ASX ANNOUNCEMENT

28 FEBRUARY 2023

METALLURGY CONFIRMS FLOWSHEET AND DR PELLET FEED POTENTIAL

Highlights:

- **Intensive metallurgical testwork studies completed for each process stage**
  - **Process flowsheet confirmed and optimised for orebody variability**
  - **"DR Grade" (>68% iron) concentrates produced from proposed flowsheet**
  - **Premium-level (>70% iron) concentrates achieved for some Iron Peak samples**
  - **No further testing necessary to support DFS**
- **Razorback concentrates to attract high premiums and support decarbonising iron & steel industry**

Magnetite Mines CEO Tim Dobson said:

"Together with Hatch, we have now completed rigorous quality and suitability testing of our Razorback iron ore to DFS standards. The work has confirmed that Razorback will produce Direct Reduction pellet feed (DR Grade) products that are needed to make steel using methods that generate lower carbon emissions. DR Grade feed demand is expected to increase more than 5 fold by 2050 in line with decarbonisation commitments made by the steel industry, however the current supply outlook is scarce. DR Grade products already attract significant price premiums and a supply response is becoming urgent. Razorback will help fill that market gap in the years to come."

Claude D'Cruz, Director of Metals for Hatch in Australia-Asia commented:

"Hatch is very pleased to be partnering with Magnetite Mines on the Razorback Project, which represents a very exciting and significant iron ore development opportunity for Magnetite Mines to unlock value associated with the undeveloped Braemar iron ore province in South Australia. We look forward with great energy and excitement to helping Magnetite Mines make the Project a success."

Magnetite Mines Limited (MGT:ASX) is pleased to announce the completion of metallurgical testwork studies for its 100% owned Razorback Iron Ore Project. The testwork program results have validated the ability of the Project's process flowsheet to produce premium-grade Direct Reduction Pellet feed ("DR grade") concentrates, needed urgently by the global iron and steel industry to meet 2030 and 2050 decarbonisation commitments.

The testwork results produced a weighted average final concentrate with the following attributes:

- **Concentrate grade: 68.5% Fe**
- **Major impurities: 3.2% SiO_2 (silica) & 0.4% Al_2O_3 (alumina)**
- **Grind size: 80% passing 38µm**

This announcement follows the release of interim metallurgical testwork results in July 2022 and confirms the process flowsheet's ability to produce concentrates in the range 67.5% to 68.5% Fe, subject to orebody variability[1].

Of significance, samples from the Iron Peak Deposit continued to produce excellent results with the lowest work indices (i.e. softest, easiest to grind) and highest concentrate grades achieved for the Project, further highlighting the implications of the recently published Resource update[2].

Both the metallurgical testwork and process plant design have been undertaken by global magnetite engineering experts Hatch. The highly detailed testwork program targeted early-year plant feed samples, with broad spatial distribution across the deposit to confirm the flowsheet metrics for optimisation studies currently underway[3]. All testwork outcomes are now being incorporated into the current optimisation studies with results expected to be announced in March 2023.

"DR GRADE" CONCENTRATES FOR A DECARBONISING IRON & STEEL INDUSTRY

Currently the production of Direct Reduction (DR) Grade feed suitable for low-emission steelmaking stands at 3% of global seaborne iron ore production (Figure 1). Yet the availability of DR Grade feed is a key enabler for the "green steel" transition necessary for the decarbonisation of the iron and steel industry. DR Grade concentrates are the feed stock for new Direct Reduced Iron / Electric Arc Furnace (DRI-EAF) facilities that are being approved and built globally to replace old, coal-using Blast Furnace / Basic Oxygen Furnace (BF-BOF) facilities.

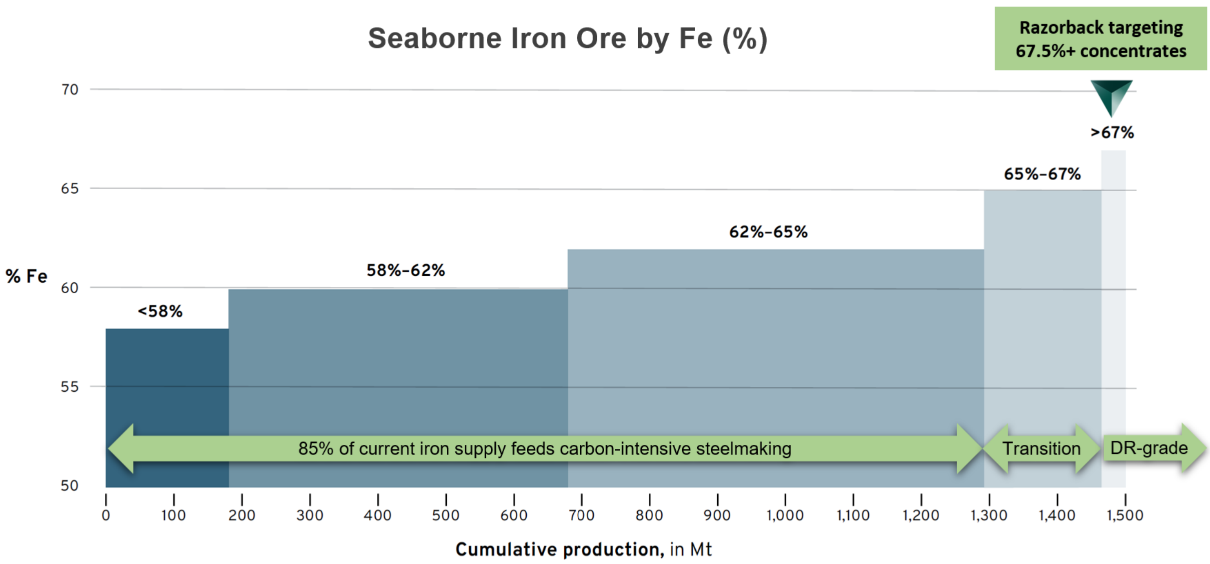

Figure 1: Annual Seaborne Iron Ore volumes by Iron (Fe) content.

Accordingly, a key motivator for MGT is to help enable iron & steel decarbonisation through the long-term production of DR Grade products at material volumes and access the premiums for these products that are emerging today and forecast to increase over the coming 5 to 15 years as the iron & steel 'net zero' transition plays out.

High-grade Blast Furnace feed (>66% iron), which lowers carbon emissions when used as a blending stock for low-grade Direct Shipping Ores (<62% iron), is experiencing increasing demand and price premiums during the transition phase so that iron & steel makers can achieve milestone carbon emission reduction targets.

The metallurgical testwork reported here specifically targets the Project's potential to produce DR Grade concentrates at the coarsest possible grind size, minimising capital and operating costs. DR Grade concentrates necessarily contain high grades of iron (Fe), typically over 68.5 % Fe, and low levels of deleterious elements such as silica, alumina, phosphorus and sulphur (typically preferred to be <3% in total).

RAZORBACK PROJECT PROCESS FLOWSHEET

The Razorback process plant flowsheet has been designed to target 67.5% to 68.5% Fe concentrate grades. A range is expected due to the Project's variable mineralisation across the orebody and mass recovery characteristics across the mine life. At 68.5% Fe, the product would represent the highest-grade concentrate currently available on the Australian market and would feature as suitable for either DR pellet or high-grade Blast Furnace pellet feed.

The metallurgical testwork programs have demonstrated the ability of the current flowsheet to produce ultra-high grade 70% Fe concentrates for selected Iron Peak bulk samples with very low impurity levels (2.6% silica + alumina). The production of concentrate at this exceptionally high grade comes at the cost of yield (recovery) and is applicable to a small proportion of the Razorback Resource. For clarity, this grade will not be sustainable over the Project life, however, presents options to the Company to target specific, premium-grade products for particular markets when favourable.

A key objective of the process design was to achieve the cleanest concentrate possible at the coarsest grind size to reduce both capital and operating costs. Previous studies had produced a final magnetite concentrate product with a fine grind size of 80% passing 25 microns (P80 25μm). The current flowsheet (Figure 2) is able to produce high-grade concentrates at P80 38μm (i.e., coarser - requiring less grinding), a significant improvement.

