



## METALLURGICAL TESTS CONFIRM HIGH GRADE PRODUCT

Magnum Mining & Exploration Limited (ASX: **MGU**, **Magnum**, or the **Company**) has completed metallurgical test work on a bulk magnetite sample from its Buena Vista Iron Project.

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### HIGHLIGHTS

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- Results indicate 68.3% Fe grade magnetite concentrate readily achievable just through simple grinding
  - Achieved low silica and aluminium levels below the 3% needed to meet DRI grade requirements
  - Initial dry processing at a very coarse grind size possible
  - Industry standard grade of iron "fines" achievable with a coarse grind size
  - Flotation test work underway to pursue higher iron grades
  - A bulk magnetite concentrate will be produced for supply to key potential customers for their in-house testing
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Magnum appointed industry-leader Australian Laboratory Services (**ALS**) to utilise its metallurgy laboratory in Perth, Western Australia to process a 200kg sample of magnetite concentrate collected from the Initial Mining Area (**IMA**) at the Buena Vista Iron Project, Nevada, USA. The sample was constructed to mimic the long run head grade based on the five year mine schedule<sup>1</sup> for the IMA.

The Buena Vista Iron Project is based on a magnetite ore body that has had a successful Scoping Study completed in 2023.<sup>2</sup> The magnetite ore can be concentrated using standard mining industry methods of crushing, grinding, and Low Intensity Magnetic Separation (**LIMS**). Previous test work has been sample specific. The current test work was undertaken to determine the recoveries and grade of magnetite concentrate derived from the wide spectrum of mineralisation styles found at Buena Vista. These styles range from massive magnetite ore, often grading at more than 60% Fe, to sparsely disseminated magnetite ore grading as low as 10% Fe, the cutoff used in both the Scoping and the pit optimisation studies.

Sampling was undertaken by Magnum personnel using a magnetic susceptibility meter and a Portable XRF (**pXRF**) analyser to ensure the full range of expected ore grades and styles were collected and that the average grade reflected of the samples simulated that used in the five year mine plan schedule. The samples were crushed to -6mm before dispatching to ALS' Perth laboratory. In excess of 736kg magnetite ore was collected and dispatched.

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<sup>1</sup> ASX:MGU "Mine Schedule Delivers Higher Grades, Lower Strip", 20 November, 2023.

<sup>2</sup> ASX:MGU "Positive Scoping Study validates Buena Vista Iron Project", 14 August, 2023.

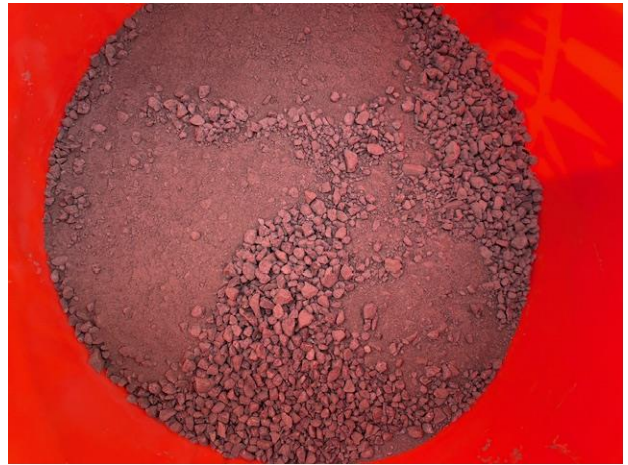
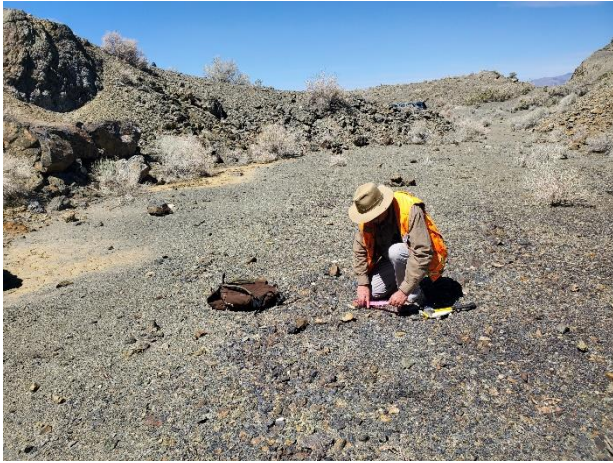


Figure 1 Bulk sampling at the Buena Vista Iron Project mine site. Samples were collected from existing stockpiles and in situ sources. The samples were crushed to -6mm.



Figure 2 Once crushed, samples were rechecked with both a magnetic susceptibility meter and a pXRF analyser to ensure the correct mixing ratios were used to achieve the sought after long term run of mine grade.

ALS homogenised the crushed ore and took a 200kg subsample to process. The aims of the processing were to:

- confirm the grade vs grind data from previous test work;
- provide a sample for testing the regrind power (Metso Jar Mill test); and
- conduct five reverse float tests to indicate likely float conditions.

