



ASX RELEASE

12 SEPTEMBER 2018

UPDATED PRE-FEASIBILITY STUDY

HIGHLIGHTS

- Independent Pre-Feasibility Study (PFS) continues to support the development of the Urquhart Bauxite project
- PFS estimates pre-tax project (100% basis) NPV₁₀ of A\$47.3m on sales of 6.5 Mt of Urquhart Bauxite's Proved and Probable Reserves
- Metallica's post-tax project share (50%) NPV₁₀ A\$20.5m
- Start-up capital confirmed as being ~\$2.2m (100% basis)
- Strong cash margins of A\$10.50/t on the Base Case from mining Proved and Probable Reserves in Area A
- Highest margin bauxite in Area A slated for first production in 2019
- Target production rate of 1.5 million tonnes per annum (mtpa)
- Metallica remains confident that it will enter into a binding agreement with the Stakeholder to allow the haul road to be approved and operations to commence

Metallica Minerals Limited ([ASX:MLM](#)) ("Metallica", or "the Company") is pleased to announce the results of the updated Pre-Feasibility Study (Updated PFS) for the Company's 50%-owned Urquhart Bauxite project (Urquhart), five kilometres southwest of Weipa on Queensland's Cape York.

The Updated PFS Base Case points to a potential revenue stream nearing A\$390 million across 5.5 years of production, delivering a total operating margin (allowing for all costs including royalties) of approximately A\$10.50 per tonne with payback of just 1.3 years from October 2018.

The Updated PFS was independently prepared by Brisbane-based international consultancy, IMC Mining Pty Ltd (IMC), which also completed the JORC (2012) resources estimate for Urquhart (see ASX Release 14 November 2016). Industry leading independent bauxite analyst, CM Group has provided an updated USD price of bauxite on an as delivered basis (CFR Shandong, China). This differs from the 2016 PFS, which used a Free on Board (FOB) USD bauxite price. Since 2016 there has been a material increase in USD denominated shipping rates that has had a direct effect on the project. To a lesser extent changes in bauxite price forecasts and foreign exchange rates have also impacted Urquhart's forecast revenue. The results of the Updated PFS are summarised in Table 1 below.

Item	Unit	Base Case (100% Basis)	Base Case (MLM share – 50% basis)
Total Saleable Product	dry kt	6,532	3,266
Total Al ₂ O ₃	%	52.7	52.7
Total SiO ₂	%	13.3	13.3
Total Revenue	A\$m	389	195
EBITDA	A\$m	68.8	34.4
NPV ₁₀ Pre Tax	A\$m	47.3	23.7
NPV ₁₀ Post Tax	A\$m	33.7	20.5
IRR Post Tax		364%	469%
LOM Capital	A\$m	2.2	1.1
Avg CFR Costs*	A\$ tonne	49.08	49.08
Avg CFR Received	A\$ tonne	59.62	59.62
Payback	years	<2 yrs	<2 yrs

* Includes all operating costs, shipping, royalties and other payments

Table 1 – Summary of Updated PFS Results mining Reserves only (Base Case)

In accordance with the Cape York HMS & Bauxite Project Joint Venture (JV) each party is responsible for funding its share of capital on an equity ownership basis (currently 50/50). Metallica had cash of \$6.05m at 30 June 2018 and is able to fund its portion of the capital estimated in the Updated PFS. Metallica also holds 16,811,916 shares in Australian Mines Ltd (ASX:AUZ) that are able to be traded following expiry of the escrow period at the end of September 2018.

Metallica's Managing Director, Mr Simon Slesarewich:

"We remain confident that Urquhart Bauxite will deliver value for shareholders and continues to display attractive returns despite shipping costs increasing by over US\$5 per wet tonne. Utilising contractors to deliver the mining and having access to the nearby and operational Hey Point barge loading and transhipping facility will translate into a development that is low in capital intensity and can be brought into production rapidly. Previous marketing work by the Company and its experienced Marketing Agent has ensured that the well-known bauxite product to be produced at Urquhart Bauxite will be readily received by Chinese refiners."