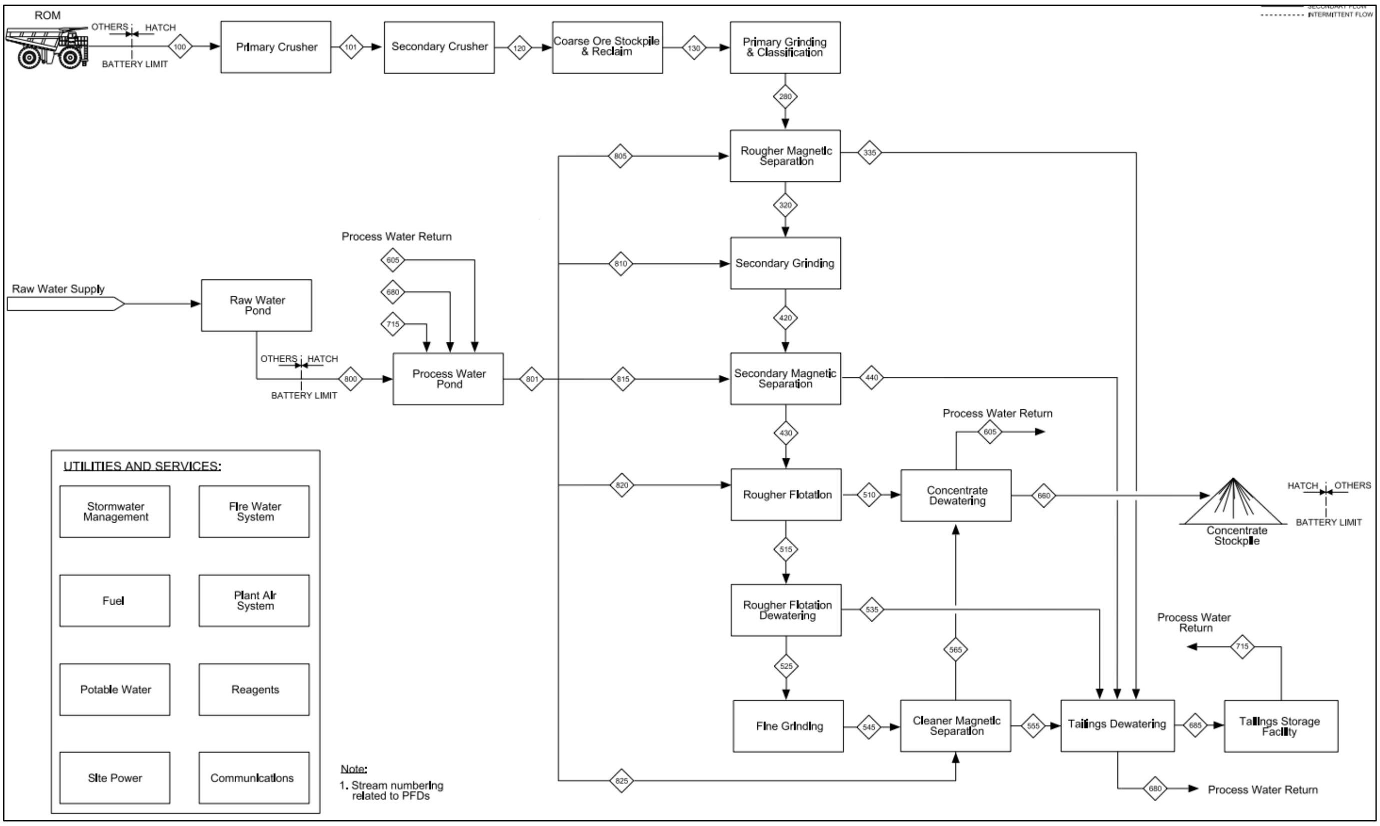

Figure 2: Razorback Process Flowsheet – block diagram

The flowsheet also continues MGT's philosophy of only adopting mature, well-proven technologies and common industrial equipment in order to minimise technical risk:

- **Crushing** – Primary and secondary crushing circuit that crushes blasted ore received from the mine (80% passing 800mm) to 80% passing 32mm.
- **Primary Grinding and Classification** – Integrated High Pressure Grinding Roll (HPGR) / air classification circuit for further size reduction to 140 microns.
- **Rougher Magnetic Separation** – Initial magnetic separation at 140 microns with mid-stage rejection of waste material for tailings wall construction, rejecting 50%-55% of non-magnetic material.
- **Secondary Grinding** – Ball mill circuit for a further size reduction of magnetics to 45 microns.
- **Secondary Magnetic Separation** – Magnetic separation at finer grind sizes, rejecting 30%-40% of non-magnetic material in circuit feed.
- **Rougher flotation** – Froth flotation circuit to recover high-grade hematite and magnetite particles, rejecting remaining silica and complex, low-grade particles.
- **Cleaner circuit** – Fine grinding and magnetic separation circuit applied to a small component of Rougher Flotation concentrate, fine grinding to 15 microns using IsaMills®, with cleaner magnetic separation to produce a premium-grade magnetite concentrate.

METALLURGICAL TESTWORK PROGRAM

Metallurgical testing of ore samples, most commonly diamond drill core, is the long-accepted method of proving whether or not Mineral Resources in the ground can be economically extracted via processing once mined. In the case of magnetite deposits, concentration of the valuable mineral (magnetite) is normally carried out at the mine site in a process plant that takes advantage of the mineral's magnetic properties (i.e., magnetic separation), producing a high-grade concentrate for sale and a waste stream (tailings) for storage on site. This approach has been exploited for magnetite deposits globally for over 150 years.

The metallurgical testwork program and associated flowsheet adopted for Razorback underpins the design of the process plant, the Project's highest capital component. Accordingly, testwork undertaken to validate the flowsheet is critical to managing Project risk. To minimise risk associated with process plant design and equipment selection, the Company has engaged best-in-class metallurgical and engineering services provider, Hatch, to manage both the process flowsheet development and process plant engineering design.

The testwork program, completed over the course of 2022 and early 2023, was completed using representative ore samples produced from targeted drilling at the Razorback and Iron Peak deposits[1]. Samples were supplied to Original Equipment Manufacturer (OEM) vendors and certified laboratories for testwork including Bureau Veritas (assay, flotation, mineralogy), Weir Minerals (High Pressure Grinding Rolls - HPGR), Loesche (Vertical Roller Mills - VRM) and Eriez (Magnetic Separation). Test programs were designed to validate and de-risk the proposed flowsheet in support of engineering design and cost estimates.

A clear objective of the metallurgical testwork program was to assess ore body variability to a high degree of confidence to reduce risk in plant operational performance. Near surface mineralisation represents early year process feed and is typically subject to some degree weathering/oxidation and therefore variation in processing performance. To reduce ore body variability risk, sample selection from a wide range of lithologies, weathering profiles and spatially across the Project's deposits (Razorback and Iron Peak) was completed with an emphasis on near surface mineralisation. Additional drilling at the Iron Peak deposit was completed to provide samples for these sample poor areas and testwork included variability testwork to test ore performance within the deposit. As expected and is common for mineral deposits, ore body variability was identified in particular at the Iron Peak deposit. This variability is likely due to lithostratigraphic variation, however the samples still performed within the design parameters of the plant. The plant has been designed with flexibility in capacity and with respect to mass recovery. Further work to assess and account for ore body variability is expected in upcoming studies and will likely form part of an extended variable flotation program to ensure plant performance.

In line with metallurgical testwork program objectives, a comprehensive suite of testwork campaigns were completed, inclusive of mineralogical characterisation, comminution, metallurgy and geo-metallurgy. Test programs included both laboratory and pilot scale campaigns, with the latter including bulk sample HPGR tests (Weir, Netherlands), and VRM tests (Loesche, Adelaide). Undertaking pilot scale tests directly with OEM suppliers enables highly collaborative outcomes with feedback from manufacturers and vendors of industry-proven major equipment.

RESULTS

The following summary of results from the comprehensive test programs undertaken are described in order of the flowsheet stages, commencing with a description of the mineral particles that will feed the plant from the mine (mineralogy). The results also highlight risks and opportunities for each stage of the flowsheet and discuss actions taken to address these items along with further work required to de-risk the flowsheet in accordance with Definitive Feasibility Study (DFS) standards.

