Mt Cattlin Ore Reserve update confirms mine life extension

16.06.2023 | GlobeNewswire

BRISBANE, June 15, 2023 - Allkem Ltd. (ASX: AKE, "Allkem" or the "Company") provides an Ore Reserve update for its Mt Cattlin operation in Western Australia ("WA").

HIGHLIGHTS

- Ore Reserve tonnage increased 34% to 7.8Mt at 1.20% Li_2O and 130ppm Ta_2O_5 at a cut-off grade of 0.4% Li_2O.
- The Ore Reserve and planned mining schedule suggests a projected Life-of-Mine for the next 4-5 years (2027-2028) via open pit mining methods. The Ore Reserve has increased with higher grade despite mining depletion to support production. The recent category upgrades in the latest Mineral Resource Estimate, and substantial increases in revenue pricing for spodumene concentrate have contributed to the increase in Ore Reserves.
- The next mining stage (Stage 4) consists of two separate cutbacks (Stage 4-1 and 4-2) to optimise ore presentation. A mining proposal for Stage 4 has been submitted to WA regulators and is anticipated to be received by the end of CY23.
- The Board has approved mining of the first cutback (Stage 4-1) of the open pit, which will result in continued spodumene production into 2026.
- In the second cutback (Stage 4-2), the increasing waste/ore strip ratio at depth via open pit mining methods is being evaluated against an alternate underground mining option. The company sees significant opportunity in transitioning to an underground mine including the unlocking of greater orebody extension potential and prolonging the life of mine.
- An underground Feasibility Study is expected to be delivered by Q1 CY24. It will enable a variety of scenarios to be modelled and will ensure an optimised future mining method is selected.

ORE RESERVE ESTIMATE

The Mt Cattlin Ore Reserve estimate is based on the Mineral Resource Estimate of 12.8Mt at 1.3% Li_2O grade and 179ppm Ta_2O_5, released on 17 April 2023. The Mineral Resource was updated after the completion of a major infill drilling program which successfully upgraded Inferred Mineral Resources with 92% of the total Mineral Resource tonnage now classified as Indicated Mineral Resources.

Allkem has reviewed and updated the Mt Cattlin Ore Reserve (Table 1 below), incorporating infill drilling results from the 2NW deposit, depleted mined material and site stockpiles at 31 March 2023 and material to be mined after this date are presented in accordance with JORC (2012) Ore Reserve Reporting.

Table 1: Mt Cattlin Ore Reserve Update as at 31 March 2023

Classification	Location	Ore Tonnes (Mt)	Grade Li_2O (%)	Grade Ta_2O_5 (ppm)	Contained Metal ('000) t Li_2O)	Contained Metal ('000) lbs Ta_2O_5
Proved	*In-situ*	*-*	*-*	*-*	*-*	*-*
Probable	*In-situ*	*6.1*	*1.3*	*130*	*80*	*1,800*
	Stockpiles	*1.8*	*0.8*	*99*	*14*	*380*
Total Ore Reserve		7.8	1.2	130	93	2,200

Notes: Ore Reserves are reported above a cut-off grade of 0.4 % Li_2O. The reported Ore Reserve incorporates regularisation of the Mineral Resource to a Selective Mining Unit of dimension 5.0 m x 5.0 m x 2.5 m (East, North, Elevation), with no additional mining dilution or mining recovery factors applied. Estimates have been rounded to a maximum of two significant figures, thus sum of columns may not equal.

Reserve Methodology

Pit optimisations have been carried out using a fixed spodumene concentrate sale price of US$1,500/t and an exchange rate of 0.7 USD:AUD. Whittle pit optimisation software has been used to identify the preferred pit shell on which the pit design was based.

The target design shells were selected to provide a logically phased mine life that maintains future optionality to further evaluate the trade-off between the larger second phase cutback compared to, or in conjunction with, underground mining.

The current mine sequence is based on:

- Continued mining of the current stage (Stage 3) of the 2NW pit to completion,
- Phasing of the next stage (Stage 4) into two separate cutbacks to manage the strip ratio and provide smoother ore supply to the processing plant; and
- The timing of a Mining Proposal that has been lodged in May with WA regulators to extend the current pit and allow for both cutbacks. The associated documentation, including updated Mine Closure Plan, will be reviewed in due course and is anticipated to be approved by the end of CY23.

