

Progressing Oracle Ridge towards Future Copper Production

Eagle Mountain Mining Limited (ASX:EM2) (Eagle Mountain, or the Company) is pleased to advise it has commenced a new Mineral Resource Estimate (MRE), and expedited technical studies at its 100% owned Oracle Ridge Copper Mine Project (Oracle Ridge, or the Project) in Arizona, USA. This follows recent positive sampling results combined with a strong resource position and data from an extensive two-year drilling program.

Summary

- **Mineral Resources Estimate:**
 - A new Mineral Resource Estimate is underway following the extensive new knowledge gained from the underground mapping and channel sampling program, as well as incorporating all assays received since October 2022.
 - The variability of mineralisation recognised from the underground mapping and channel sampling provides optionality for mining and processing and is demonstrated by the steep grade-tonnage curve from the current October 2022 MRE at various cut-off grades.
- **Technical evaluations are underway with the following focus:**
 - **Assessing various mining scenarios**, from a larger scale operation using the materially larger resource base at lower cut-off grades, to a smaller scale scenario with a high-grade operation using selective mining.
 - **Identifying cost and production efficiencies**, such as the use of new technologies, existing infrastructure and second-hand plant.
 - **Metallurgical test work for plant design and optimisation**, including variability test work with various processing flow sheet scenarios. This includes ore sorting, leaching or pressure oxidation of concentrate in combination with solvent extraction and electrowinning producing copper metal onsite.
 - **Evaluating low impact operations to maximise local community and environment benefits**, incorporating battery electric equipment to reduce emissions, renewable energy sources, a low surface disturbance operation and local employment opportunities.

Commenting on the studies and MRE, Eagle Mountain Mining's CEO, Tim Mason, said:

"Eagle Mountain is well positioned to benefit from widely forecast expectations for higher copper prices driven by the global transition to cleaner energy. Copper is utilised across the renewable energy spectrum including solar PV, wind and battery storage. The US Government has also made it clear it wants to be self-sustainable in all critical minerals, and copper will play an important part in this drive."

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Now is the time for us to change focus from exploration and resource building towards ramping up various technical evaluations that show the true potential at Oracle Ridge, including mining, processing, infrastructure and environmental.

An extensive drilling and sampling program has been successful in providing our October 2022 JORC Mineral Resource Estimate and identifying valuable optionality on how we can maximise returns from mining. The contained metal at Oracle Ridge nearly doubles when moving from a 1.0% to a 0.60% Cu cut-off grade. This demonstrates a range of exciting options for future mining and processing with different combinations of grade and scale.

Importantly, we are reviewing the current MRE to incorporate a revised modelling technique based on the extensive new knowledge gained from the underground channel sampling program, as well as including all assays received since October 2022. The recent results from the underground drilling program and underground sampling continue to demonstrate that mineralisation at Oracle Ridge includes high grade zones within very thick zones at lower grades."

New Mineral Resource Estimate Commenced

The knowledge gained from the recent underground geological mapping and channel sampling program indicates that previous estimates have likely suppressed the grade in the higher-grade areas and increased the grade of lower grade areas due to grade over-averaging. The Company is planning to review the modelling methods and assumptions as part of the MRE update. This review will be focused on domaining the higher and lower grades zones to align more closely to mapping and sampling observations and reduce the impact of grade over-smoothing. The updated MRE will also incorporate assay and geological data received since the previous MRE update (see ASX announcement 6 October 2022). The updated MRE is planned to be completed in Q4, 2023.

Current Mineral Resource Estimate

The existing October 2022 Mineral Resource Estimate is shown in Table 1. The tonnage and grade quantities for the Oracle Ridge resource model at various cut-off grades is shown in Table 2, demonstrating the steep grade/tonnage curve and the potential optionality in mining and processing scenarios. The rationale for presentation is due to the positive results from the underground channel sampling (refer ASX announcement dated 16 May 2023) and further drilling results (refer ASX announcement dated 2 May 2023).

New results from drilling and channel sampling received since the October 2022 MRE are not included. The assumptions made and outlined at that time have not materially changed.