Mineralogy

A comprehensive mineralogical assessment was completed to increase the understanding of the Razorback and Iron Peak ore that will present to the plant from the mine. The findings from the program indicated a magnetite hematite dominant deposit that is fine grained and evenly dispersed (Figure 3). The results of the mineralogical program supported a flowsheet designed to produce a high-grade magnetite product with an estimated final grind size of 80% passing 38μm (P80 38 μm).

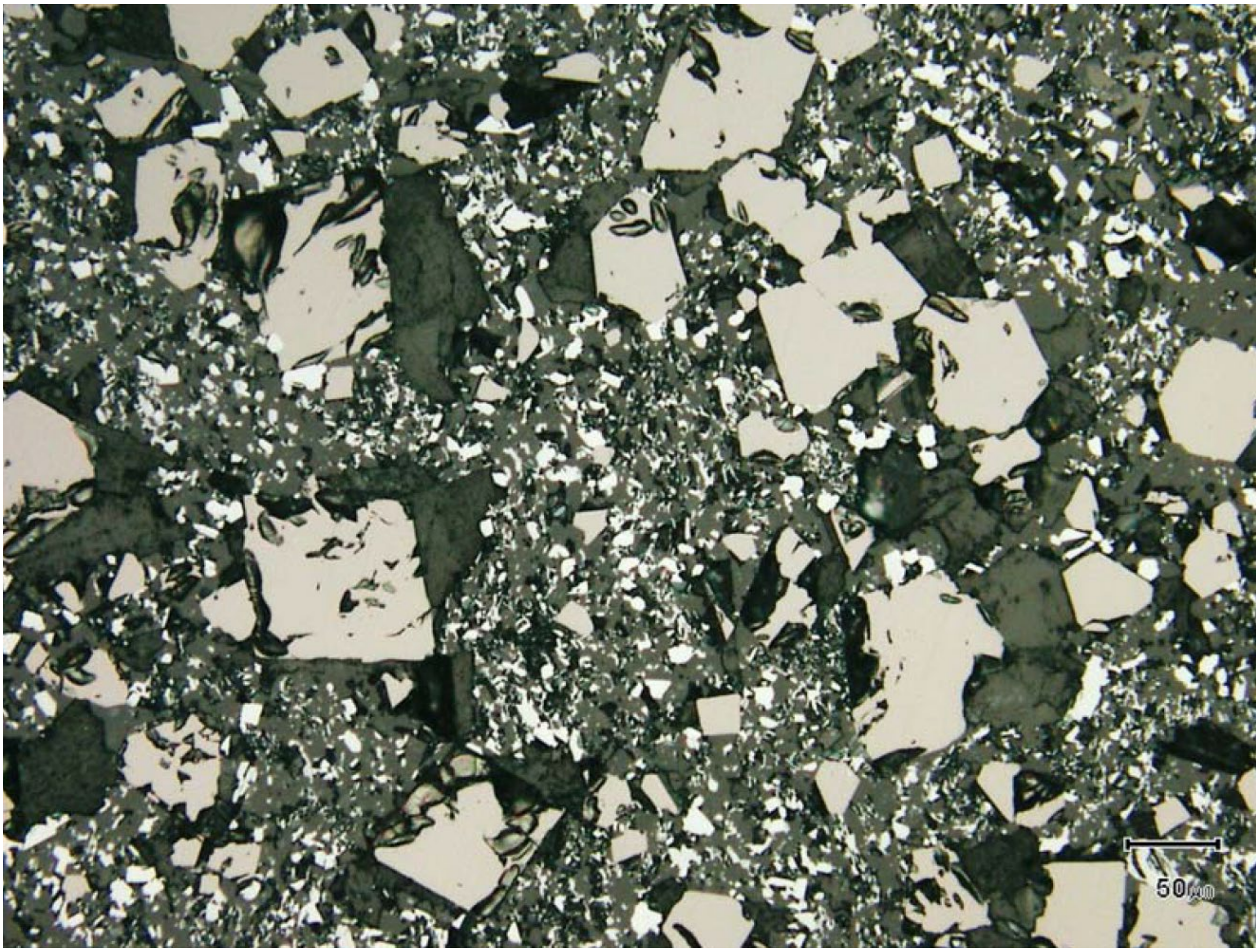

Figure 3: Mineralogical slide of Razorback ore showing scattered coarse magnetite (pale brown), and much finer dispersed hematite (white), in a silica-rich host rock with darker chlorite.

Bench-Scale Comminution Tests

Comminution is the process of run-of-mine (ROM) ore size reduction, via crushing and grinding, so that desired particles are separated from unwanted waste particles (liberated), making them available for subsequent separation and concentration, in this case using magnetic separation and froth flotation techniques.

Comminution is an essential and critical step in the processing of magnetite ores, often consuming the most energy in the flowsheet, and determining the effectiveness of the downstream separation in terms of iron recovery and final concentrate quality. Comminution testwork results are used to size crushing and grinding circuits as well as determine the power input requirements. Understanding the variability of the ore that will be processed over time, by testing samples from different parts of the deposit, allows for optimised designs without significant safety factors that can unnecessarily increase equipment sizing.

As crushing and grinding is energy intensive, minimising comminution requirements has been a key goal for the Project in reducing costs. Razorback ores require several stages of crushing and grinding to liberate magnetite particles and hence a staged testwork program to de-risk all comminution steps was applied:

Testwork and Results

To ensure the comminution circuits are sized correctly across the mine life, this program was designed to understand the variability of the ore that will enter the plant over time. A total of 33 samples were selected from Razorback (23) and Iron peak (10) and subjected to a suite of industry-standard tests, the results of which are used to estimate equipment size and performance at a number of scales.

In summary, comminution variability was assessed with results fitting well within the design parameters of the chosen equipment. The Iron Peak deposit performed outside of the expected ranges, demonstrating lower BBWi and BAi, however these results were generally advantageous representing a net benefit to wear and energy consumption. Testwork included:

1. ***Bond Abrasion Index – Propensity to abrasive wear on equipment***

   A measure of the abrasiveness of a rock sample, the Bond Abrasion Index (BAi) test results indicate that Razorback deposit ore has a low-to-medium level of abrasivity for an average of 0.127, while Iron Peak deposit ore has a low level of abrasivity at an average of 0.06[1].

   These results indicate that in comparison to other magnetite ores processed in Australia, wear on equipment, and therefore associated operational costs, will incur lower than average costs and equipment will not be hampered by overly abrasive wear and tear during use.

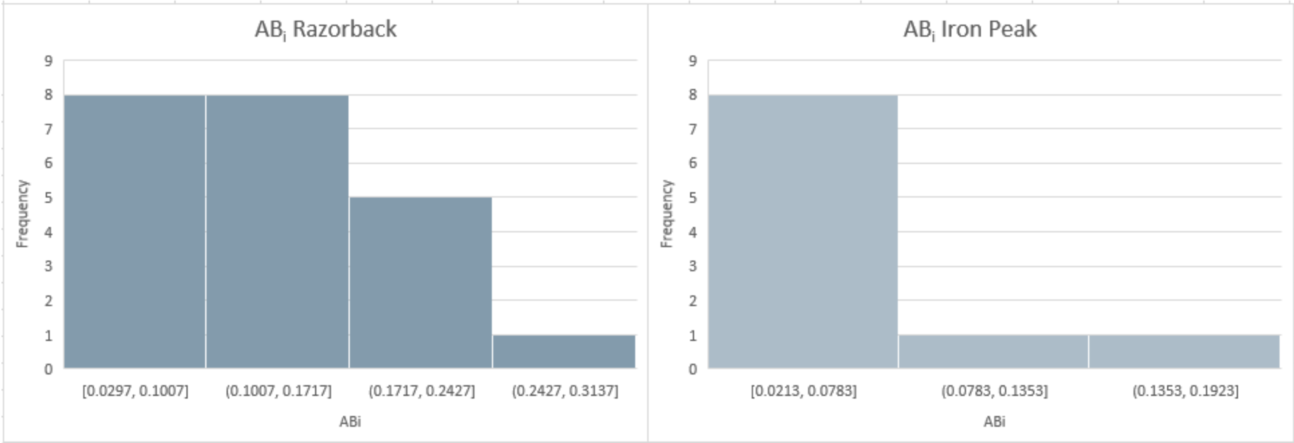

Figure 4: Bond Abrasion index (BAi) results histogram for Razorback and Iron Peak. Frequency distribution charts display the number of results (y-axis) that correspond to a given range of results (x-axis).