The mine plan is shown to be technically and financially feasible with an overall life of mine (LOM) ore: waste strip ratio of 19.8:1. A suitable cashflow positive buffer exists below the assumed product prices to provide confidence that the Ore Reserve estimate will be financially viable within a reasonably expected range of possible product prices.

Figure 1: Mt Cattlin Cross section Looking East

Figure 2: Mt Cattlin Stage 4 Open Pit Plan

Figure 3: Mt Cattlin Stage 4 Open Pit Plan

Prior to the current 2023 Ore Reserve estimate, the most recent estimate (Table 2) was a depletion by Allkem as of 30 June 2022. The 2023 Ore Reserve estimate shows the total reserves have increased despite the mining depletion that has occurred since the previous reserve statement. Mineral Resource conversion from Inferred to Indicated and the economic environment around Lithium have contributed to the increase in Ore Reserves.

Table 2: Mt Cattlin Ore Reserve at 30 June 2022

Category		Tonnage Mt	Grade % Li2O	Grade ppm Ta2O5	Contained metal ('000) t Li2O	Contained metal lbs Ta2O5
Proven	-	-	-	-	-	%
Probable	2NW only	3.3	1.12	105	37.0	764,000
	Stockpiles	2.4	0.80	122	19.0	646,000
Total		5.8	0.98	113	56.0	1,410,000

Notes: Reported at cut-off grade of 0.4 % Li_2O within current mine design. The preceding statements of Ore Reserves conforms to the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code) 2012 edition. All tonnages reported are dry metric tonnes. Reported with 17% dilution and 93% mining recovery. Revenue factor US$650/tonne applied. Minor discrepancies may occur due to rounding to appropriate significant figures.

A description of the major factors that resulted in changes from the 2023 Ore Reserve to the 2022 Ore Reserve is as follows:

- An updated 2022 Mineral Resource Estimate with higher grade and increased tonnages in the Indicated category;
- Increased pit shell from US$650/tonne to US$1,500/tonne; and
- Decrease in Ore Reserves due to ongoing open pit mining and stockpile processing.

NEXT STEPS

Underground Feasibility Study

The Underground Feasibility Study is underway and will trade off optimised mining methodologies to improve the most beneficial/more economic outcomes. The study is expected to be completed by early CY24. The approval to proceed as an underground mine will be compared with the existing Open Pit Feasibility Study and also consider the potential for future upside (i.e. orebody continuation at depth).

Step out drilling

It was observed that both the USD 1,100 and 1,500 RPEEE Mineral Resource iterations remain limited by a lack of drilling data which will be resolved by further step out drilling planned for later in CY23.

RESOURCE AND RESERVE CONTROLS & GOVERNANCE

Allkem ensures that quoted Mineral Resource and Ore Reserve estimates are subject to internal controls and external review at both project and corporate levels. Mineral Resource and Ore Reserves are estimated and reported in accordance with the 2012 edition of the JORC Code. Further information is available in the appendices and JORC Table 1.

Allkem stores and collects exploration data using industry standard software that contains internal validation checks. Exploration samples from drilling have certified reference material standards introduced to the sample stream at set ratios, typically 1 per 25 samples. These are reported as necessary to the relevant Competent Persons to assess both accuracy and precision of the assay data applied to resource estimates. In resource modelling, block models are validated by checking the input drill hole composites against the block model grades by domain.

Allkem engages independent, qualified experts on a commercial fee for service basis, to undertake Mineral Resource and Ore Reserve audits. Allkem internally reconciles the resource outcomes to validate both the process and the outcome.

The Company has developed its internal systems and controls to maintain JORC compliance in all external reporting, including the preparation of all reported data by Competent Persons who are members of the Australasian Institute of Mining and Metallurgy or a 'Recognised Professional Organisation'. As set out above, the Mineral Resource and Ore Reserve statements included in this announcement were reviewed by suitably qualified Competent Persons (below) prior to their inclusion, in the form and context announced.

PROJECT ECONOMICS

Project economics for the full stage 4 expansion are set out below and will be updated following approval to proceed with stage 4-2 and/or an underground option.