Update on Haul Road approval

The Company remains confident that it will finalise negotiations to enter into a binding agreement with the Stakeholder over the grant of access to build a haul road connecting Urquhart to the barge load facilities at Hey Point, with recent progress being very encouraging. Following the granting of the mining lease (see ASX Release 3 January 2018) the Company escalated the current (haul road) impasse to the

highest levels of the Queensland government. Senior Queensland government officials have increased their efforts and are negotiating with all parties directly to assist the Company. They remain committed to securing production from Urquhart at the earliest possible time.

The Company had previously completed all environmental studies and entered into compensation agreements covering the mining lease and haul road areas with the traditional land owners (see ASX Release 21 June 2017). A binding agreement with the Stakeholder will allow a mining lease to be issued under section 316 of the Minerals and Resources Act 1989. The s316 mining lease will secure tenure for the haul road linking Urquhart to the existing and operational barge loading facility at Hey Point. A new application for a s316 mining lease will need to be applied for and the Company has completed and collated all materials for this application. As there is still a regulatory process to be completed it is expected that production will not commence until after the 2018/19 wet season.

The Company understands shareholder frustrations at this delay and confirms that all avenues to resolve the situation have been considered and exhaustively analysed over the past two years, including assessing alternative loading locations and approval options. To this end the Company continues to believe that utilising the existing facilities at Hey Point remains the best option.

Urquhart Bauxite RESERVES AND RESOURCES

The Urquhart Bauxite project is situated approximately 5km southwest of Weipa on Queensland's Western Cape York Peninsula. Western Cape York is world-renowned for its extensive deposits of high-quality, export grade pisolitic bauxite.

The maiden Inferred Mineral Resource was announced on 11 May 2015, precipitating a subsequent favourable internal mine planning assessment. Infill drilling of the main resource in August 2016 upgraded the Inferred Mineral Resource classification to a Measured and Indicated Resource (see ASX Release 14 November 2016).

The project's Weipa-type pisolitic bauxite is of high quality export grade with high alumina content (>50% Al₂O₃) that is well known and accepted by Chinese and other alumina refineries.

Urquhart consists of two bauxite plateaus, known as Area A and Area B both of which are wholly contained within ML 100044, held 50% by Oresome Bauxite Pty Ltd (a wholly-owned subsidiary of Metallica) and 50% by Ozore Resources Pty Ltd. The updating of the PFS has not altered the JORC (2012) Reserves Statement (see Table 2), (see ASX Release 30 December 2016).

	Area	Direct Shipping Bauxite (Low Temp)	Al ₂ O ₃	SiO ₂	THA	Low Temp RSi
		Dry kt	%	%	%	%
Proved	A	2,964	53.7	12.3	42.3	5.4
Probable	A	3,568	51.9	14.2	39.1	5.9
Ore Reserve	A	6,532	52.7	13.3	40.6	5.7

Table 2 - Urquhart Bauxite project Reserves

The Proved and Probable Reserves (Base Case), wholly contained within Area A, delivers attractive returns. The PFS has identified that if Inferred material in both Area A and B is mined (Production Target) then the mine life increases by a further 1.5 years (Scenario 2). Further upside could be derived by stockpiling transitional material that is dry screened at the end of the mine life (Scenario 3). Both Scenarios 2 and 3 have a lower confidence level than the Base Case as 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, and further investigation is required to increase the confidence in this material. The PFS allows for capital to undertake these investigations.