2. UCS (Unconfined Compressive Strength) – Rock strength, resistance to breakage

UCS is a measure of a material's resistance to breakage, in mining this typically applies to cylindrical core samples that is compressed on a device until failure or breakage occurs, measured as the pressure applied in Mega Pascals (MPa). The testwork result is applied to crushing, blasting, geotechnical and mining characterisation.

Undertaken on a combination of full, half and quarter diamond drill core samples, the UCS testwork results show that Razorback, with an average 34.6 MPa, and Iron Peak, with an average of 21.1 MPa, demonstrate relatively low strength and amenability to conventional primary and secondary crushing[1]. In particular, Iron Peak UCS values were very low and the breakage mechanism for some samples was crumbling, signalling ease of crushing.

3. SMC Test® (SAG Mill Comminution) – Amenability to primary grinding

Primary grinding is commonly carried out in Semi-Autogenous Grinding (SAG) mills or Autogenous Grinding (AG) mills. The SMC Test® is a laboratory comminution test which provides a range of information on the breakage characteristics of rock samples and is the most widely-used comminution test in the world for AG & SAG Mills, HPGRs and crushers. The derived data is used to design comminution plants, optimize circuit performance, forecast throughput, reduce energy costs and cut CO_2 emissions.

Drop Weight index (DWi) results derived from the SMC Tests® (Figure 5) returned an average DWi of 7.7 kWh/m^3 for Razorback and an average of 5.2 kWh/m^3 for Iron Peak. The Iron Peak results again confirm softer ore compared to Razorback, a trend that is seen throughout the comminution testwork. The results also confirm the suitability of the Project's ores to either SAG and HPGR primary grinding, along with low power requirements for primary crushing based on very low, single digit results for crusher work indices.

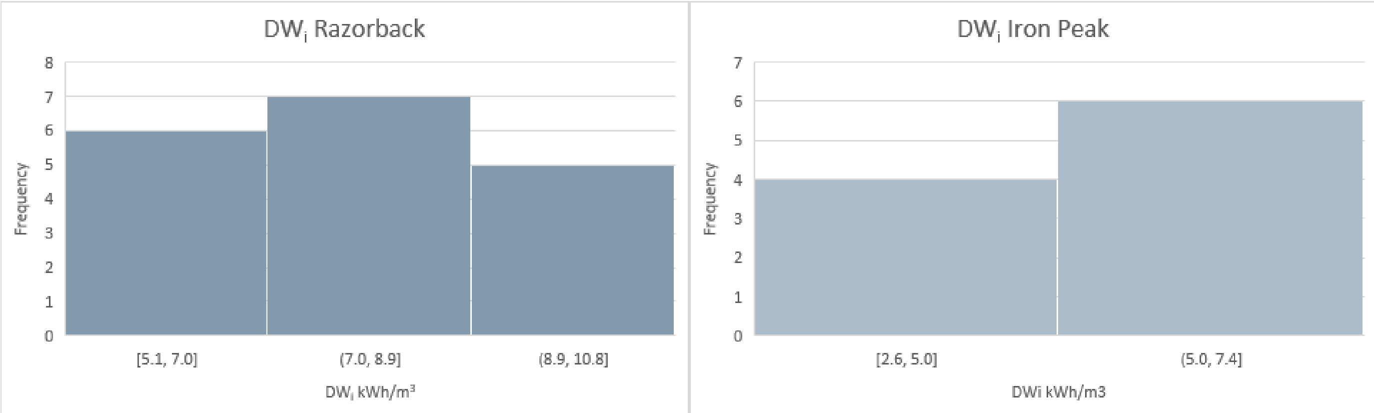

Figure 5: Drop Weight index (DWi) results for Razorback and Iron Peak. Frequency distribution charts display the number of results (y-axis) that correspond to a given range of results (x-axis).

4. *Bond Ball Work Index (BBWi) – Energy required for grinding*

A long-used industry standard test, the BBWi is a bench scale approximation of the amount of energy required for rock breakage in a wet grinding circuit (typically using ball mills). Measured in kWh/t, the testwork yields an energy requirement for rock breakage. The results are typically applied to the sizing and selection of grinding equipment such as ball mills.

Razorback samples returned a low-to-moderate hardness with an average BBWi of 8.6kWh/t, while Iron Peak samples returned an average of 6.8 kWh/t, indicating less grinding energy requirements for Iron Peak ore. These results demonstrate the relative 'softness' of Braemar Iron Formation rocks and are a key feature of the Project, differentiating the Project from magnetite deposits hosted in banded iron formation (BIF) geology, common in the Pilbara, and results in lower comminution energy costs compared to BIF-hosted ores which have work indices in the order of 18-25kWh/t (i.e., 2 to 3 times higher).

BBWi testing was completed using a screen size of 75 microns to closely represent the flowsheet and equipment selection. The BBWi test results are summarised in Figures 6 and 7[1].

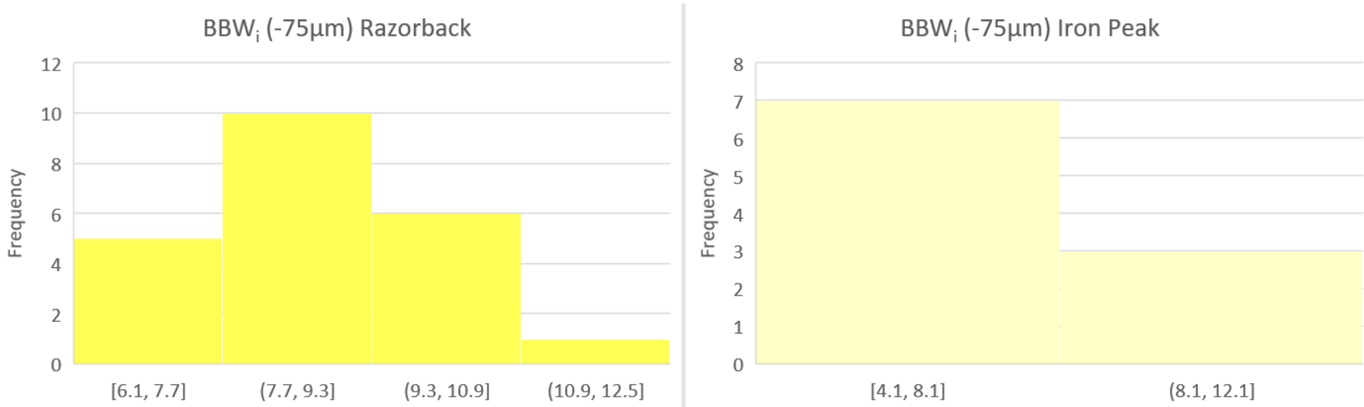

Figure 6: Bond Ball Work index (BBWi) results for Razorback and Iron Peak. Frequency distribution charts display the number of results (y-axis) that correspond to a given range of results (x-axis).

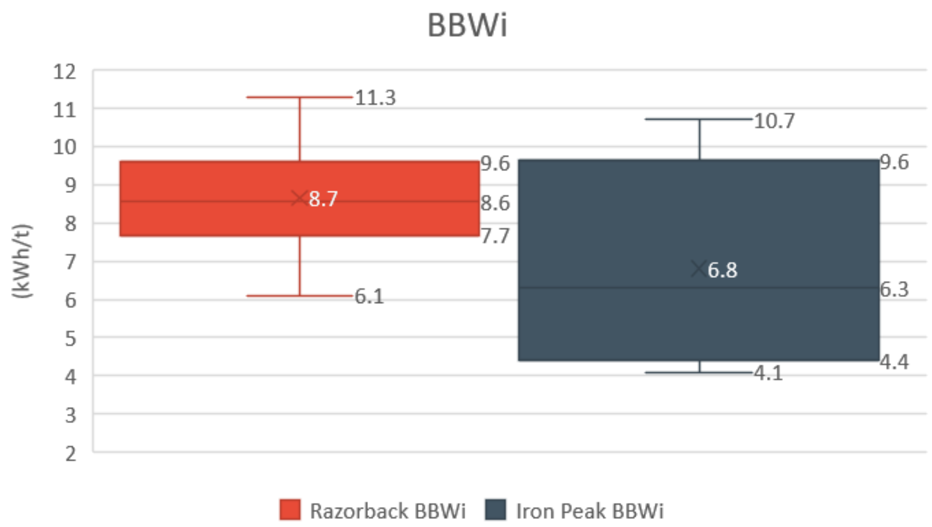

Figure 7: Statistical 'box plots' showing the range of BBWi results for Razorback and Iron Peak, determined from the large sample set.