Operating costs

Operating cash costs for the LOM are estimated at US$935/dmt produced. It incorporates the remainder of

the current Stage 3 open pit, Stage 4 open pits, and processing of end-of-life stockpiles from 1 April 2023 to end of mine life.

The table below proves a summary of the estimated LOM annual unitary cost by category.

Table 3: Estimated LOM operating cost by category

LOM Operating Cash Cost	US$/dmt produced
Costs	
Mining	445
Processing	268
General & Administration	68
Site Operating Costs	780
Transport & Logistics	40
Cash & Operating Costs	821
Royalties	126
By-Product credits	-12
FOB Cash Cost	935

Commodity prices

Forecast pricing for benchmark 6.0% Li_2O spodumene concentrate has been sourced from independent market analyst group Wood Mackenzie[1] and discounted for costs and penalties to give a Realised Price. The final pricing used is effectively net A$ FOB.

Tantalite (Ta_2O_5) concentrate is a by-product that contributes meaningful, but not material, revenue to the project. A flat sale price based on existing contracts has been applied to expected production.

A forward USD: AUD exchange rate forecast provided by Allkem has been used for this study, as shown in Table 4.

Table 4: Forward Estimates for Concentrate Price and Foreign Exchange

Period	Realised Li_2O US$/dmt	Exchange rate AUD:USD	Realised Li_2O A$/dmt	Realised Ta_2O_5 A$/dry lb
H2 CY23	4,048	0.70	5,783	34.72
CY24	2,074	0.70	2,963	34.72
CY25	1,425	0.70	2,036	34.72
CY26	2,375	0.70	3,393	34.72
CY27	2,103	0.70	3,004	34.72
CY28	1,762	0.70	2,517	34.72
H1 CY29	1,486	0.70	2,123	34.72

The cashflow model was also tested at a conservative realised price of US$1,500/dmt Li_2O in the optimisation, and cashflows remained positive for the overall Ore Reserve, and on each stage.

[1] The data and information provided by Wood Mackenzie should not be interpreted as advice and you should not rely on it for any purpose. You may not copy or use this data and information except as expressly permitted by Wood Mackenzie in writing. To the fullest extent permitted by law, Wood Mackenzie accepts no responsibility for your use of this data and information except as specified in a written agreement you have entered into with Wood Mackenzie for the provision of such of such data and information.

Economic evaluation

An economic evaluation was conducted by consultants Entech Mining using financial data sourced from Allkem, independent market analysis, and competitive tender.

Project economics for all of Stage 4 is forecast to generate a NPV of US$1.2B (A$1.7B) when evaluated with the prices in Table 4. Economics will be updated following approval to proceed with stage 4-2 or as an underground option

As an existing operation, Mt Cattlin requires only minor initial capital expenditure to support the Stage 4 expansion, and low total project capital requirements of approximately US$80m (A$115m). This will be funded from operating cashflow.

The economic model calculates Net Present Value (NPV) at a discount rate of 10% over the LOM from 31 March 2023. The NPV is based on financial model period cashflows, without allowance for taxation, depreciation, or financing provisions. The summary of this is shown in Table 5.

Table 5: Summary of Mt Cattlin Project Economics

Parameter	Unit	Stage 3	Stage 4-1	Stage 4-2	Closure Stockpiles	Total
Product Produced	Mt	0.4	0.2	0.3	0.1	1.0
Life-Of-Mine Revenue	A$B	1.8	0.5	1.0	0.3	3.5
Life-Of-Mine Total Expenditure	A$B	0.4	0.4	0.6	0.2	1.5
Life-Of-Mine Free Cashflow	A$B	1.4	0.1	0.4	0.1	2.0
Free Cashflow Margin	%	80%	22%	37%	36%	57%
Life-Of-Mine NPV	A$B	1.4	0.1	0.2	0.1	1.7

Sensitivity analysis

Sensitivity analysis was conducted on the following variables (+/-20%) and quantified with the NPV outputs:

- Revenue factors: spodumene concentrate price, currency exchange rate and plant recovery
- Cost factors: mining operating costs and processing operating costs

The results are graphically summarised in Figure 4. The outputs show the expected heightened sensitivity from revenue factors compared to cost factors. The plant recovery and revenue trends mimic each other, and currency exchange rate (FX) is the inverse. The cost sensitivity trends of the mining and processing operating costs mimic each other with mining being somewhat influential on cashflow and NPV due to being a larger overall cost.

