

TECHNICAL FEASIBILITY REFRESH TO ACCELERATE BUENA VISTA PRODUCTION

HIGHLIGHTS

- Samuel Engineering engaged to refresh engineering design and costings at Buena Vista
- Design expected to deliver a +68% Fe product base on recent test work
- High grade, at surface resource to be accessed for early start up and payback
- Refresh works expected to take six to eight weeks

Magnum Mining & Exploration (ASX: MGU, “Magnum” or “the Company”) is pleased to announce that it has embarked on a technical feasibility refresh of Magnum’s wholly owned Buena Vista Iron Project in Nevada, USA. (Figure 1).

The refresh is aimed at bringing the project into production as quickly as possible. The processing flow sheet, engineering design work, and mine planning and scheduling is designed to enable the production of high grade magnetite concentrate from the Buena Vista magnetite resource suitable as a feed for Direct Reduced Iron (DRI) production.

Following confirmatory test work by MinRizon Projects that a DRI concentrate grade of +68% Fe is technically and economically viable (ASX:MGU 10 March, 2023), the Board of Magnum has authorised engineering and planning studies with a view to fast track the project to production.

The key design work is being undertaken by Samuel Engineering of Denver Colorado under the supervision of recently appointed project manager, Mr Chris Tanner. Samuel have a long association with the project, having provided the bulk of the engineering design work for the



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

original study. A contract has been executed with Samuel to design and cost a beneficiation plant with an initial capacity of 500,000 tonnes per year.

The Buena Vista iron resource contains **232Mt @ 18.6% Fe and 22.6% DTR** (ASX:MGU 23 March 2021). Significantly, the resource embraces a high grade pod within West Deposit that occurs from surface. Accessing this high grade pod may substantially derisk the project and allow a short payback period.

NEXT STEPS

Samuel Engineering is contracted to supply Feasibility Study level designs and costings.

Magnum is initiating investigations into all other components of the proposed project, including mine planning and scheduling, transport logistics, access to power and water, and permitting. These will be reported on as contracts are entered in to.

Once completed, expected to be within six to eight weeks Magnum's Board will decide on a final investment decision to proceed.

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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