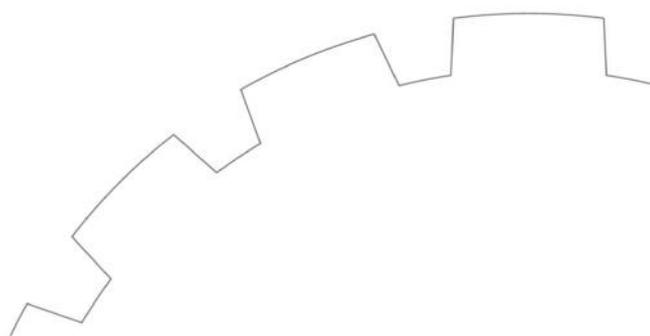
Item	Unit	Scenario 1 (Base Case)	Scenario 2	Scenario 3
		Mining Proved & Probable Reserves in Area A	Additional mining of Inferred resource in both Area A and Area B	At end of mine life, screening transitional stockpiled material
Total Saleable Product	dry kt	6,532	8,672	10,296
Total Al ₂ O ₃	%	52.7	51.6	51.2
Total SiO ₂	%	13.3	14.7	15.4
AAI*	%	40.6	39.1	38.1
RSi**	%	5.7	6.1	6.1
Total Revenue	A\$m	389	503	578
EBITDA	A\$m	68.8	82.1	98.8
NPV ₁₀ Pre Tax	A\$m	47.3	54.8	67.9
NPV ₁₀ Post Tax	A\$m	33.7	39.1	48.2
IRR Post Tax		364%	367%	423%
Start-up Capital	A\$m	2.2	2.2	2.2
Avg CFR Cost***	A\$ tonne	49.08	48.56	46.57
Avg CFR Received	A\$ tonne	59.62	58.03	56.17
Payback	years	<2 yrs	<2 yrs	<2 yrs

* AAI – Available Alumina @ 150°C

** RSi – Reactive Silica @ 150°C

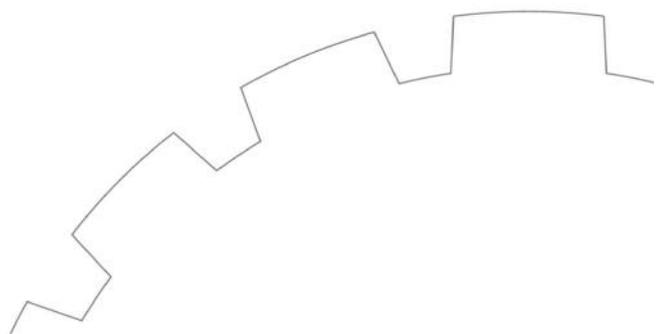
*** Includes all operating costs, shipping, royalties and other payments

Table 3 – Summary of scenarios for the Updated PFS for the Urquhart Bauxite project



A summary of the key assumptions used in including the Inferred Mineral Resource in Scenarios 2 and 3 are:

- The Urquhart Bauxite Project has a successful history of converting Inferred Resources into Indicated Resources.
- The mining is sequenced in such a way that the Proved and Probable Ore Reserves form the majority of production for the initial years of operation, whilst the scheduled material sourced from Inferred Resources (which together with the Ore Reserves makes up the Production Target for scenario 2 and scenario 3) is at the end of the mine operations.
- The modified Inferred Mineral Resources and screened material included in the Production Target are not determining factors in the project viability but should be considered as upside.
- IMC is of the opinion that it is reasonable to include the modified Inferred Resources in the Production Target as the bauxite deposits in the area are well understood, are relatively continuous and the extents of the deposit have been well defined by drilling thus far.
- The re-classification of zones of Inferred Resource to Measured and Indicated Mineral Resources at Area B primarily requires more drilling and quality test work which will be funded out of operating cash flow whilst mining is underway in the Proven and Probable Ore Reserves at Area A.
- IMC is of the opinion that it is reasonable to include screened product as a Production Target at the end of the mining operations. A nearby operation successfully screens bauxite and wet screen test work has been carried out on the Urquhart material. A conservative approach has been taken with the assumptions regarding screening.
- The Inferred Mineral resources do not feature as a significant proportion of the mine plan in the early stages of operations, and represent only around 25% of the total scheduled material.
- The screened product does not feature as a proportion of the mine plan in the early stages of operations.
- The modifying factors applied to develop the Ore Reserves and Production Targets are appropriate for a Pre-Feasibility level study.