Figure 4: NPV Sensitivity to Key Revenue and Cost Factor Variables

ENDS

This release was authorised by Mr Martin Perez de Solay, CEO and Managing Director of Allkem Ltd..

Allkem Ltd.	Investor Relations & Media Enquiries	Connect
ABN 31 112 589 910	Andrew Barber M: +61 418 783 701 E: Andrew.Barber@allkem.co	info@allkem.co +61 7 3064 3600
Level 35, 71 Eagle St Brisbane, QLD 4000	Phoebe Lee P: +61 7 3064 3600 E: Phoebe.Lee@allkem.co	www.allkem.co

IMPORTANT NOTICES

This investor ASX/TSX release (Release) has been prepared by Allkem Ltd. (ACN 112 589 910) (the Company or Allkem). It contains general information about the Company as at the date of this Release. The information in this Release should not be considered to be comprehensive or to comprise all of the material which a shareholder or potential investor in the Company may require in order to determine whether to deal in Shares of Allkem. The information in this Release is of a general nature only and does not purport to be complete. It should be read in conjunction with the Company's periodic and continuous disclosure announcements which are available at allkem.co and with the Australian Securities Exchange (ASX) announcements, which are available at www.asx.com.au.

This Release does not take into account the financial situation, investment objectives, tax situation or particular needs of any person and nothing contained in this Release constitutes investment, legal, tax, accounting or other advice, nor does it contain all the information which would be required in a disclosure document or prospectus prepared in accordance with the requirements of the *Corporations Act 2001* (Cth) (Corporations Act). Readers or recipients of this Release should, before making any decisions in relation to their investment or potential investment in the Company, consider the appropriateness of the information having regard to their own individual investment objectives and financial situation and seek their own professional investment, legal, taxation and accounting advice appropriate to their particular circumstances.

This Release does not constitute or form part of any offer, invitation, solicitation or recommendation to acquire, purchase, subscribe for, sell or otherwise dispose of, or issue, any Shares or any other financial product. Further, this Release does not constitute financial product, investment advice (nor tax, accounting or legal advice) or recommendation, nor shall it or any part of it or the fact of its distribution form the basis of, or be relied on in connection with, any contract or investment decision.

The distribution of this Release in other jurisdictions outside Australia may also be restricted by law and any restrictions should be observed. Any failure to comply with such restrictions may constitute a violation of applicable securities laws.

Past performance information given in this Release is given for illustrative purposes only and should not be relied upon as (and is not) an indication of future performance.

Forward Looking Statements

Forward-looking statements are based on current expectations and beliefs and, by their nature, are subject to a number of known and unknown risks and uncertainties that could cause the actual results, performances and achievements to differ materially from any expected future results, performances or achievements expressed or implied by such forward-looking statements, including but not limited to, the risk of further changes in government regulations, policies or legislation; the risks associated with the continued implementation of the merger between the Company and Galaxy Resources Ltd., risks that further funding may be required, but unavailable, for the ongoing development of the Company's projects; fluctuations or decreases in commodity prices; uncertainty in the estimation, economic viability, recoverability and processing of mineral resources; risks associated with development of the Company Projects; unexpected capital or operating cost increases; uncertainty of meeting anticipated program milestones at the Company's Projects; risks associated with investment in publicly listed companies, such as the Company; and risks associated with general economic conditions.

Subject to any continuing obligation under applicable law or relevant listing rules of the ASX, the Company disclaims any obligation or undertaking to disseminate any updates or revisions to any forward-looking statements in this Release to reflect any change in expectations in relation to any forward-looking statements

or any change in events, conditions or circumstances on which any such statements are based. Nothing in this Release shall under any circumstances (including by reason of this Release remaining available and not being superseded or replaced by any other Release or publication with respect to the subject matter of this Release), create an implication that there has been no change in the affairs of the Company since the date of this Release.

Competent Person Statement

The information in this announcement that relates to Exploration Results and Mineral Resources is based on information compiled by Albert Thamm, B.Sc. (Hons)., M.Sc. F.Aus.IMM (203217), a Competent Person who is a Fellow of The Australasian Institute of Mining and Metallurgy. Albert Thamm is a full-time employee of Galaxy Resources Pty. Limited. Albert Thamm has sufficient experience that is relevant to the style of mineralization and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Albert Thamm consents to the inclusion in this announcement of the matters based on his information in the form and context in which it appears.