5. *IsaMill® Signature Plots - Fine grinding power requirements*

Completing the suite of bench-scale comminution testwork, IsaMill® signature plots are a widely accepted industry measure for very fine grinding energy requirements of a given rock type and are performed by accredited laboratories worldwide. The signature plot results are used to design full scale IsaMill fine grinding circuits such as the one incorporated into the Razorback Project process flowsheet.

Four samples were processed at Core Metallurgy's laboratories in Brisbane, Australia for the determination of IsaMill® signature plots (Figure 8), with the results used to accurately design the fine grinding stage of the process flowsheet. The samples were produced in the laboratory using the proposed flowsheet and represent the silica-rich, reverse-flotation concentrate that requires fine grinding to liberate magnetite particles locked with gangue minerals.

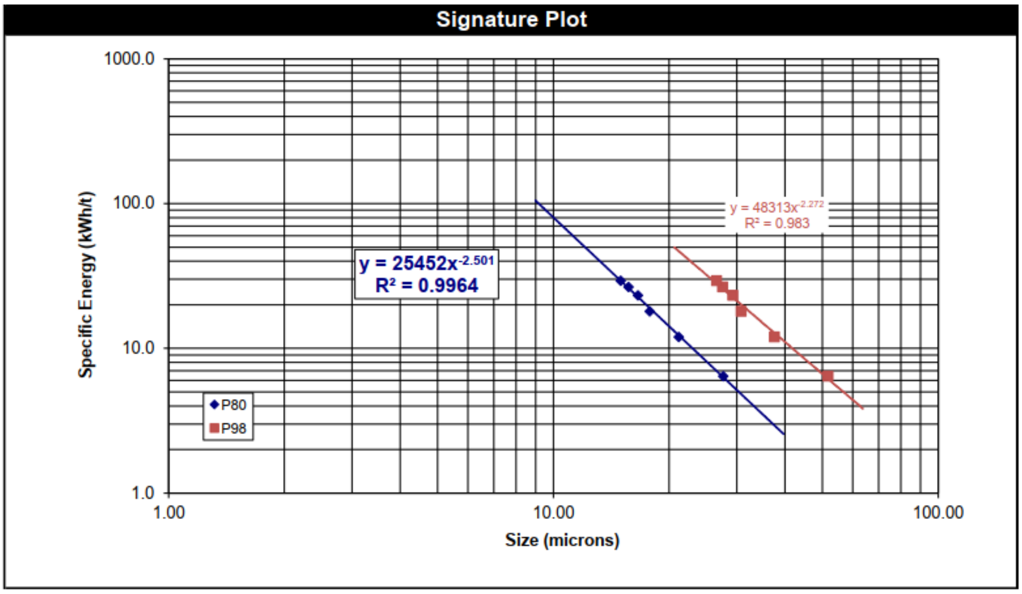

Figure 8: Razorback 'adit' bulk sample IsaMill® signature plot for both 80% (P80) and 98% (P98) passing size distributions.

Signature plot results provide a measure of the energy intensity required over a range of target grind sizes. Of significance, and common for grinding circuits, is the exponential increase in energy required to achieve finer grinding. This is the reason that the process design objective is to produce desired final concentrate products at the coarsest possible particle size, reducing energy intensity and power cost relative to previous iterations of the flowsheet.

Bulk Sample Primary Grinding Circuit Tests

Primary grinding is the second major stage of the flow sheet and follows the primary and secondary crushing circuits. The purpose of primary grinding is to achieve further, and significant, size reduction of crushed ore from 32mm to 140 microns (0.140mm). Given the importance of this flowsheet stage, and the capital intensity to the Project, primary grinding testwork was carried out using pilot-plant scale equipment, with bulk samples air freighted internationally for testwork. The test programs confirmed the suitability of both HPGR's and VRMs for the Project's projected throughputs and size reductions (32mm to 0.140mm). Optimisation studies to assess the net economic benefits, technological and operational risks of HPGRs, VRMs and SAG mills continue with results due in March 2023.

Testwork and Results

To ensure confidence in the subsequent Primary Grinding circuit equipment selection and sizing, bulk sample testing was completed directly with Original Equipment Manufacturer (OEM) vendors. Test programs comprised High Pressure Grinding Roll (HPGR), and associated air classification, testwork at Weir Minerals in the Netherlands, and Vertical Roller Mill (VRM) testwork conducted using a Loesche VRM pilot plant temporarily located in Adelaide at Bureau Veritas Laboratories. In each case, the testwork was used to demonstrate the efficient size reduction of material using the respective equipment technology. The bulk samples used represented secondary crushed ore with a size of 80% passing 32mm, for a size reduction to 80% passing 140 microns (0.140mm).

1. *High Pressure Grinding Roll (HPGR) Testwork*

This test program confirmed the suitability of HPGR's for the Project's projected throughputs and size reductions (32mm to 0.14mm). Three bulk samples (1,000 - 1,500kg) were established from 'adit' material (the adit is a previously excavated horizontal tunnel into the Razorback Ridge deposit), Razorback drill core and Iron Peak drill core. The samples were prepared in Adelaide and sent to Perth for first stage HPGR testing. Both open and closed-circuit testing was completed.

Figure 9: High Pressure Grinding Roll (HPGR) test discharge material (Razorback 'adit' bulk sample)

All three first-stage products were subsequently sent to Venlo, Netherlands for second-stage locked-cycle testing with air classifiers, with the final ground products (Figure 9) returned to Adelaide as feed material for further metallurgical testwork programs.

This program informed the sizing and power requirements of the HPGR machines currently featuring in the process flowsheet and associated recycle loads. The testwork also confirmed the lower-than-typical abrasion rates of Razorback ore on the wear components of HPGR rolls.

The Razorback samples demonstrated low wear rates relative to the vendor global database of ore abrasion rates (Figure 10). This translates to lower maintenance costs and higher operating times for the equipment relative to other applications where HPGRs are used.

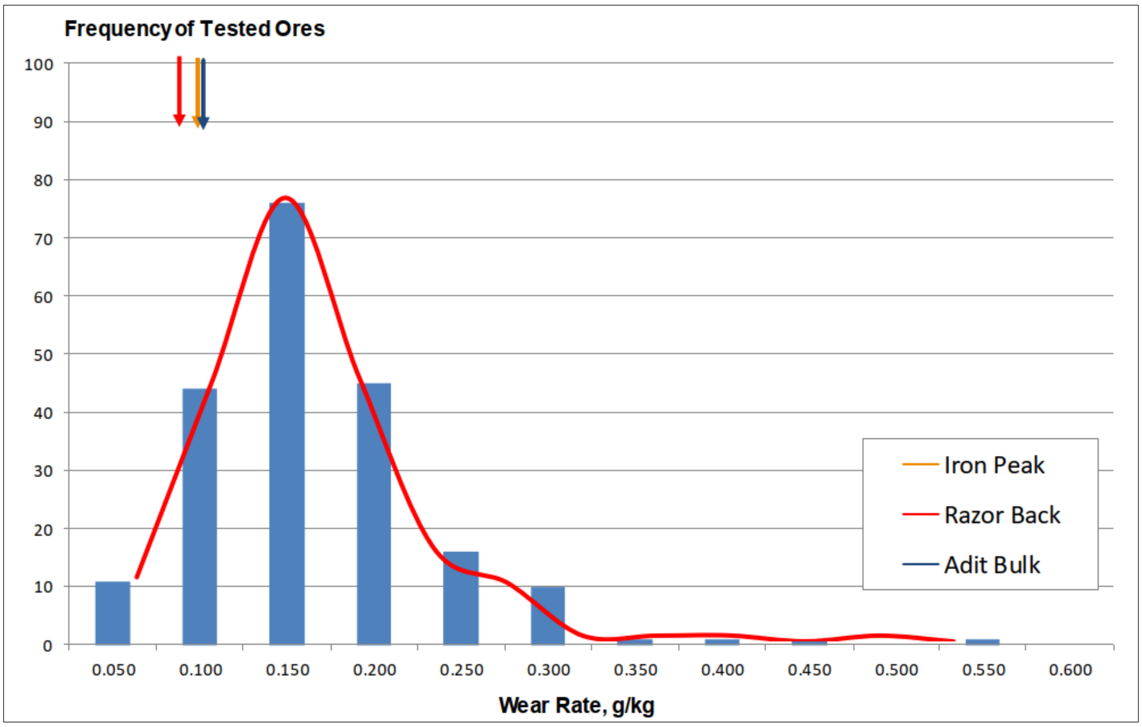

Figure 10: HPGR wear rates for Razorback and Iron Peak HPGR testwork samples relative to a wide industry data set, confirming lower than industry average wear rates.