	Area	Direct Shipping Bauxite (Low Temp)	Al ₂ O ₃	SiO ₂	THA	Low Temp RSi
		Dry kt	%	%	%	%
Proved	A	2,964	53.7	12.3	42.3	5.4
Probable	A	3,568	51.9	14.2	39.1	5.9
Sub Total – Ore Reserve	A	6,532	52.7	13.3	40.6	5.7
Other	A	134	51.8	13.2	37.2	6.0
Total Production Target Area A - Excluding Screening	A	6,666	52.7	13.3	40.5	5.7
Other	B	2,007	47.9	19.0	34.6	7.3
Sub Total - Production Target Excluding Screening	A+B	8,672	51.6	14.7	39.1	6.1
Other – Screened Product	A+B	1,624	48.9	19.3	32.3	6.1
Total Production Target with Screened Product	A+B	10,296	51.2	15.4	38.1	6.1

Table 4 - Urquhart bauxite project Reserves with Production Target and Screened Product

Development Strategy

The Cape York Bauxite and HMS Project Joint Venture (JV) has executed a contract with LCR Group to undertake mining and haulage operations at Urquhart (see ASX Release 22 May 2017). Costs contained within the mining and haulage contract are reflected in the Updated PFS. The JV will have minimal staff on site to manage contractors and the shipping of Direct Shipping Bauxite (DSB) to customers.

LCR Group will provide labour, machinery, management and technical support to operate the Urquhart mine and deliver consistent bauxite product to Hey Point, with responsibility for mine planning, clearing and stockpiling of topsoil, removal of overburden, mining and trucking of bauxite, and site rehabilitation. LCR Group have agreed to capitalise a portion of their mobilisation as well as the cost of constructing the haul road linking Urquhart to Hey Point

The proposed mining operations are very simple with the deposit being mined in 160m wide strips which will commence in the lower strip ratio and higher grade material in Area A. Strips will be mined contiguously to enable short hauls to the nearby mined out strip for dumping overburden (predominantly sand cover) back in-pit, resulting in the continuous rehabilitating of mined out areas. The target bauxite horizon ranges in thickness from 0.5 to 4m and averages 1.5m. Overburden thickness varies and is thinnest in the eastern part of Area A which is scheduled for initial production.

In scenarios 1 and 2 there will be no screening of bauxite material. Scenario 3 allows for stockpiling of transitional material which is planned to be dry screened at the end of the mine life. Dry screening will be

undertaken via a contractor utilising a simple mobile screening plant and will not require any infrastructure to be constructed. Benign waste material from the screening operation will be placed in a previously mined out area and will be rehabilitated at mine closure.

The JV has already entered into a Heads of Agreement with Green Coast Resources (GCR) for GCR to provide access and transshipping services of DSB from Urquhart (see ASX release 7 April 2016), through Hey Point, located 15km away from Urquhart. Metallica provided working capital to GCR via a Short Term Loan (Loan) (see ASX release 4 October 2016) to assist that company's successful maiden bauxite export from the Hey Point facility (see ASX release 24 October 2016). GCR has successfully recommenced shipping, after initially commencing operations in 2016 and it is expected that operations will continue on a sustainable basis moving forward.