The information in this announcement that relates to the 31 March 2023 Mt Cattlin Ore Reserve is based on information compiled by Daniel Donald, B. Eng. (Mining), F.Aus.IMM (210032), a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy. Daniel Donald is an employee working for Entech Mining Pty Ltd and has been engaged by Allkem Ltd. to prepare the documentation for the Mt Cattlin operation on which the Ore Reserve Report is based, for the period ended 31 March 2023, and has sufficient experience that is relevant to the style of mineralization and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Daniel Donald consents to the inclusion in this announcement of the matters based on his information in the form and context in which it appears.

Technical information relating to the Company's Mt Cattlin project contained in this release is derived from, and in some instances is an extract from, the technical report entitled "Mt Cattlin Ore Reserve Estimate, March 31, 2023" (Technical Report) which has been reviewed and approved by Albert Thamm, F.Aus.IMM (who is an employee of Galaxy Resources Pty. Ltd) as it relates to geology, drilling, sampling, exploration, QA/QC and mineral resources and Daniel Donald F.Aus.IMM (an employee of Entech Pty Ltd) as it relates to mining methods, Ore Reserves, site infrastructure, capital cost, operating cost estimates, , mining cost, financial modelling and economic analysis in accordance with National Instrument 43-101 - Standards for Disclosure for Mineral Projects. The Technical Report will be filed within 45 days of this release and will be available for review under the Company's profile on SEDAR at www.sedar.com.

Not for release or distribution in the United States

This announcement has been prepared for publication in Australia and may not be released to U.S. wire services or distributed in the United States. This announcement does not constitute an offer to sell, or a solicitation of an offer to buy, securities in the United States or any other jurisdiction, and neither this announcement or anything attached to this announcement shall form the basis of any contract or commitment. Any securities described in this announcement have not been, and will not be, registered under the U.S. Securities Act of 1933 and may not be offered or sold in the United States except in transactions registered under the U.S. Securities Act of 1933 or exempt from, or not subject to, the registration of the U.S. Securities Act of 1933 and applicable U.S. state securities laws.

APPENDIX 1 - JORC 2012 TABLE 1 DISCLOSURE

Section 1: Sampling Techniques and Data

MT CATTLIN LITHIUM PROJECT SAMPLING AND DATA

Sampling techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or measurement tools appropriate to the minerals under investigation, handheld XRF instruments, etc.). These examples should not be ta sampling.* *Include reference to measures taken to ensure sample representivi measurement tools or systems used.* *Aspects of the determination of mineralization that are Material to th In cases where 'industry standard' work has been done this would b circulation drilling was used to obtain 1 m samples from which 3 kg for fire assay'). In other cases more explanation may be required, s has inherent sampling problems. Unusual commodities or mineraliz warrant disclosure of detailed information.*

Drilling techniques	*Drill type (e.g. core, reverse circulation, open-hole hammer, rotary a details (e.g. core diameter, triple or standard tube, depth of diamon whether core is oriented and if so, by what method, etc.).*
Logging	*Whether core and chip samples have been geologically and geotec support appropriate Mineral Resource estimation, mining studies ar Whether logging is qualitative or quantitative in nature. Core (or cos The total length and percentage of the relevant intersections logged*

Sub- sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core tak* *If non-core, whether riffled, tube sampled, rotary split, etc. and whe* *For all sample types, the nature, quality and appropriateness of the* *Quality control procedures adopted for all sub-sampling stages to m* *Measures taken to ensure that the sampling is representative of the* *instance results for field duplicate/second-half sampling.* *Whether sample sizes are appropriate to the grain size of the mater*

Quality of assay data and laboratory tests	*The nature, quality and appropriateness of the assaying and labora technique is considered partial or total.* *For geophysical tools, spectrometers, handheld XRF instruments, e the analysis including instrument make and model, reading times, c derivation, etc.* *Nature of quality control procedures adopted (e.g. standards, blank and whether acceptable levels of accuracy (i.e. lack of bias) and pr*