The three samples returned specific throughputs in the range 234 - 334ts/m3h and net specific energies in the range 0.74 - 1.33kWh/t (Figure 11). These units of measure are used to describe the mass and volumetric throughput of material through the HPGRs, and the power required to grind to target grind sizes. These figures were higher than previous PFS (AACE Class 4) estimates and driven by the addition of an HPGR unit to reduce volume constraints.

The overall program results confirmed that HPGRs offer a highly power efficient primary grinding option that takes advantage of the low hardness / low abrasion characteristics of Razorback and Iron Peak ores, which in turn results from the geology being hosted in a soft, siltstone matrix.

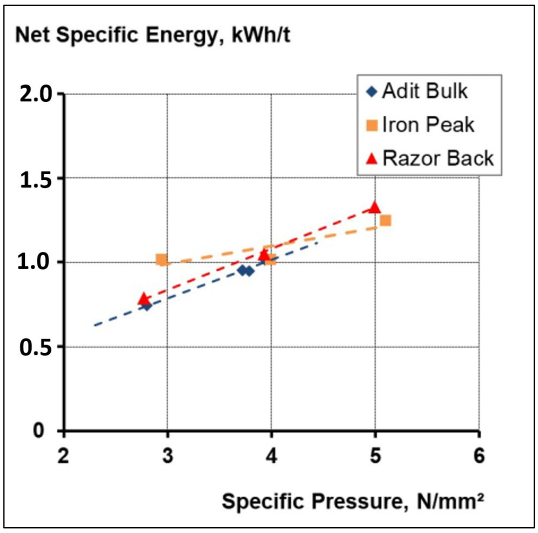

Figure 11: Net Specific Energy results for Razorback and Iron Peak HPGR testwork samples.

2. *Vertical Roller Mill (VRM) testwork*

As an alternative primary grinding technology option to HPGRs, VRMs were investigated. VRM's are a well proven, high efficiency technology widely used in the limestone and cement industries finding increasing application in other areas such as magnetite processing.

Testwork was completed on two samples (Razorback and Iron Peak) by Bureau Veritas in Adelaide using a Loesche pilot plant test rig. The samples consisted of bulk samples (>2.2 tonnes each) with multiple grind sizes tested for each sample to determine VRM power requirements. The results are presented in Tables 1 and 2.

Table 1. VRM grinding results for Sample 1 (10710-VRM002)

Grinding test setting		10710-1	10710-2	10710-3
P80	µm	44	68	160
Specific grinding energy consumption	kWh/t	5.7	4.9	4.8
Load Factor "LF"		1.18	1.37	1.50
Grinding pressure	kN/m²	800	800	800

Table 2. VRM grinding results for the Sample 2 (10711- VRM003)

Grinding test setting		10711-1	10711-2	10711-3
P80	µm	43	91	140
Specific grinding energy consumption	kWh/t	7.2	5.9	5.4
Load Factor "LF"		1.06	1.35	1.48
Grinding pressure	kN/m²	800	800	800

The results confirm that VRMs have the capability to grind Razorback and Iron Peak ore effectively, with increasing power requirements for finer grind targets as expected. This will inform the process design with respect to the quantity of mills required to achieve the required throughput.

Abrasion data indicated low wear rates on the rollers and table of the VRM.

The optimisation studies are currently comparing the use of several options for comminution and grinding to optimise capital intensity. A combination of SAG, VRM and HPGRs are under consideration with capital and operating costs currently under review and based on the testwork completed to date. Hatch are completing this portion of the optimisation study, inclusive of upstream and downstream technical and capital implications for the use of substitute equipment.

Magnetic Separation

Magnetic separation aims to separate magnetic particles (iron rich magnetite) from waste particles through the use of Low Intensity Magnetic Separation (LIMS) equipment, ubiquitous in magnetite process plants globally. LIMS takes advantage of the magnetic properties of the mineral magnetite, attracting magnetic particles away from waste using permanent magnets mounted in a rotating drum. At each stage of magnetic separation, the volume of material flowing through the process plant is reduced as waste material is rejected and sent to the tailings storage facility (TSF). As a result, plant throughput is progressively decreased, reducing equipment size, whilst maximising iron (magnetite) recovery.

Magnetic separation is used in three stages of the Razorback flowsheet:

1. **Rougher magnetic separation** – Following the grinding circuit, relatively coarse (P80 140 µm) material is subject to magnetic separation, producing a mid-stage rejection stream of coarse, silica rich waste that will be used in tailings dam wall construction.
2. **Secondary magnetic separation** – Following secondary grinding to P80 45µm, further magnetic separation takes place to separate liberated magnetite particles from waste.
3. **Cleaner magnetic separation** – Finally, late in the flowsheet, flotation circuit tailings reject material is subject to ultrafine grinding (P80 15µm) and cleaner magnetic separation. This circuit scavenges any remaining high-grade concentrate particles for inclusion with the final concentrate stream, adding to mass recovery and resulting in a slight improvement in final concentrate grade.

Testwork and Results

Magnetic separation testwork was completed early in the testwork program with results confirming that magnetic separation performed as expected, recovering high proportions of magnetic particles. Testwork was undertaken on an Eriez L8 counter-current test unit followed by triple-stage secondary cleaner, concurrent LIMS units. The program also tested orebody variability for the L8 unit with results (presented in Table 3) confirming good magnetite recovery and iron grades for the Rougher Magnetic Separation (RMS) stage of the flow sheet.

Table 3. Rougher Magnetic Separation results for the Eriez L8 test unit.

Parameters		Base	Test 1	Test 2	Test 3	Test 4	Test 5
solids	kg	20	20	20	20	20	20
%solids	%	30	15	30	15	30	15
Feed rate	l/m	5	5	10	10	5	5
Gauss	G	1100	1100	1100	1100	1200	1200
Mass recovery to magnetics	%	29.3	25.9	27.1	24.1	29.0	26.7
Fe Grade	%	39.8	41.8	42.0	43.7	40.2	41.2

Froth Flotation Investigation Testwork

Froth flotation is a mineral processing technique widely used to separate valuable minerals from gangue minerals across a range of commodities. The technique is highly versatile thanks to the myriad choice of reagents available to enable the process, and can be used to separate a wide range of minerals, including iron oxides such as magnetite and hematite.

Testwork and Results

Previous textural and mineralogical, analysis of Razorback and Iron Peak samples identified that higher-grade final concentrate grades can be produced using flotation for final stage concentration (at P80 38 µm), as opposed to magnetic separation alone (at P80 25µm), with consequent grinding energy savings.

The flotation investigation program was designed to identify the optimum reagent recipe that would produce the highest iron grade product, while maintaining a high level of iron recovery (i.e., the grade-recovery relationship). The identified optimum recipe determined in sighter tests was used in validation tests as well as in saline water flotation testing to understand the potential to use saline water for processing.

Three bulk samples were tested using a large, 30L Agitair FM-12 laboratory flotation cell (Figure 12) with results aligning well with previous bench scale testwork.

Figure 12: Laboratory 30 litre Agitair froth flotation cell used for bulk flotation work (left), and Razorback 'adit' sample flotation test in progress (right). Froth, containing gangue silica-rich waste material is removed, concentrating iron-rich minerals in the remaining sample.

<u>Flotation variability testwork</u>

Thirty samples were selected for flotation variability testwork designed to ensure that the impacts of early-year plant feed variation on plant performance is fully understood. The samples were selected from feed for the first 5 years of the current production schedule, with some samples taken from the 10-year horizon.

