



## METALLURGICAL TESTS CONFIRM HIGH GRADE PRODUCT (AMENDED)

**Magnum Mining & Exploration Limited** (ASX: **MGU**) ("**MGU**" the "**Company**") provides the attached release to market (dated 7 June 2024) as an amendment to the previous release (dated 5 June 2024) with regards to "Metallurgical Tests Confirm High Grade Product".

This amended release reflects that the JORC code defines metallurgical testing as exploration results and as such, the results disclosed must include the information required under Listing Rule 5.7.1, including Table 1 and a competent person's statement.

**ENDS**

**For Further Information, please contact:**

**Luke Martino**

**Company Chairman**

Tel: +61 8 6489 0699

E: [info@mmel.com.au](mailto:info@mmel.com.au)

This ASX announcement was authorised for release by the Board of Magnum Mining & Exploration Limited.

**Mmel.com.au**

ABN: 70 003 170 376

311-313 Hay Street, Subiaco, WA 6008

+61 8 6489 0699



## 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.

---

### HIGHLIGHTS

---

- 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
- 

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.

---

<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.

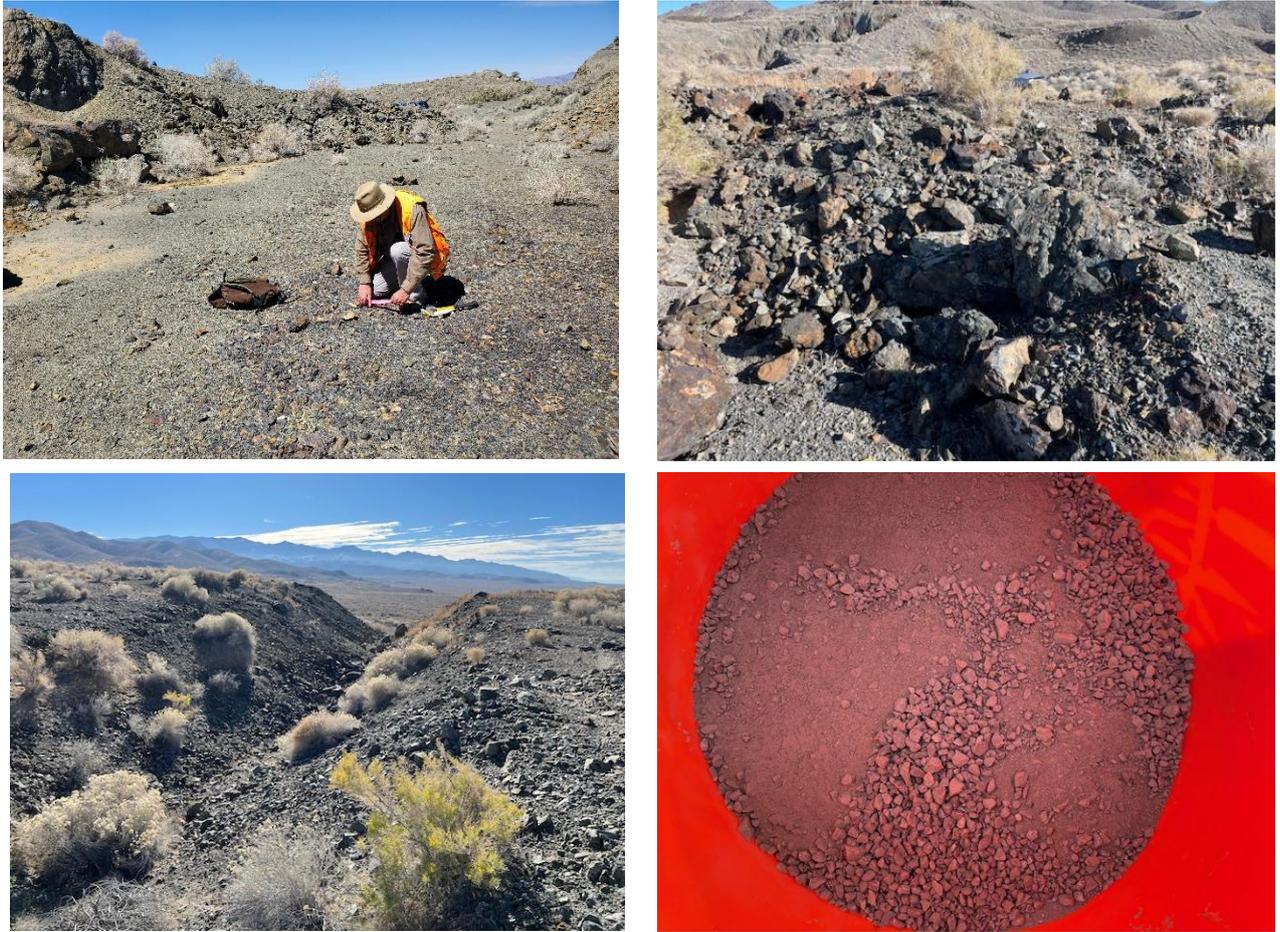


Figure 1 Bulk sampling at the Buena Vista Iron Project mine site. Samples were collected from existing stockpiles and in situ sources. The samples were crushed to -6mm.



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.

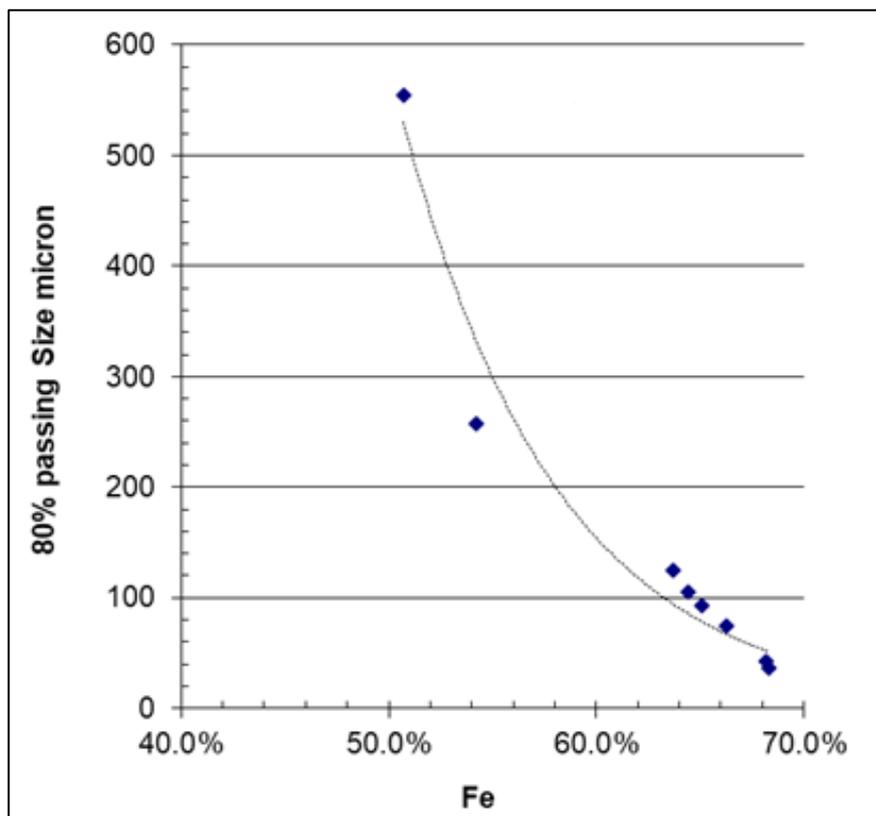


Figure 3 Iron grade verses grind size curve.



## **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.

Forward-looking information is developed based on assumptions about such risks, uncertainties and other factors set out herein, including but not limited to general business, economic, competitive, political and social uncertainties; the actual results of current development activities; conclusions of economic evaluations; changes in project parameters as plans continue to be refined; future prices of metals; failure of plant, equipment or processes to operate as anticipated; accident, labour disputes and other risks of the mining industry; and delays in obtaining governmental approvals or financing or in the completion of development or construction activities. This list is not exhaustive of the factors that may affect our forward-looking information. These and other factors should be considered carefully, and readers should not place undue reliance on such forward-looking information.

Neither the Company, nor any other person, gives any representation, warranty, assurance or guarantee that the occurrence of the events expressed or implied in any forward-looking statement will actually occur. Except as required by law, and only to the extent so required, none of the Company, its subsidiaries or its or their directors, officers, employees, advisors or agents or any other person shall in any way be liable to any person or body for any loss, claim, demand, damages, costs or expenses of whatever nature arising in any way out of, or in connection with, the information contained in this document. The Company disclaims any intent or obligations to or revise any forward-looking statements whether as a result of new information, estimates, or options, future events or results or otherwise, unless required to do so by law.