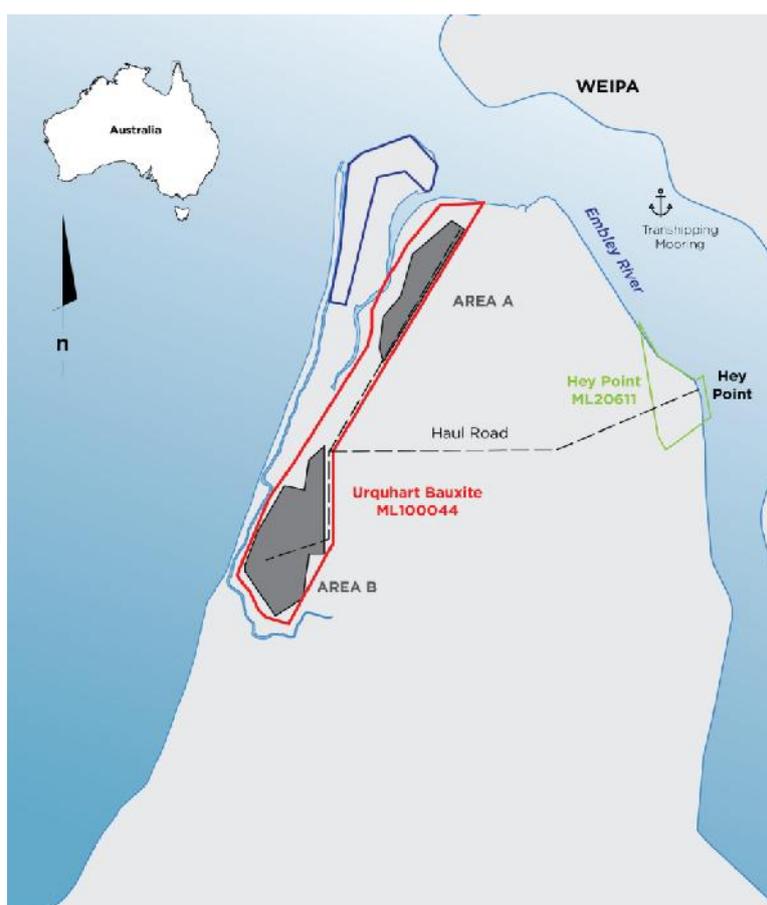


Figure 1 – Urquhart Bauxite project location looking north-east

Other key assumptions used in the completion of the PFS Base Case include:

- Average CFR Shandong bauxite price of US\$41.89 (Source – CM Group).
- Average Life of Mine Operating costs, including royalties, shipping, of approximately A\$49.08 per tonne (CFR Shandong) utilising contracted rates and estimated transshipping and barging costs, as well as estimated shipping costs
- Average Life of Mine operating margin of ~A\$10.50
- Exchange Rate (AUD/USD) of 0.73 for calendar 2019, then 0.70 thereafter. (Source – Internal estimation)
- Discount rate of 10% with future revenues discounted back to October 2018

- A buffer zone of 50m has been allowed between the mine and the edge of the tenement to ensure no encroachment on environmentally sensitive areas
- Operations to be undertaken during the dry season (nine months per annum) only, nominally April through December
- A binding contract on acceptable terms will be entered into with Green Coast Resources to load and trans-ship material from Hey Point to ocean going vessels anchored in Weipa harbour
- Final investment decisions are made by the Metallica board and the Joint Venture

-ENDS-

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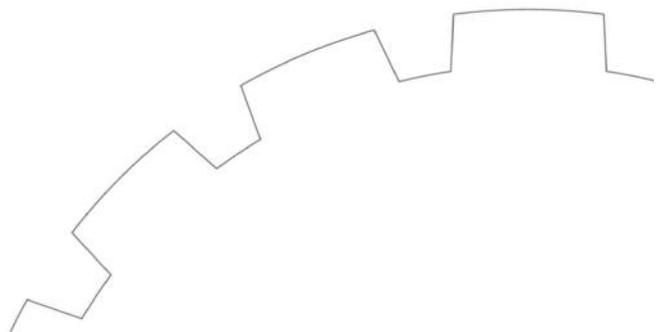
luke.forrester@mcpartners.com.au

Competent Person's Statement

The Mineral Reserve estimate and Production Target estimates were undertaken by Mr Stewart Lewis, Mining Engineer, who is a Member and Chartered Professional of the Australasian Institute of Mining and Metallurgy and the CEO of IMC Mining Pty Ltd. Mr Lewis has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Lewis consents to the inclusion of this information in the form and context in which it appears in this release/report.