Verification of sampling and assaying	*The verification of significant intersections by either independent or* *The use of twinned holes.* *Documentation of primary data, data entry procedures, data verifica electronic) protocols.* *Discuss any adjustment to assay data.*

Section 2: Reporting of Exploration Results

Criteria	JORC Code explanation
Mineral tenement and land tenure status	● *Type, reference name/number, location and ow* ● *The security of the tenure held at the time of re*

Exploration done by other parties	● *Acknowledgment and appraisal of exploration*
Geology	● *Deposit type, geological setting and style of m*
Drill hole Information	● *A summary of all information material to the ur* ● *easting and northing of the drill hole colla* ● *elevation or RL (Reduced Level - elevati* ● *dip and azimuth of the hole* ● *down hole length and interception depth* ● *hole length.*
Data aggregation methods	● *In reporting Exploration Results, weighting ave* ● *Where aggregate intercepts incorporate short* ● *The assumptions used for any reporting of me*
Relationship between mineralization widths and intercept lengths	● *These relationships are particularly important i* ● *If the geometry of the mineralization with respe* ● *If it is not known and only the down hole length*
Diagrams	● *Appropriate maps and sections (with scales) a*

Balanced reporting	● *Where comprehensive reporting of all Explorat*
Other substantive exploration data	● *Other exploration data, if meaningful and mate*
Further work	● *The nature and scale of planned further work (* ● *Diagrams clearly highlighting the areas of poss*

Section 3: Estimation and Reporting of Mineral Resources - Mt Cattlin

Criteria	JORC Code explanation
Database integrity	● *Measures taken to ensure that data has not been corrupted by, for examp* ● *Data validation procedures used.*
Site visits	● *Comment on any site visits undertaken by the Competent Person and the* ● *If no site visits have been undertaken indicate why this is the case.*

Geological interpretation	● *Confidence in (or conversely, the uncertainty of) the geological interpretati* ● *Nature of the data used and of any assumptions made.* ● *The effect, if any, of alternative interpretations on Mineral Resource estima* ● *The use of geology in guiding and controlling Mineral Resource estimation* ● *The factors affecting continuity both of grade and geology.*
Dimensions	● *The extent and variability of the Mineral Resource expressed as length (al*

Estimation and modelling techniques	● *The nature and appropriateness of the estimation technique(s) applied an* ● *The availability of check estimates, previous estimates and/or mine produc* ● *The assumptions made regarding recovery of by-products.* ● *Estimation of deleterious elements or other non-grade variables of econon* ● *In the case of block model interpolation, the block size in relation to the av* ● *Any assumptions behind modelling of selective mining units.* ● *Any assumptions about correlation between variables* ● *Description of how the geological interpretation was used to control the res* ● *Discussion of basis for using or not using grade cutting or capping.* ● *The process of validation, the checking process used, the comparison of r*
Moisture	● *Whether the tonnages are estimated on a dry basis or with natural moistur*
Cut-off parameters	● *The basis of the adopted cut-off grade(s) or quality parameters applied*

Mining factors or assumptions	● *Assumptions made regarding possible mining methods, minimum mining c*
Metallurgical factors or assumptions	● *The basis for assumptions or predictions regarding metallurgical amenabil*
Environmental factors or assumptions	● *Assumptions made regarding possible waste and process residue disposa*
Bulk density	● *Whether assumed or determined. If assumed, the basis for the assumptio* ● *The bulk density for bulk material must have been measured by methods t* ● *Discuss assumptions for bulk density estimates used in the evaluation pro*
Classification	● *The basis for the classification of the Mineral Resources into varying confi* ● *Whether appropriate account has been taken of all relevant factors (i.e. re* ● *Whether the result appropriately reflects the Competent Person's view of t*
Audits or reviews	● *The results of any audits or reviews of Mineral Resource estimates.*

Discussion of relative accuracy/ confidence	● *Where appropriate a statement of the relative accuracy and confidence lev* ● *The statement should specify whether it relates to global or local estimates* ● *These statements of relative accuracy and confidence of the estimate sho*