### GRADE VS GRINDING CURVE SHOWS EXCELLENT IRON SEPARATION

Grinding Buena Vista ore to eight sizes shows a saleable product of 63.7% Fe can be produced at 125 $\mu$ m (0.125mm). The industry standard grade of iron “fines” is 62% Fe. However, Magnum is pursuing the production of a premium product by grinding the ore to 38 $\mu$ m to attain a grade of 68.3% Fe. Crucially, at this sizing, alumina plus silica is 2.56%, well below the 3% cut-off required for a Direct Reduction Iron (DRI) feed.

### LIMS TAILINGS REJECTION CAN BE OPTIMISED FOR DRY MAGNETIC SEPARATION

Extension of the grinding test work to 5mm indicated that over 60% of the nonmagnetic component of the ore can be rejected at that sizing. This has important economic implications for the project:

1. Dry magnetic separation significantly reduces the water required.
2. Less material is presented for the final grind, reducing power requirements.
3. The majority of the tailings will be dry, reducing the costs of tailings storage, simplifying the tailings storage facility design, and reducing its footprint.

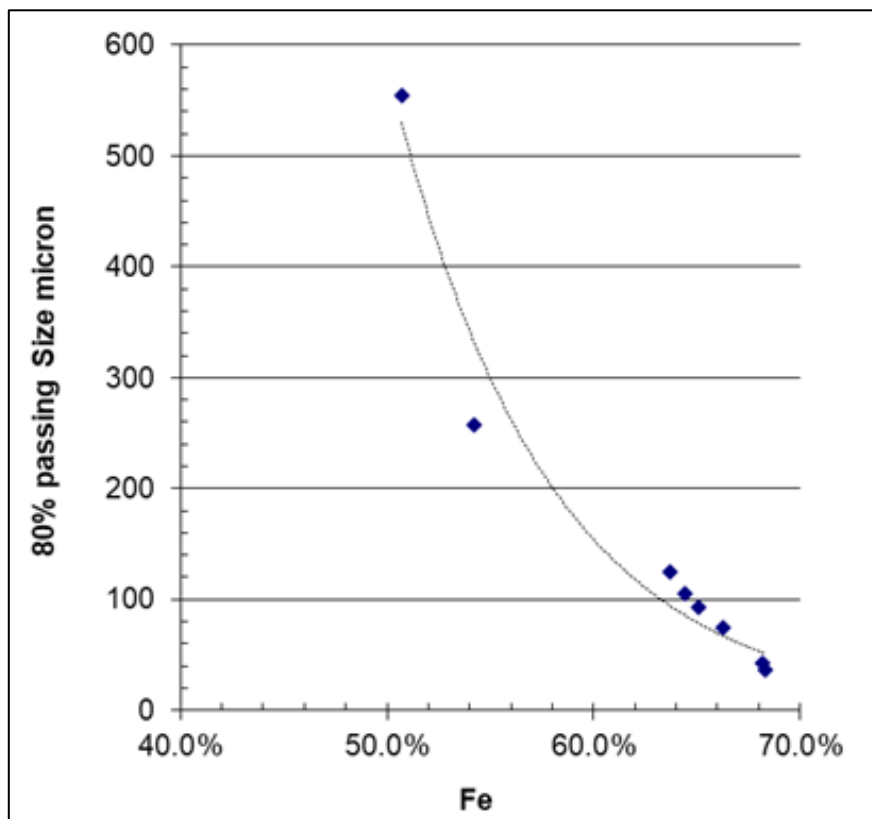


Figure 3 Iron grade versus grind size curve.



### **FURTHER TEST WORK**

Extension of the test work to explore the use of flotation is now underway. This work is designed to deliver a premium grade product with lower contaminants. It is expected that this work will be reported on in the near future.

### **BULK PRODUCT FOR MARKETING**

It is expected that the remaining 536kg of sample magnetite concentrate will be bulk processed at the final processing specifications in order to make a bulk magnetite concentrate. This will validate the proposed flow sheet for the benefaction plant through a "batch" processing test. This material may be provided to specific potential customers for their own in-house test work requirements.

*"This test work has proven that the Buena Vista magnetite orebody can deliver a premium magnetite concentrate from across the mineralisation style seen there. Significantly, deleterious elements, particularly alumina, silica, phosphorous and sulphur, are well below that needed to deliver a DRI product that is in increasing demand in the push to decarbonise the steel industry".*

Mr Neil Goodman, MD of Magnum.

**CAUTIONARY STATEMENTS**

This release contains “forward-looking information” that is based on the Company’s expectations, estimates and projections as of the date on which the statements were made. This forward-looking information includes, among other things, statements with respect to studies, the Company’s entry into a definitive agreement with Midmetal, the Company’s business strategy, plan, development, objectives, performance, outlook, growth, cash flow, projections, targets and expectations. Generally, this forward-looking information can be identified by the use of forward-looking terminology such as ‘outlook’, ‘anticipate’, ‘project’, ‘target’, ‘likely’, ‘believe’, ‘estimate’, ‘expect’, ‘intend’, ‘may’, ‘would’, ‘could’, ‘should’, ‘scheduled’, ‘will’, ‘plan’, ‘forecast’, ‘evolve’ and similar expressions. Persons reading this news release are cautioned that such statements are only predictions, and that the Company’s actual future results or performance may be materially different. Forward-looking information is subject to known and unknown risks, uncertainties and other factors that may cause the Company’s actual results, level of activity, performance or achievements to be materially different from those expressed or implied by such forward-looking information.

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