Table 1 – Summary of MRE Resource Categories at 1% Cu cut-off grade

Resource Category	Tonnes [Mt]	Cu [%]	Ag [g/t]	Au [g/t]	Contained Cu [t]	Contained Ag [Oz]	Contained Au [Oz]
Measured	2.1	1.57	16.42	0.21	33,000	1,111,000	14,000
Indicated	8.7	1.49	14.94	0.21	129,000	4,178,000	59,000
Subtotal M+I	10.8	1.50	15.23	0.21	162,000	5,290,000	74,000
Inferred	5.7	1.36	14.85	0.15	77,000	2,719,000	28,000
Total M+I+I	16.5	1.45	15.10	0.19	240,000	8,009,000	102,000

Differences may occur in totals due to rounding.



Table 2 – Oracle Ridge resource model tonnage and grade quantities at various cut-off grades

Cut off [Cu%]	Tonnes [Mt]	Cu [%]	Ag [g/t]	Au [g/t]	Contained Cu	Contained Ag	Contained Au
0.2	133.7	0.57	5.93	0.08	766,000 t or 1,688,700,000 lb	25,479,000 Oz	346,000 Oz
0.4	74.0	0.80	8.32	0.11	594,000 t or 1,309,500,000 lb	19,801,000 Oz	267,000 Oz
0.6	43.1	1.03	10.66	0.14	443,000 t or 976,600,000 lb	14,772,000 Oz	196,000 Oz
0.8	26.3	1.24	12.91	0.17	327,000 t or 720,900,000 lb	10,933,000 Oz	144,000 Oz
1.0	16.5	1.45	15.10	0.19	240,000 t or 529,100,000 lb	8,009,000 Oz	102,000 Oz
1.2	10.7	1.65	17.16	0.21	176,000 t or 388,000,000 lb	5,884,000 Oz	73,000 Oz
1.4	7.0	1.83	19.13	0.23	129,000 t or 284,400,000 lb	4,321,000 Oz	53,000 Oz

As can be seen in Figure 1 below, the relatively steep grade-tonnage curve of the existing Oracle Ridge mineralisation provides significant optionality for potential mining and processing scenarios.