Caution regarding Forward Looking Statements

Certain statements made in this announcement contain or comprise certain forward-looking statements. Although Metallica believes that the estimates and expectations reflected in such forward-looking statements are reasonable, no assurance can be given that such expectations will prove to have been correct. Accordingly, results could differ materially from those set out in the forward-looking statements as a result of, among other factors, changes in economic and market conditions, success of business and operating initiatives, changes in the regulatory environment and other government actions, fluctuations in commodity prices and exchange rates and business and operational risk management. Metallica undertakes no obligation to update publically or release any revisions to these forward-looking statements to reflect events or circumstances after today's date or to reflect the occurrence of unanticipated events.



JORC TABLE 1 COMMENTARY – MINERAL RESERVE

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	<ul style="list-style-type: none"> 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. 	<p>This Reserve Estimate has been based on resource data provided in the October 2016 Urquhart Bauxite Resource Update report IMC01533 as reported on the 14/11/2016. The Mineral Resource is inclusive of the Ore Reserve.</p>
Site visits	<ul style="list-style-type: none"> 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. 	<p>IMC did not undertake a site visit. The IMC team are very familiar with the area around Weipa and down to Aurukun.</p> <p>The mining contractor on whose pricing IMC relied undertook two site visits in developing their tender pricing and mining strategies.</p>
Study status	<ul style="list-style-type: none"> 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 material Modifying Factors have been considered. 	<p>This report has been designated as a Pre-Feasibility Study. The target level of accuracy is $\pm 25\%$.</p> <p>The product targeted is direct shipped bauxite ore (DSO) for the majority of the operating life with some potential dry screened production target material at the end of mining.</p>
Cut-off parameters	<ul style="list-style-type: none"> The basis of the cut-off grade(s) or quality parameters applied. 	<p>A cut-off grade of 48% Al_2O_3 has been applied to the insitu grades to determine the bauxite target zone within the resource estimate. This cut off grade results in a Direct Ship Product grade that meets the target market specifications.</p>
Mining factors or assumptions	<ul style="list-style-type: none"> 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 (eg pit slopes, stope sizes, etc), grade 	<p>In order to convert the Mineral Resource to an Ore Reserve the following factors have been applied:</p> <ul style="list-style-type: none"> The zone of potential ore grade bauxite has been defined within the resource model as zone 300. Any zone 300 that is less than 0.5m thick has been assumed to not be recoverable. Once the horizons of ore of greater than or equal to 0.5m thickness have been identified, a zone of 100mm of dilution is included from the zone above and the bottom 100mm of the ore zone is lost – the grades are adjusted accordingly. A 50m buffer zone is applied around the boundary of the lease an environmental buffer – none of this material is mined.

Criteria	JORC Code explanation	Commentary
	<p><i>control and pre-production drilling.</i></p> <ul style="list-style-type: none"> • <i>The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).</i> • <i>The mining dilution factors used.</i> • <i>The mining recovery factors used.</i> • <i>Any minimum mining widths used.</i> • <i>The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.</i> • <i>The infrastructure requirements of the selected mining methods.</i> 	<p>The pit slopes have been developed at 45 degrees. The slope angles have no material impact on the project economics.</p> <p>The mining will be carried out by stripping the overburden with scrapers and then mining the ore with front end loaders direct loading onto road haul trucks for transport to the port.</p> <p>All waste material is ultimately dumped back into mined out areas with the waste mining being carried out shortly before ore mining.</p> <p>A mining width of 160m has been used to facilitate efficient operations of the scrapers and to allow easy backdumping.</p> <p>Inferred Mineral resources have been included in the scenario 2 Production Target but not in the Ore Reserve estimate. The same conversion criteria have been applied to the Inferred Resources as the Measured and Indicated Resources. The Inferred Resources do not impact the viability of the project and form a very small proportion of the direct ship ore in the initial years of the mine life in Scenario 2.</p> <p>In the Scenario 1 schedule the Inferred Resources are treated as waste if mined or are left in the ground.</p> <p>The infrastructure requirements are minimal – small office and workshop facilities on site and the construction of the haul road to the port area (which is built into the contractor operating costs).</p>
<p><i>Metallurgical factors or assumptions</i></p>	<ul style="list-style-type: none"> • <i>The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.</i> • <i>Whether the metallurgical process is well-tested technology or novel in nature.</i> • <i>The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.</i> • <i>Any assumptions or allowances made for deleterious elements.</i> • <i>The existence of any bulk sample or pilot scale test work and the degree to which such samples are</i> 	<p>For Scenario 1 and Scenario 2 the ore is direct shipped with no processing.</p> <p>The quality parameters that dictated the price received for direct shipped ore have been determined within the Resource Estimate and then diluted as outlined above.</p> <p>No bulk sample tests have been taken.</p> <p>Mined material for the scenarios that have included Inferred Resources or screened material (2 and 3) has not been included in the Ore Reserve.</p>