The samples were also sent for geometallurgical analysis to allow for future characterisation activities that form part of the larger ore characterisation program. Table 4 shows Quantitative X-Ray Diffraction (QXRD) results for the variability samples in Mass %, where "IRPK" refers to Iron Peak samples and "RZBK" refers to Razorback samples.

Table 4. Flotation variability testwork sample QXRD results (mass %)*

Sample	Magnetite	Hematite	Fe Sulphide	Carbonates	Phosphates	Ti Minerals	Mica	Iron Silicates	Others	Total
IRPK average	30	55	0	2	0	1	2	10	0	100
RZBK average	38	39	0	2	0	0	2	19	0	100

**An 11% mass recovery cut off has been applied to the dataset, in line with the Mineral Resource Estimate Cut Off[1]*

As discussed above, flotation is applied following secondary magnetic separation with magnetic products occurring as feed for the Rougher Flotation circuit. Flotation recovers an iron-rich flotation product as a final concentrate, and a silica-rich middlings stream which is subject to further scavenger processing.

The iron grades for the iron-rich final product is 67% - 71% Fe and 2.5% - 4.5% SiO_2, with the silica-rich middlings stream averaging 43% Fe and 32% SiO_2.

The silica-rich middlings product is then ground using Isamill® fine grinding technology to P80 15µm prior to three-stage cleaner magnetic separation to recover liberated magnetite particles. The iron grade of the cleaner magnetic concentrate is on average 68.8%Fe and 3.3% SiO_2, suitable for recombining with final magnetite concentrate from the flotation circuit.

Final concentrate

The flotation variability testwork produced a flowsheet final concentrate with the following attributes (weighted average for all flotation variability testwork):

- **Grind size: 80% passing 38µm**
- **Concentrate grade: 68.5%Fe**
- **Major impurities: 3.2%SiO_2 (silica) & 0.4% Al_2O_3 (alumina)**

Flotation variability testwork confirmed that final concentrate variation is within acceptable limits and will consistently produce saleable products over the life of mine, as well as allowing the flexibility to produce premium, DR Grade products for specific ore types.

COMPETENT PERSONS STATEMENT

The information in this report that relates to Exploration Results is based on information originally compiled by Mr. Trevor Thomas, who is a Member of the Australian Institute of Mining and Metallurgy (AUSIMM) and Member of the Australian Institute of Geoscientists (AIG). Mr. Thomas is a full-time employee of Magnetite Mines Limited as Study Director. Mr. Thomas has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' ("JORC Code 2012"). Mr. Thomas consents to the disclosure of this information in this report in the form and context in which it appears.

This announcement has been authorised for release to the market by the Board.

For further information contact:

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ABOUT MAGNETITE MINES

Magnetite Mines Ltd is an ASX-listed iron ore company focused on the development of magnetite iron ore resources in the highly prospective Braemar iron region of South Australia. The Company has a 100% owned Mineral Resource of 6 billion tonnes of iron ore and is developing the Razorback Iron Ore Project, located 240km from Adelaide, to meet accelerating market demand for premium iron ore products created by iron & steel sector decarbonisation, with the potential to produce high-value Direct Reduction (DR) grade concentrates. Razorback is set to become a very long-life iron ore project with expansion optionality in a tier 1 jurisdiction that will produce a superior iron ore product sought by steelmakers globally. For more information visit magnetitemines.com.

References

1. ASX Announcement – 21 July 2022 – Positive Interim Metallurgical Test Results
2. ASX Announcement – 9 February 2023 – Iron Peak Mineral Resource Significantly Improved
3. ASX Announcement – 16 January 2022 – Razorback Project Optimisation Studies

Razorback and Iron Peak Metallurgical Testwork results

JORC Code, 2012 Edition – Table 1 report

1.1 Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	• Drilling method: Drilling programs related to this announcement of metallurgical results were completed by Diamond Core Drilling of PQ and HQ diameter drill core. • Diamond Core Sampling: Diamond drill core samples of varying diameter (HQ and PQ) were submitted for laboratory analysis. Core was cut using an automatic core saw in-house and at external geological consultancy. Minimum sample ¼ core samples of HQ to full core PQ dependent on the nature of the testwork. • Metallurgical sampling: The metallurgical testwork program has been compiled by global magnetite experts Hatch. Metallurgical bulk samples typically require high mass and spatial sample representivity, therefore full core and half core samples were submitted for bulk sampling testwork to a given net mass e.g. HPGR and Air classification testwork samples consisted of 1 tonne samples of PQ and HQ cores, as drilled through multiple subdomains including weathering and fresh zones with spatial distribution across the Razorback, Razorback west and Iron Peak deposits/prospects. As related to metallurgical testwork, the following analyses have been undertaken for various characterization studies in order to characterize flow sheet performance. Separate head grade analysis (XRF multi element) on a per sample basis, QXRD, QEMSCAN, SMC, Magnetic separation - LIMS, Flotation (bulk and variable) Bond Ball work index, Uniaxial Compressive Strength, Satmagan, Bond Abrasion index, Fourier Transform Infrared analysis. • Head grade (XRF multi element analysis) and DTR analysis of all samples at 1m increments is underway for recently drilled Iron Peak core samples. This analysis is ongoing and is being completed in aid of resource development. Results are pending.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	• Drilling method: Drilling programs related to this announcement of metallurgical results were completed by Diamond Core Drilling of PQ and HQ diameter drill core. • Drilling Contractor – Foraco contract drilling services. • PQ standard tube – vertical drilling to intersect greatest mass/volume of given domain. PQ diamond vertical drill holes underwent RQD by trained field staff and geologists, geological lithology logging by qualified geologists. • HQ triple tube – inclined drilling to 60 deg, azimuth oriented perpendicular to strike. Gyroscopic surveys undertaken where possible (open holes). HQ diamond inclined drill holes underwent core orientation by trained geologists and field staff, RQD by trained geologists and field staff, geological lithology logging by trained

Criteria	JORC Code explanation	Commentary
		geologists. • Hole locations surveyed by handheld GPS (+-3m) • For metallurgical drilling laboratory QAQC was relied upon. Core logging including core recovery,
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• Recording of sample recoveries undertaken via core-loss logging comparing measured intervals to drill run length and determining location and amount of core loss. • Sample recovery maximized by proper drilling procedures, sample handing and preparation. • Drilling condition typically very good with excellent core recovery due to competent ground conditions. Core loss typically associated with near surface, unconsolidated ground conditions and some infrequent geological faulted/brecciated zones. No correlation of core loss with mineralization.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• Geological logging for all core samples completed to 0.2m resolution appropriate for bulk commodity resolution. Additional down-hole geophysical logging as well as handheld magnetic susceptibility logging undertaken to validate mineralization zones for sampling purposes. • Geological logging attempts to describe hand samples in sufficient accuracy to determine the lithology, colour, veining, alteration, stratigraphy and mineralogy where possible. The fine grained nature of the lithologies results in qualitative estimation of rock descriptions. Downhole geophysical logging measured Long spaced density (LSD), short spaced density (SSD), gamma, hole diameter (Caliper), magnetic susceptibility (magsus), hole inclination and azimuth (gyroscope) measurements. These parameters are quantitative measurements and are used in tandem with geological logging to deduce lithology and degree of mineralization outside of laboratory measurements. • All drilling samples have been reviewed and logged. A total of 1912m of 1912m have been logged
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative*	• For the purposes of metallurgical sampling PQ core was utilized. Dependent on the nature of the analysis full (bulk samples) to half core samples (30-40kg samples for comminution consisting of Bond Abrasion index (ABi), Bond Ball Mill work Index (BBWi), Unconfined Compressive Strength (UCS) and Sag Mill Comminution (SMC) testwork) were submitted for analysis. • No non-core samples were utilized for the testwork. • For all samples, sufficient representivity of mineralization lithology and mass were achieved for the metallurgical testwork program. This was validated by laboratory analysis whereby samples of insufficient mass did not qualify for the analysis. • Quality control included spatial distribution of samples per geological domains as selected by metallurgical consultants and in-house geologists.

