

BUENA VISTA TECHNICAL FEASIBILITY REFRESH COMPLETED

HIGHLIGHTS

- Samuel Engineering delivers refresh engineering design and capital costings at Buena Vista
- Designed to potentially deliver a +68% Fe product based on recent test work
- Move to 24/7 operation to increase potential output to 800,000tpa with same capital
- Discussions on rail, port and power optionality advance
- Dialogue with possible off-take partners intensifies

Magnum Mining & Exploration (ASX: MGU, “Magnum” or “the Company”) has completed the technical feasibility refresh of Magnum’s wholly owned Buena Vista Iron Project in Nevada, USA. (Figure 1).

As announced recently¹ the Company has embarked on a technical refresh of the project’s 2011 Feasibility Study². The aims of the refresh are to fine tune both this Feasibility Study and the recently announced Scoping Study³. This work was ongoing while the Scoping Study announcement was held up with regulatory body reviews. While the Scoping Study aimed at a 2 Million tonnes per annum (Mtpa) concentrate production rate, the technical refresh focussed on accessing the highest grade resources with the goal of getting into production as quickly and at the lowest production cost as possible. The technical refresh was commissioned to target a processing flow sheet and engineering design that enables the production of +68% Fe and less than 3% silica+aluminium magnetite concentrate from the Buena Vista magnetite resource. These grades are suitable feeds for Direct Reduced

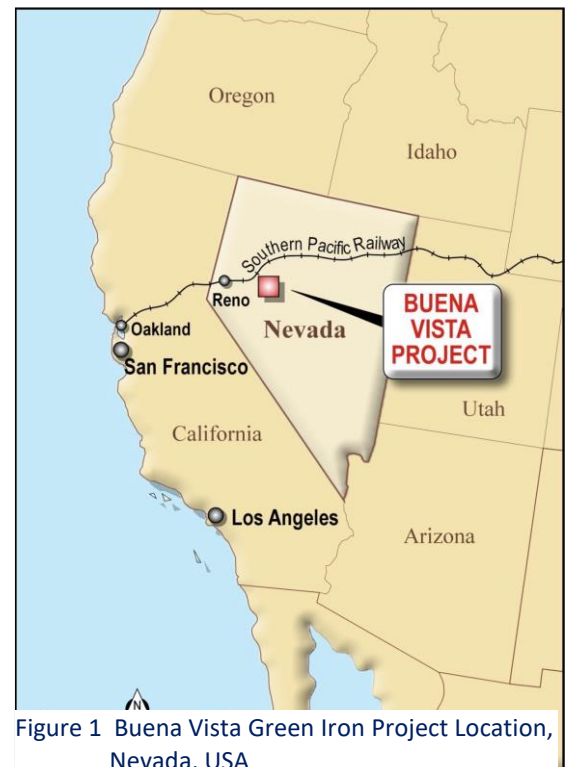


Figure 1 Buena Vista Green Iron Project Location, Nevada, USA

¹ ASX:MGU, “Technical Feasibility Refresh to Accelerate Buena Vista Production”, 14 July, 2023.

² ASX:RHM, “Richmond Delivers Positive Feasibility Study on the Buena Vista Iron Project”, 9 May, 2011

³ ASX:MGU, “Positive Scoping Study Validates Buena Vista Iron Project”, 12 August, 2023



Figure 2 The Buena Vista Iron Project will utilise mills such as this one to grind magnetite ore to $-63\mu\text{m}$ before magnetic separation. Illustrative purposes only.

Iron (DRI) production. Results from metallurgical testwork reported earlier⁴ have proven that these grades are both technically and economically viable.

Samuel Engineering of Denver Colorado, USA, undertook the key design work under the Company's supervision. Samuel have a long association with the project, having provided the bulk of the engineering design work for the original feasibility study.

The technical refresh identified industry standard flow sheet processes driven by standard and readily available equipment. While the original aim was to target a 450,000 tonnes per year (tpa) concentrate production through single shift processing, Magnum and Samuel identified that

the equipment chosen has the capacity and robustness to operate on a 24/7 basis. Magnum's Board has ratified this approach, with the conservative production rate of 800,000tpa being adopted.

UPDATING THE MINE SCHEDULE

The Buena Vista iron resource contains **232Mt @ 18.6% Fe and 22.6% DTR** of which 151Mt is in the Indicated Resource category⁵. The Company confirms that it is not aware of any new information or data that materially affects the information included in this announcement and that all material assumptions and technical parameters underpinning the estimates in the announcement continue to apply and have not materially changed.

This resource embraces high grade pods, some of which are accessible from surface. The mining schedule, as used in the Scoping Study, was designed to support a 25 year mine life with a near-constant grade feed to the beneficiation plant. Recent financial modelling supports an

operation accessing higher grade ores earlier, leaving lower grade resources for late in the mine's life after the bulk of the capital has been repaid. Work is currently underway to optimise the mine schedule to embrace this model and support the feed required for the designed 800,000tpa concentrate production rate.



Figure 3 A Wet Low Intensity Magnetic Separator such as this is used to separate the magnetite grains from the gangue minerals (mainly silica). Illustrative purposes only.