Section 4: Ore Reserves

Criteria	JORC Code explanation
Mineral Resource estimate for conversion to Ore Reserves	Description of the Mineral Resource estimate used as a ba
	Clear statement as to whether the Mineral Resources are r Reserves.
Site visits	Comment on any site visits undertaken by the Competent P If no site visits have been undertaken indicate why this is th
Study status	The type and level of study undertaken to enable Mineral R The Code requires that a study to at least Pre-Feasibility S Resources to Ore Reserves. Such studies will have been c that is technically achievable and economically viable, and considered.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters appl

	The method and assumptions used as reported in the Pre- Mineral Resource to an Ore Reserve (i.e., either by applica preliminary or detailed design).
	The choice, nature and appropriateness of the selected mi including associated design issues such as pre-strip, acces
Mining factors or assumptions	
	The assumptions made regarding geotechnical parameters and pre-production drilling.
	The major assumptions made, and Mineral Resource mode appropriate).

	The mining dilution factors used.
	The mining recovery factors used.
	Any minimum mining widths used.
	The manner in which Inferred Mineral Resources are utilise outcome to their inclusion.
	The infrastructure requirements of the selected mining met
	The metallurgical process proposed and the appropriatene
	Whether the metallurgical process is well-tested technology
Metallurgical factors or assumptions	
	The nature, amount and representativeness of metallurgica metallurgical domaining applied and the corresponding me
	Any assumptions or allowances made for deleterious elem
	The existence of any bulk sample or pilot scale test work a considered representative of the orebody as a whole.
	For minerals that are defined by a specification, has the ore appropriate mineralogy to meet the specifications?

Environmental	The status of studies of potential environmental impacts of waste rock characterisation and the consideration of poten where applicable, the status of approvals for process resid
Infrastructure	The existence of appropriate infrastructure: availability of la transportation (particularly for bulk commodities), labour, a infrastructure can be provided, or accessed.
Costs	The derivation of, or assumptions made, regarding projecte
	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 refinin specification, etc.
	The allowances made for royalties payable, both Governm

Revenue factors	The derivation of, or assumptions made regarding revenue price(s) exchange rates, transportation and treatment charg
	The derivation of assumptions made of metal or commodity co-products.
	The demand, supply and stock situation for the particular c to affect supply and demand into the future.
Market assessment	A customer and competitor analysis along with the identific
	Price and volume forecasts and the basis for these forecas
	For industrial minerals the customer specification, testing a contract.

	The inputs to the economic analysis to produce the net pre confidence of these economic inputs including estimated in
Economic	
	NPV ranges and sensitivity to variations in the significant a
Social	The status of agreements with key stakeholders and matte

	To the extent relevant, the impact of the following on the pr the Ore Reserves:
	Any identified material naturally occurring risks.
Other	
	The status of material legal agreements and marketing arra
	The status of governmental agreements and approvals crit tenement status, and government and statutory approvals. all necessary Government approvals will be received within or Feasibility study. Highlight and discuss the materiality of third party on which extraction of the reserve is contingent.
	The basis for the classification of the Ore Reserves into va
Classification	
	Whether the result appropriately reflects the Competent Pe
	The proportion of Probable Ore Reserves that have been c
Audits or reviews	The results of any audits or reviews of Ore Reserve estima

	Where appropriate a statement of the relative accuracy and using an approach or procedure deemed appropriate by the of statistical or geostatistical procedures to quantify the rela confidence limits, or, if such an approach is not deemed ap which could affect the relative accuracy and confidence of t
Discussion of relative accuracy/ confidence	The statement should specify whether it relates to global or tonnages, which should be relevant to technical and econo assumptions made and the procedures used. Accuracy and confidence discussions should extend to spe that may have a material impact on Ore Reserve viability, c uncertainty at the current study stage. It is recognised that this may not be possible or appropriate relative accuracy and confidence of the estimate should be

Figures accompanying this announcement are available at:

https://www.globenewswire.com/NewsRoom/AttachmentNg/8a13271b-078c-478d-a772-11aa73e327c7

https://www.globenewswire.com/NewsRoom/AttachmentNg/4939260a-4a8b-4b61-a7dd-ab4cca831445

https://www.globenewswire.com/NewsRoom/AttachmentNg/838ee883-3b4e-4731-a9bd-ef07a92c11be

https://www.globenewswire.com/NewsRoom/AttachmentNg/3470423d-1891-4cec-84d0-e6c9508b8154