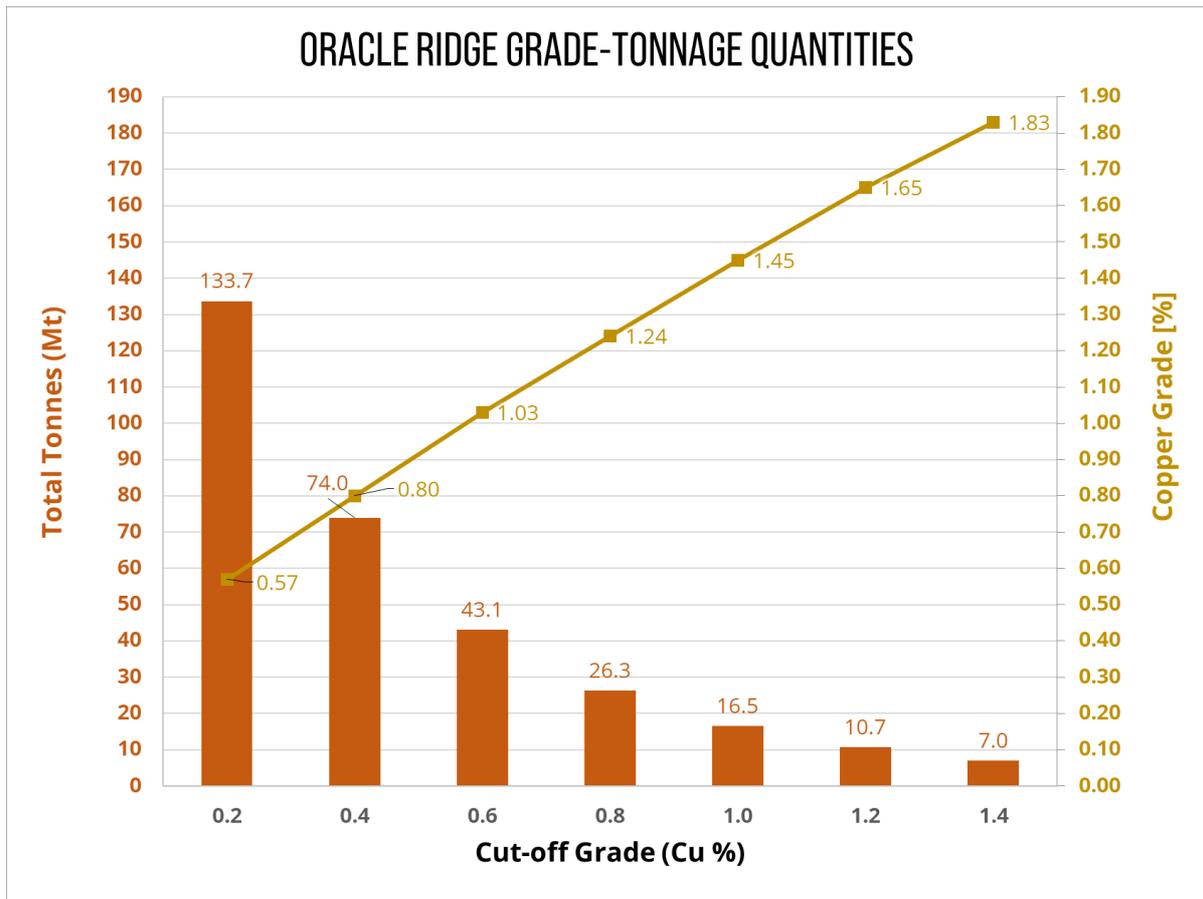


Figure 1 – Oracle Ridge Grade-Tonnage Curve



Technical Evaluations

Eagle Mountain is ramping up various technical evaluations to assess options for future mining and processing operations at Oracle Ridge. These evaluations are based on an underground mining operation and will consider various potential processing options.

A key part of the Company's strategy is to develop an environmentally friendly and low emissions copper mine to benefit all stakeholders. The Oracle Ridge Copper Mine is uniquely placed to deliver on this with its topography, minimal existing surface footprint and extensive existing underground mine infrastructure. The evaluations will leverage these unique characteristics of the Project and will aim to achieve high levels of energy self-sufficiency while minimising surface impacts. The potential to produce copper metal on site for domestic US consumption will also be considered together with the potential to grow existing resources for long term project sustainability.

The recent underground drilling, sampling and mapping activities together with the results of drilling conducted by Eagle Mountain over the past two and a half years and by previous owners have provided the confidence to move to this next stage in the potential development of the Project.

The evaluations will focus on production primarily from the existing Measured and Indicated resources of the Project and will evaluate alternate mining scenarios to optimise returns, including larger scale operations using the materially larger resource base at lower cut-off grades, or a smaller higher-grade operation with selective mining. Recent advancements in equipment and process technologies will also be considered with a view to lowering operating costs and increasing efficiencies for the Project.

The Company has engaged several well-respected consultants to conduct work on the next phase of development. Details of the scope of work in each project area are as follows:

Mining – The mineralisation at Oracle Ridge includes both high-grade mineralisation within broader lower grade zones. This variability provides optionality for future mine designs which can be considered for defining the optimum production rate for the project.

Underground mine planning has commenced. The mine will be wholly underground with no open pit mining. The mine will be designed to avoid any surface subsidence.

Metallurgy – While the Project benefits from a history of production and metallurgical knowledge, the Company is undertaking further comminution and floatation testing with the aim to enhance metallurgical recoveries and improve project economics. The bulk of the samples used for this testing is from drill core derived from the main ore zones likely to be mined in the first five years of production. If and when bulk samples are required for future test work, they will be taken from areas identified in the underground channel sampling.