⁴ ASX:MGU, "Test work Confirms +68% Fe High grade Iron Ore", 10 March, 2023

⁵ ASX:MGU, Maiden JORC 2021 Resource for Buena Vista Magnetite Project", 23 March, 2021

ACCESS TO RAIL, PORT, POWER, AND WATER

Other ongoing work centres on gaining access to an efficient and effective transportation solution. The Project has multiple logistics options; this is being leveraged to ensure the Company lands on the most cost-effective solution possible.

Access to power and water are similarly being optimised. The Board is comfortable that the Company already holds sufficient water rights for the accelerated project now being pursued.

DIALOGUE WITH POTENTIAL OFF-TAKE PARTNERS INTENSIFIES

Executives of the Company have returned to the USA as interest in the Buena Vista Iron Project increases. The Company is pursuing prospective USA based customers in preference to an export model to both cut transport costs and streamline the customer's supply chain.

THE BUENA VISTA IRON DEPOSIT

Buena Vista Iron Deposit is located approximately 160km east-north-east of Reno in the mining friendly state of Nevada, United States. It was discovered in the late 1890's and in the late 1950's to early 1960's around 900,000 tonnes of direct shipping magnetite ore with an estimated grade of 58% Fe was mined.

In the 1960's, US Steel Corporation acquired the Buena Vista Project and carried out an extensive exploration program including 230 diamond drill holes and considerable metallurgical test work. Richmond Mining Limited, an ASX listed company, acquired Buena Vista in 2009 and commenced a detailed exploration program culminating in a definitive feasibility study in 2013. A key component of these studies was extensive investigation of the optimal logistics plan for the deposit's development. This included the negotiation of in-principle agreements with existing rail and port operators and the securing of all major mining permits. Detailed costings were completed on the trucking or slurry pipeline options to deliver the concentrate to the rail head located some 50 kilometres from mine site. A significant decline in iron ore prices to less than US\$50/ tonne caused the then proposed development of Buena Vista to be deferred.

Geology

The Buena Vista Project magnetite deposits are the product of late-stage alteration of a localised intrusive local gabbro that resulted in intensely scapolitised lithologies and the deposition of magnetite. The most well-known example of this type of magnetite mineralisation is the Kiruna magnetite deposit in Sweden, which has been in production since the early 1900's.

The distribution and nature of the magnetite mineralisation at Buena Vista is a function of ground preparation by faulting and fracturing, forming a series of open fractures and breccia zones. These ground conditions produce variations in mineralisation types from massive pods grading +60% magnetite to lighter disseminations grading 10-20% magnetite.

Metasomatic magnetite deposits such as those at Buena Vista have important positive beneficiation characteristics over the other main type of magnetite deposit which is a banded iron hosted magnetite, also known as a taconite.

The Buena Vista ore is of magmatic origin and as a consequence is coarser grained and softer than banded iron hosted ores. Industry standard crushing, grinding and magnetic separation produces a concentrate grade of +67.5% Fe with very low levels of impurities.

Resource

The Mineral Resource Estimate (JORC(2012)) at Buena Vista (ASX:MGU 23 March 2021) is:

Category	Million Tonnes	Fe %	DTR %
Indicated Resource	151	19	23.2
Inferred Resource	81	18	22
Total Resource	232	18.6	22.6

The company confirms that all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed.

In addition, an Exploration Target Estimate has been completed (ASX:MGU 13 January, 2023):

Category	Million Tonnes	Fe %
Exploration Target	407 to 540	15 to 22

The potential quantity and grade of the Exploration Target is conceptual in nature, there has been insufficient exploration to estimate a Mineral Resource and it is uncertain if further exploration will result in the estimation of a Mineral Resource.

Development

Mining permits are in place to develop the Buena Vista Iron Mine. The Company has re-aligned the project from a simple mining, concentration and exporting model to a green pig iron producer. Using cutting edge technology in tandem with biochar sources, the Company is capitalising on a first-mover advantage to supply green pig iron to the USA steel industry.

CAUTIONARY STATEMENTS

In accordance with ASX Listing Rule 5.3.2, the Company advises that no mining development or production activities were conducted during the March 2022 Quarter.

¹ The potential quantity and grade of the Exploration target is conceptual in nature, there has been insufficient exploration to estimate a Mineral Resource over the entire area of the Exploration Target, and it is uncertain if further exploration will result in the estimation of an increased Mineral Resource.

² The Company confirms that it is not aware of any new information or data that materially affects the information included in this announcement and that all material assumptions and technical parameters underpinning the estimates in the announcement of the 'Maiden JORC Resources for the Buena Vista Magnetite Project' dated 23 March 2021 continue to apply and have not materially changed.

The company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified.

COMPETENT PERSONS STATEMENT – RESOURCE ESTIMATION

The information in this report that relates to Mineral Resources is based on information compiled by Mr Jonathon Abbott, a Competent Person who is a Member of the Australian Institute of Geoscientists and a full time employee of MPR Geological Consultants Pty Ltd. Mr Abbott 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 Abbott consents to the inclusion of the matters outlined in Appendix A in the form and context in which it appears.

The company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified.

COMPETENT PERSONS STATEMENT – EXPLORATION TARGET ESTIMATION

The information in this report that relates to an Exploration Target 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 Appendix A in the form and context in which it appears.

BY ORDER OF THE BOARD

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