Criteria	JORC Code explanation	Commentary
	<p>considered representative of the orebody as a whole.</p> <ul style="list-style-type: none"> For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications? 	
Environmental	<ul style="list-style-type: none"> The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported. 	<p>The project does not require an Environmental Impact Statement and will operate under an Environmental Management Plan (EMP).</p> <p>A buffer zone of 50m has been allowed between the mine and the edge of the tenement to ensure no encroachment on vine thickets or other sensitive areas.</p> <p>Epic Environmental completed the EMP.</p>
Infrastructure	<ul style="list-style-type: none"> 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. 	<p>The project is located close to the town of Weipa so no accommodation or major site facilities are required. Labour will be based at Weipa and commute to site. The port loadout facility is already in operation and agreements are being finalised for access to those facilities.</p>
Costs	<ul style="list-style-type: none"> 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 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. 	<p>Oresome have executed a contract with LCR Group for mining and hauling the ore.</p> <p>IMC have reviewed the contract and are satisfied the operating cost estimate reflects the terms of the contract.</p> <p>The mining services contract is for all site based operations through to stockpiling the ore at the port load out area.</p> <p>In addition to the unit mining costs, a state royalty of 10% has been applied and a 3% payment to traditional owners is allowed for on a free on board (FOB) revenue basis.</p> <p>A marketing cost of \$0.45/t has been applied.</p>
Revenue factors	<ul style="list-style-type: none"> 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 	<p>The forecast price realised for the Bauxite has been estimated by CM Group on the basis of schedule data provided by IMC.</p> <p>The pricing has been based on selling the product to low temperature refineries in China. It may be possible to realise a higher price from high temperature refineries – however at the time of completing this report no data is</p>