The following metallurgical and comminution tests are underway:

- Comminution tests for crushing and grinding optimisation;
- Mineralogical analysis of polished section using QEMSCAN. This will provide further knowledge of the mineral formation and opportunities for enhanced metallurgical recoveries;
- Magnetic separation tests to assess the potential of recovering magnetite as a potential by-product;
- Floatation variability test work and optimisation; and
- Extraction of garnet as a potential by-product.



Mineralisation at Oracle Ridge includes a variety of styles of mineralisation including massive, matrix and disseminated sulphides. This variability could be well suited for ore sorting which, if successful, could enhance the grade of the mineralisation reporting to a processing plant by the removal of sub-economic rock at the crushing stage. Additional benefits of ore sorting could include:

- Smaller processing plant with lower capital cost;
- Reduced energy consumption by not grinding rocks with very little or no mineralisation;
- Reduced water consumption; and
- Reduced processing cost per pound of copper processed.

Ore sorting using sensor technology has been successfully used at a commercial scale at many locations worldwide. Initial ore sorting testwork has been undertaken at a facility in Kentucky, USA with results pending.



Ore sorting testwork underway in Kentucky, USA

Engineering Design – The mineralisation at Oracle Ridge may be amendable to various processing circuitry, which will be considered as part of the evaluations. These include:

- Production of a bulk copper, silver and gold concentrate for sale. This was previously undertaken at the Project when it was in production in the early 1990's;
- Concentrate leaching or pressure oxidation to produce a copper pregnant solution which is then treated in a solvent extraction electrowinning circuit on site, producing copper metal; and
- Bulk leach test of the ore. Recently, there have been advances in leach technology of base metal sulphides globally. The Company is investigating various leach technology options which may be suitable for processing mineralisation at Oracle Ridge.

A local engineering consultant has been appointed to undertake surface infrastructure design including processing facilities and other surface infrastructure. The Company has also inspected available second-hand plants in Arizona which will be considered in the evaluations to reduce capital costs and lead times for the supply of equipment.

Tailings Storage – A local engineering group has completed an initial trade-off study for various tailings storage designs. Further design work will be undertaken as part of ongoing evaluations.



Environmental and Social

The Company is committed to investigating processes and technology which reduce the Project's impact on the environment and supports local communities. This includes:

- Incorporating renewable energy into the design;
- Minimising surface disturbance by only extracting mineralisation by underground methods. No open pit mining will be considered;
- Incorporating a battery electric mining fleet where practical to reduce emissions;
- Providing jobs for local personnel and supporting local businesses; and
- Tailings disposal incorporating best available demonstrated control technology.

Updated baseline flora and fauna studies have recently been completed.

The technical program is being led by Mr Bob Jacko who has a strong knowledge of mining operations in the USA and will be reported in accordance with the JORC Code 2012.



Tim Mason, CEO and Bob Jacko, Technical Evaluations Manager on site at Oracle Ridge.

This ASX announcement was authorised for release by the Board of Eagle Mountain Mining Limited.

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COMPETENT PERSON STATEMENT

Where the Company references the Mineral Resource Estimate updated and released on 6 October 2022, it confirms that it is not aware of any new information or data that materially affects the information included in that announcement, and all material assumptions and technical parameters underpinning the Mineral Resource Estimate continue to apply and have not materially changed. In addition, the form and context in which the Competent Persons findings are presented have not been materially modified from the original reports.

The grade tonnage information noted at various cut-offs from 0.2% Cu to 1.4% Cu was derived from the data and technical information collated and analysed in the 6 October 2022 Mineral Resource Estimate and is supported by and consistent with the JORC Table 1 disclosures made at that time.

Where the Company references previous exploration results including technical information from previous ASX announcements and historic results, JORC Table 1 disclosures are included within them.

ABOUT EAGLE MOUNTAIN MINING

Eagle Mountain is a copper-gold explorer focused on the strategic exploration and development of the Oracle Ridge Copper Mine and the highly prospective greenfields Silver Mountain Project, both located in Arizona, USA.

Arizona is at the heart of America's mining industry and home to some of the world's largest copper discoveries such as Bagdad, Miami and Resolution, one of the largest undeveloped copper deposits in the world.

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