Criteria	JORC Code explanation	Commentary
	of the in situ material collected, including for instance results for field duplicate/second-half sampling. • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• To ensure ore body representivity, samples were selected based on representative geological domains related to the ore body, degree of mineralization, weathering and depth constraints as related to early year mining pit shell optimization. • Samples selected are bulk samples – insitu samples encompassing the full range of grain sizes expected in a processing scenario and therefore appropriate to the nature of testwork
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	• A broad range of testwork and analyses were undertaken for this metallurgical testwork program. Each testwork suite was selected to measure a given set of parameters towards sample characterization for a particular stage of the processing flow sheet. Analyses were undertaken primarily by certified laboratories (Bureau Veritas) but also vendor equipment manufacturers to test the amenability of Razorback Project Ores to specific equipment and conditions. • Analyses included, XRF (multi element) qXRD (quantitative mineralogy determination), QEMScan, SATMAG (magnetite %), LOI (loss on ignition), UCS (Unconfined compression strength), Bai (Bond Abrasion index), BBWi (Bond Ball Mill Work index), SMC (Sag Mill Comminution, Magnetic separation (Low intensity magnetic separation), Specific Gravity (density), FTIR (Fourier Transform Infrared spectrometry), Rod Mill (sample preparation), DTR (David Tube Recovery – magnetics), PSD (Particle size distribution wet sieve and laser), Flotation, Filtration and thickening, LFCU (Lyons Feed Control Unit – Vendor testwork), HPRG (high pressure grinding rolls testwork – Vendor testwork), Air classification (Vendor testwork) • Geophysical Tools were used for qualitative purposes only, no results presented herein relied on handheld tools or analyses. • Laboratory checks and observations were undertaken as part of the testwork program. Given the bulk nature of samples repeat/duplicate analysis was not possible (i.e. not possible to re-rerun 1000kg sample given sample availability and costs). Laboratory duplicated were inserted where relevant to ensure repeatability and accuracy in limited cases.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• Verification of testwork results occurred via managing consultants Hatch, independent reviewers and the MGT owners team for all results. • Twinned holes were drilled for one pair of PQ diamond drill holes to produce sufficient mass for bulk sampling. • All data was entered into a customized excel spreadsheet, prior to database verification and upload into industry standard database software 'Datashed' by external and independent consultants. • No adjustments to assay data was made nor considered necessary.

Criteria	JORC Code explanation	Commentary
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• The coordinates of each drill hole collar were surveyed using GPS with an accuracy of 3-5 meters sufficient for spatial location in a bulk commodity. • MGA2020 Zone 54 – Dataum used • Topography is determined from high resolution LIDAR surveys completed over the project area to an accuracy of 10cm.
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.* •	• Data spacing variable, determined by targeting of specific geological domains for metallurgical testwork, not resource drilling controls. This is considered appropriate for the nature of testwork.
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• Drilling for metallurgical purposes targeted maximum mass for a given interval or geological sub domain. For this reason, the greatest practical mineralization intersections occurred via vertical drilling, required to achieve mass constrains for samples.
Sample security	• *The measures taken to ensure sample security.*	• The chain of custody was controlled by Magnetite Mines. Samples were transported to and from laboratories by MGT staff and consultants.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No independent audits or reviews of sampling have been carried out. Hatch consultants have attended MGT storage and sampling processing facilities for inspection.

1.2 Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures,*	• Magnetite Mines Limited, through its 100% owned subsidiary Razorback Iron Pty Ltd, has secured the EL6353 and EL6126 leases over the Razorback Ridge and Iron Peak iron deposits.

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td>partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.
• The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</td><td>• Resource payments calculated at $0.01 per DTR tonne of measured resources (resource payment = tonne of measured resource x $0.01 x DTR%).
• A 1% royalty on the value of the product produced from the tenement measured at the ‘mine gate’.
• All tenements are in good standing and no known impediments exist.</td></tr>
<tr><td>Exploration done by other parties</td><td>• Acknowledgment and appraisal of exploration by other parties.</td><td>• Whitten, on behalf of the Geological Survey of South Australia, carried out a detailed study at the Razorback Ridge area during the 1950’s and 60’s
• This work was structured to assess the iron content, possible metallurgical processing and costs of mining the iron at the prospect. Detailed geological mapping, 3 diamond drill holes and an adit reaching 134.1 metres were carried out on the ridge itself.</td></tr>
<tr><td>Geology</td><td>• Deposit type, geological setting and style of mineralisation.</td><td>• The magnetite host rock at Razorback and Iron Peak occurs as either tillitic or bedded siltstone. The bedded or laminated ore is dense dark blue and can show sedimentary features such as cross bedding and slumping. The Geology of the Iron Peak Prospect is an extension of the geology at Razorback as following the consistent lateral continuity of the Braemar Iron Formation. For this reason there are no deviations to the methodologies/procedures utilised towards drilling and sampling between the two prospects.
• The magnetite occurs as 10 to 150 micron euhedra in layers up to 500 micron thick, and can form up to 80% of the rock. Hematite can occur associated with crosscutting right angle cleavage, related to later deformation.
• The tillitic ore is medium to dark grey, massive and contains erratics from 10mm to 1m in diameter. The fragments are typically metasediments, metavolcanics and granites.
• The magnetite is similar to that seen in the bedded ore type. Hematite occurs but is irregularly distributed through the rock.</td></tr>
<tr><td>Drill hole Information</td><td>• A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:
o easting and northing of the drill hole collar
o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar
o dip and azimuth of the hole
o down hole length and interception depth
o hole length.</td><td><table>
<tr><th>Hole ID</th><th>Easting</th><th>Northing</th><th>Total Depth</th><th>Inclination (°)</th></tr>
<tr><td>IPMT0001</td><td>384510</td><td>6353987</td><td>133.70</td><td>-90</td></tr>
<tr><td>IPMT0002</td><td>384510</td><td>6353987</td><td>133.60</td><td>-90</td></tr>
<tr><td>IPMT0003</td><td>384885</td><td>6354084</td><td>169.70</td><td>-90</td></tr>
<tr><td>IPMT0004</td><td>384513</td><td>6354164</td><td>112.60</td><td>-90</td></tr>
<tr><td>IPMT0005</td><td>384351</td><td>6354070</td><td>172.60</td><td>-90</td></tr>
<tr><td>IPMT0006</td><td>385246</td><td>6354075</td><td>132.00</td><td>-90</td></tr>
<tr><td>IPMT0007</td><td>385170</td><td>6354149</td><td>115.65</td><td>-90</td></tr>
<tr><td>IPMT0008</td><td>385686</td><td>6354061</td><td>103.65</td><td>-90</td></tr>
<tr><td>IPMT0009</td><td>385573</td><td>6354061</td><td>100.60</td><td>-90</td></tr>
<tr><td>IPMT0010</td><td>384858</td><td>6353989</td><td>109.60</td><td>-90</td></tr>
<tr><td>IPMT0011</td><td>384754</td><td>6353969</td><td>109.60</td><td>-90</td></tr>
</table></td></tr>
</table>

Criteria	JORC Code explanation	Commentary
	• *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	IPDD0001 385003 6353974 81.00 -60 IPDD0002 385241 6354136 45.10 -60 IPDD0003 385025 6354161 51.10 -60 IPDD0004 384239 6353919 48.10 -60 IPDD0005 384377 6353914 146.90 -60 • IPDD0006 384239 6353919 147.10 -60
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• Metallurgical results are reported herein, data aggregation methods are not applicable to this testwork.
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	• Exploration intercepts are not being reported due to the metallurgical testwork nature of the data herein.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• Significant discoveries are not reported. The results describe metallurgical performance of the Project ores. Plan map appended at end of JORC Table 1 document.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both*	• Reporting of results in this report is considered balanced.

Criteria	JORC Code explanation	Commentary
	low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• Exploration results are not being reported. Metallurgical results are reported in the above ASX release section.
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• As described above in ASX release section further includes: Variable flotation to test spatial variations in ore body variability and optimisation of reagent recipe. Filtration, thickening and tailings product characterisation, to characterise tailings products for use in tailings dam wall construction. Bulk flowsheet simulation, pending the delivery of bulk HPGR and air classification products from the Netherlands, bulk flowsheet analysis will take place to simulate and confirm the entirety of the processing flow sheet for 3 bulk (+1000kg) samples.