Criteria	JORC Code explanation	Commentary
	<p><i>price(s), for the principal metals, minerals and co-products.</i></p>	<p>available for the characteristics of the Urquhart bauxite at high temperature (only THA and low temperature reactive silica data is available at this time – test work is ongoing to get the high temperature data).</p>
<p><i>Market assessment</i></p>	<ul style="list-style-type: none"> • <i>The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.</i> • <i>A customer and competitor analysis along with the identification of likely market windows for the product.</i> • <i>Price and volume forecasts and the basis for these forecasts.</i> • <i>For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.</i> 	<p>CM Group completed an independent bauxite assessment and market outlook review specifically for the Urquhart Bauxite Project. This included an assessment of bauxite demand for use in producing alumina, and supply from existing and potential producers. Alumina is used to produce aluminium so the primary factor affecting demand for alumina and therefore bauxite is demand for aluminium</p> <p>The primary market for seaborne traded bauxite, including the Urquhart Bauxite Project, is Chinese Alumina companies in Shandong province. Bauxite is currently exported to China from the largest exporter being Australia (primarily Rio Tinto) and West Africa (primarily Guinea) the second largest exporter. As shipping costs are a potentially major variable costs, shipping costs and distance from a producer to customers influence the competitiveness of suppliers.</p> <p>Oresome provided shipping cost estimates for shipping the ore from Australia to China..</p>
<p><i>Economic</i></p>	<ul style="list-style-type: none"> • <i>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.</i> • <i>NPV ranges and sensitivity to variations in the significant assumptions and inputs.</i> 	<p>The primary inputs to the NPV analysis are:</p> <ul style="list-style-type: none"> • Revenue estimates from CM Group in US\$ -see above market assessment • An A\$:US\$ of 0.75 declining to 0.70 in January 2020 thereafter-based on forecasts provided by Oresome. • Cost estimates from the LCR Group Mining services contract and trans-shipping costs based on the estimate of Oresome of the agreement with GCR, and royalties payable primarily based on rates set by Qld State Government. • A discount rate of 10% which Oresome considers appropriate for the Project and which is used extensively for other projects considered to be similar • The revenue and cost inputs are not adjusted for inflation, partly due to the relatively short project life. <p>No NPV range has been calculated but the NPV is most sensitive to the CIF bauxite revenue, shipping costs and A\$:US\$ FX rate.</p>

Criteria	JORC Code explanation	Commentary
Social	<ul style="list-style-type: none"> The status of agreements with key stakeholders and matters leading to social licence to operate. 	<p>The Urquhart Bauxite Project has completed the environmental approval process and received a Mining Lease in 2017. The Traditional Landowner (TLO) negotiations and compensation agreement have been finalised. There are no other landholders except for the TLO's.</p>
Other	<ul style="list-style-type: none"> 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. 	<p>The required permits to enable mining to commence are completed.</p> <p>The environmental studies which culminated in an EMP being completed, are finalised.</p> <p>The landowner negotiations are complete.</p> <p>Negotiations in relation to being granted an ML that will allow Oresome to build and operate a haul road between the mine and Hey Point are well advanced with finalisation anticipated in late 2018.</p> <p>An arrangement with Green Coast Resources Pty Ltd for the stockpiling of ore, barging to ships and loading the ship is well advanced with finalisation anticipated in late 2018.</p> <p>The biggest risk in terms of payback is the timing risk of getting the project up and running – the target commencement date of mining in April 2019 is realistic in the context of the simplicity of mining, availability of nearby infrastructure and the fact that all mining is by contractors which mitigates much of the risk – the risk primarily is in the timing of the final outstanding approval, the granting of the ML required to haul the ore to the port.</p>
Classification	<ul style="list-style-type: none"> 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). 	<p>The Measured Mineral Resources have been converted to Proven Ore Reserves and the Indicated Mineral Resources have been converted to Probable Ore Reserves.</p> <p>This reflects the competent persons view of the deposit and the conversion of the Mineral Resources to Ore Reserves.</p>
Audits or reviews	<ul style="list-style-type: none"> The results of any audits or reviews of Ore Reserve estimates. 	<p>The Ore Reserve estimation methodology has been internally reviewed by Francois Bazin of IMC.</p>
Discussion of relative accuracy/confidence	<ul style="list-style-type: none"> 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 	<p>No studies have been undertaken in the development of the Ore Reserve in relation to the relative accuracy of the Ore Reserve estimate.</p> <p>Geostatistical Analysis was carried out in completing the Mineral Resource estimate in the definition of the Measured and Indicated Resources that have formed the basis of the Ore</p>

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	<p><i>accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.</i></p> <ul style="list-style-type: none"> • <i>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.</i> • <i>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.</i> • <i>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.</i> 	<p>Reserve.</p> <p>The modifying factors applied for the recovery of the direct shipped ore are robust and have been based on the study teams experience at nearby operations along with mining operation managed by the study team in other laterite deposits.</p> <p>All mining modifying factors have been applied on a local basis – ie on the basis of the overlying and underlying material characteristics in each mining block.</p>