## COMPETENT PERSON’S STATEMENT

The information in this announcement that relates to metallurgical test work is based on information compiled by Mr Marcus Flis, a Competent Person who is a Fellow of the Australasian Institute of Mining and Metallurgy and a full time employee of Rountree Pty Ltd. Mr Flis has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the “Australasian Code for Reporting Exploration Results, Mineral Resources and Ore Reserves.” Mr Flis consents to the inclusion of the matters outlined in this announcement the form and context in which they appear.

## SECTION 1 – SAMPLING TECHNIQUES AND DATA

CRITERIA	COMMENTARY
Sampling techniques	<ul style="list-style-type: none"> <li>• Broken ore was collected from existing stockpiles.</li> <li>• The samples were taken from 20 – 30cm below the surface to avoid modern contamination of winnowing by wind.</li> <li>• Collection of samples were guided with the use of both a magnetic susceptibility meter and a pXRF geochemical analyser to ensure grades averaged those defined in the Initial Mining Area pit model.</li> <li>• Graded material was collected in sixteen 20 litre buckets for compositing to that average modelled grade. The buckets were broadly labelled as Low Grade, Medium Grade, and High Grade to assist in the compositing process.</li> <li>• Average iron grades of each bucket were estimated from both magnetic susceptibility measurements and pXRF analysis, both techniques having being demonstrated previously to be excellent estimators of iron grade.</li> <li>• Approximately 736kg of material were collected.</li> </ul>
Drilling techniques	<ul style="list-style-type: none"> <li>• Drilling is not being reported</li> </ul>
Drill sample recovery	<ul style="list-style-type: none"> <li>• Drilling is not being reported</li> </ul>
Logging	<ul style="list-style-type: none"> <li>• A description of each sample was logged by the sampling geologist and entered into Magnum’s database.</li> </ul>
Sub- sampling techniques and sample preparation	<ul style="list-style-type: none"> <li>• There was no in-field subsampling.</li> <li>• The samples were delivered to American Assay Laboratories in Sparks, Nevada, by the independent consulting geologist.</li> <li>• Samples did not need drying.</li> <li>• Dried samples are jaw crushed to 90% passing -6.35mm.</li> <li>• Samples were dispatched to ALS laboratories in Perth, Western Australia for metallurgical testing.</li> </ul>
Quality of assay data and laboratory tests	<ul style="list-style-type: none"> <li>• ALS produced a composite sample made from the samples provided.</li> <li>• The samples for the grind verses grade curve excluded the samples with an estimated Fe from mag sus below 10% and above 60%.</li> <li>• For the bulk concentrate the samples above 60%Fe were added back in.</li> <li>• Eight samples were drawn from the bulk composite sample and ground to different sizes and washed in a Davis Tube.</li> <li>• The sizes were 555, 258, 125, 105, 93, 74, 43, and 36µm.</li> <li>• The Davis Tube procedure used industry standard parameters.</li> </ul>
Verification of sampling and assaying	<ul style="list-style-type: none"> <li>• Field note book was used to record primary data in the field. Primary data was then entered digitally and is stored and archived to Magnum’s server in Excel format. Data is visually checked and validated prior to import and additional validation is carried out upon entry to the database.</li> <li>• All data is checked by a Competent Person.</li> <li>• No adjustments or calibrations were made to the assay data.</li> </ul>
Location of data points	<ul style="list-style-type: none"> <li>• Handheld GPS was used to determine sample locations with an accuracy of approximately ±5m.</li> <li>• Grid Co-ordinate system used is NAD83, UTM Zone 11N.</li> <li>• Original Handheld GPS co-ords are maintained in the database.</li> <li>• This is considered appropriate at this early stage of exploration.</li> </ul>
Data spacing and distribution	<ul style="list-style-type: none"> <li>• Data spacing was not systematic but designed to obtain representative grades.</li> <li>• Data spacing is sufficient for this early stage of assessment</li> </ul>

Orientation of data in relation to geological structure	<ul style="list-style-type: none"> <li>• Not applicable – samples were collected from stockpiles having no preferred orientation</li> </ul>
Sample security	<ul style="list-style-type: none"> <li>• Samples are collected by an independent consulting senior geologist</li> <li>• Samples are secured in locked premises and not left unlocked or unattended in public places</li> <li>• All samples were transported to the lab by an independent consultant geologist</li> </ul>
Audits or reviews	<ul style="list-style-type: none"> <li>• The laboratory's QA/QC procedures and results are monitored.</li> <li>• All samples were measured with a magnetic susceptibility meter and pXRF.</li> <li>• No reviews have been undertaken at this stage.</li> </ul>

