sustaining capital expenditure for each period. • NPV (15%) real after tax = $197 million and demonstrated a positive NPV in sensitivity testing.
Social	• The status of agreements with key stakeholders and matters leading to social licence to operate.	• EPM, Mining Lease and Native title claims are mentioned in sections **Error! Reference source not found.** and **Error! Reference source not found.**. The EPM is owned by Metro Mining and the Mining Leases are in "Application" status. 2 native title claims have been lodged and Metro Mining is working on the "right to negotitate" process under Section 29 of the Act.
Other	• To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves: • Any identified material naturally occurring risks. • The status of material legal agreements and marketing arrangements. • The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	• Ore Reserves – 12.1 MT from BH6 is indicated and 29.3 MT from BH 1 is inferred. • 29.3 MT of BH1 is not mentioned in the ore reserves but it is included in the Life of the mine schedule. • Presently this project is at pre-feasibility level and no contracts are currently in place. • Lease and Native Title agreement applications and process are currently being processed.
Classification	• The basis for the classification of the Ore Reserves into varying confidence categories. • Whether the result appropriately reflects the Competent Person's view of the deposit. • The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	• The BH6 area achieved and indicated resources and application of the modifying factors in this report allowed reserve estimation to an indicated confidence level only. • The resource modelling confidence is accurate in MEC's opinion • Greenfield deposit and none of the ore is classified as Measured.
Audits or reviews	• The results of any audits or reviews of Ore Reserve estimates.	• MEC mining conducted internal peer reviews of the calculation processes and schedule results. Further independent financial modelling also confirmed the economic evaluations completed
Discussion of relative accuracy/ confidence	• Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if	• No statistical or geostatistical procedures have been used in the estimation of Reserves themselves. • The loss and dilution assumptions target higher losses to minimise dilution to maintain the grade for a DSO product, current operations in this region do not operate in this fashion. Assumptions on dilution should be further compared to alternate regions for an actual performance basis.

	such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate. • The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. • Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage. • It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	• There are no remaining areas of material uncertainty relating to modifying factors that could have an impact on Reserve viability.

ASX : MMI

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