ASX ANNOUNCEMENT

02 APRIL 2025

SALINE WATER PROVISIONAL PATENT SUBMITTED

HIGHLIGHTS

- **Magnetite Mines has filed a provisional patent for its proprietary saline water flotation method, enabling the production of Direct Reduction (DR) grade iron ore concentrates suitable for green iron production, using saline (salt) water.**
- **Developed in-house, the innovative process allows for magnetite ore processing without the need for fresh water, potentially removing the need for a large-scale coastal desalination plant.**
- **The process enables the opportunity to use seawater for ore processing, the supply of which is practically unlimited and supportive of very long-life operations at Razorback.**
- **Additional samples from across the Razorback deposit are currently being tested to confirm the breakthrough processing method.**
- **Producing DR-grade magnetite positions Magnetite Mines as a key supplier to Australia's green iron industry opportunity.**

Magnetite Mines Managing Director Tim Dobson said:

"This provisional patent submission is another important step in our strategy to unlock the full potential of the Razorback Project as a leading source of high-grade, low-emission iron ore products. The ability to process our ores with saline water offers a significant environmental and cost advantage, while our continued focus on DR-grade product development positions Magnetite Mines at the forefront of global steel decarbonisation.

"Our innovative saline water flotation method provides a technological edge over projects in similar water sensitive jurisdictions, positioning Razorback as both a technically and environmentally superior DR-grade magnetite project."

Magnetite Mines Limited (ASX:MGT) is pleased to announce it has filed a provisional patent application for its previously announced saline water flotation process method that allows for the recovery of high-grade magnetite iron ore concentrates in saline water without compromising recovery or concentrate quality[1].

The filing of the provisional patent reflects the Company's strategy to develop a highly competitive and environmentally sustainable iron ore project at Razorback. Protecting the intellectual property (IP) associated with an innovative processing pathway not only presents a significant potential cost and

environmental benefit for the Project, but also gives Magnetite Mines a potential commercial advantage in a competitive field.

BACKGROUND

As the primary feedstock for Direct Reduced Iron (DRI), high-purity 'DR-grade' magnetite concentrates are a key enabler of the global transition to low-carbon 'green iron and steelmaking'. Magnetite concentrates are typically produced in a process plant at the mine site, with the concentrate products exported to the downstream market and the remaining waste streams stored in a tailings storage facility at the mine site.

The use of froth flotation, a conventional minerals processing technique in widespread use, is included in the Razorback process flowsheet to reduce impurities and enable the production of premium, DR-grade magnetite concentrates. The flotation process is traditionally carried out using fresh water as saline water can be problematic due to the interaction of saline water chemistry with flotation reagents which are sensitive to water chemistry. Specifically, the presence of saline water can adversely affect the reagents efficiency to remove impurities, which typically results in lower concentrate grades.

The Magnetite Mines team, working in conjunction with reagent suppliers and metallurgical laboratory Bureau Veritas, last year identified and announced a method that uses saline water (seawater) to produce premium-grade concentrates suitable for direct reduced iron (DRI) production, with results similar to those achieved using fresh water[1]. The method uses a modified chemical reagent regime with minimal impact on the Razorback Project process flowsheet and proposed equipment.

PROVISIONAL PATENT APPLICATION

The provisional patent application is an initial step taken to protect the IP of the saline water flotation methodology developed by Magnetite Mines.

The application specifically relates to the combination and sequencing of flotation process reagents that enable effective processing of magnetite in a saline water environment at the flotation stage of processing. It secures an early filing (or priority) date for the invention and provides the Company with a 12-month window to complete further testwork and technically refine the innovative process, before proceeding to full patent protection.

TESTWORK – DEMONSTRATION OF SALINE WATER PROCESSING

The provisional patent submission follows the successful demonstration of saline water processing, completed on Iron Peak deposit composite samples in July 2024[1]. That testwork used seawater from the Upper Spencer Gulf in South Australia to produce extremely high-purity DR-grade concentrates of up to 69.9% Fe for limited samples.

Concentrate grade produced using saline water:	69.9% Fe*
Major Impurities:	1.28% SiO_2 (silica) + 0.15% Al_2O_3 (alumina)

**Iron Peak composite flotation test result 19. Testwork based on limited samples, previously announced on 22 July 2024.*

Further testwork on a selection of Razorback deposit samples have since been submitted to the metallurgical laboratory for analysis to assess the efficacy of the saline water process across the entire orebody. Composite samples from Razorback have been selected to represent both scheduled mining

stages and spatial distribution across the deposit. The testwork is currently in progress at Bureau Veritas' laboratory in Adelaide, with results due in the coming months.

A potential transition to the use of saline water as the Project's base case water supply is pending this further testwork.

Figure 1 shows laboratory scale Low Intensity Magnetic Separation (LIMS) equipment representing an initial processing step before the flotation stage. Here, magnetic particles adhere to a LIMS drum which houses internal magnets, attracting magnetic particles and rejecting non-magnetic particles to waste. In this image, the LIMS drum has been lifted for display purposes.

Figure 1 - Razorback Iron Ore Project sample preparation for saline flotation testwork

Figure 2 shows a laboratory scale froth flotation cell in use during the saline metallurgical water testwork programme. In this image, silica impurities can be seen concentrating and adhering to the air bubbles, forming a froth concentrate for collection and removal from the magnetite concentrate slurry in the cell beneath the froth.

Figure 2 - Bench scale flotation testwork at Bureau Veritas laboratories, Adelaide

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

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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 - 22 Jul 2024 - Green Iron grade concentrates produced using saline water