## SECTION 2 – REPORTING OF EXPLORATION RESULTS

Criteria listed in the preceding section also apply to this section

CRITERIA	COMMENTARY
Mineral tenement and land tenure status	<ul style="list-style-type: none"> <li>• The project contains mineral rights over 234 separate claims covering an area of 2,457Ha (6,071 acres). Of these 45 are patented mining claims with the balance being either former railroad fee title land or unpatented claims</li> <li>• The 45 patented mining claims covering 777 acres are all secured through lease agreements and have overriding royalties.</li> <li>• The project has surface rights to the Section 5 patented land claim (528 acres). These rights provide for the housing of Buena Vista's proposed production facilities, plant, workshops stockpiles and waste dumps.</li> <li>• All tenements are in good standing.</li> <li>• Relevant tenements to this announcement are T24NR34E Section 4, Section 5, Section 7, Section 8, Section 17, Rover 1832, Albatross 1832, Wyoming 1832, Cactus 1832, NVFe2,3,4,5,6,7,8, Iron Mt 2MS14880,3MS14880, 6MS14880, 7MS14880, 10MS14880, 12MS14880, 13MS14880, 14MS14880, 15MS14880</li> </ul>
Exploration done by other parties	<ul style="list-style-type: none"> <li>• The database compiled for resource modelling comprises 218 holes for 36,084 m of drilling. Diamond drilling by Columbia Iron Mines in 1960 provides around 50% of the combined drilling (112 holes for 18,215 m), with 2010 Richmond Mining Pty Ltd diamond drilling contributing 4% (8 holes, 1,415 m), and 2012 Nevada Iron Limited RC and diamond drilling contributing 10% and 36% respectively (19 holes, 3,431 m and 50 holes, 13,024m).</li> </ul>
Geology	<ul style="list-style-type: none"> <li>• Buena Vista magnetite iron mineralisation occurs within scapolite-hornblende-clinopyroxene-calcite-magnetite altered gabbro. Magnetite mineralisation varies from fine disseminations to massive pods up to tens of metres in dimensions, reflecting variable ground preparation of the gabbro. The mineralisation generally dips moderately to the north, striking approximately east-southeast (~098 to 120) for most of the property area, and trending southwest-northeast in the East Deposit area (~070).</li> <li>• The magnetite mineralisation is cross cut by late-stage steep, generally east-west trending dykes ranging in thickness from less than 1m to rarely ~60 m.</li> </ul>

	<ul style="list-style-type: none"> <li>The mineralisation generally outcrops, but in the west of the project, including the Section 5 Deposit and western portions of the West Deposit it is overlain by around 3 to rarely 25m of un-mineralised surficial alluvial gravels.</li> <li>The mineralisation shows no significant oxidation, with fresh material occurring at shallow depths</li> </ul>
Drill hole information	<ul style="list-style-type: none"> <li>No drill hole results are reported in this announcement.</li> </ul>
Data aggregation methods	<ul style="list-style-type: none"> <li>No aggregation has been applied.</li> </ul>
Relation between mineralisation widths and intercept lengths	<ul style="list-style-type: none"> <li>No drill hole results are reported in this announcement.</li> </ul>
Diagrams	<ul style="list-style-type: none"> <li>See diagrams included in this announcement.</li> </ul>
Balanced reporting	<ul style="list-style-type: none"> <li>All results are reported in this release.</li> </ul>
Other substantive exploration data	<ul style="list-style-type: none"> <li>Drilling, geological mapping, geophysical surveying, and metallurgical testing exist and have been reported in previous announcements</li> </ul>
Further work	<ul style="list-style-type: none"> <li>Stockpiles are planned to be assessed by drilling.</li> </ul>

### SECTION 3 – ESTIMATION AND REPORTING OF MINERAL RESOURCES

Criteria listed in the preceding sections also apply to this section

Mineral Resources are not being reported in this announcement.

#### BY ORDER OF THE BOARD

**Luke Martino**

Chairman

Email: [info@mmel.com.au](mailto:info@mmel.com.au)

Phone: +61 8 6489 0699

**Evan Smith**

Investor Relations

[evan.smith@advisir.com.au](mailto:evan.smith@advisir.com.au)

Phone: +61 431 176 607

