

## ASX RELEASE

3 April 2024

# FLASH JOULE HEATING PROTOTYPE COMPLETE. TESTING COMMENCED

### Highlights:

- Flash Joule Heating (FJH) prototype construction completed and testing has commenced for the recovery of critical metals such as REE, lithium and cobalt from a range of waste material
- Global focus on supply chains and the sustainable sourcing of critical materials provides an opportunity for the development of advanced technology such as FJH
- FJH technology was developed by William Marsh Rice University (**Rice**), a prominent industrial technology research institution based in Houston, Texas with MTM securing the option for a global licencing agreement via the acquisition of Flash Metals Pty Ltd
- Ongoing test results will provide technical and performance data for MTM to progress towards a pilot scale FJH plant opening channels to test waste material from potential commercial partners
- Progression of the FJH technology complements MTM's advancement of a portfolio of rare earth and critical mineral exploration assets across Australia and Canada

**MTM Critical Metals Limited (ASX:MTM) (MTM or the Company) has started testing on the completed FJH prototype in Houston, Texas, following the close of the acquisition of Flash Metals Pty Ltd (Flash) and FJ Processing Pty Ltd (FJP).**

FJH is an advanced processing and recycling technology being developed to extract critical metals including REE, titanium, nickel, cobalt and lithium from waste material including lithium-ion batteries, eWaste, coal fly ash (CFA) produced by coal-fired power stations or bauxite residue (red mud) derived from alumina refining.

The FJH prototype unit was designed and fabricated by KnightHawk Engineering (**KnightHawk**) in Houston, Texas and verified in consultation with the developer of the technology, William Marsh Rice University (**Rice**) a prominent industrial technology research institution also based in Houston. MTM secured an option to licence the FJH technology via its recent acquisition of Flash Metals Pty Ltd (Flash) and FJ Processing Pty Ltd (FJP).

To date approximately \$1.5 million has been invested on the design and development of a prototype unit by FJP to progress the scale up and commercialisation of the FJH technology.

The prototype unit will now be used to determine a range of parameters and metrics for comprehensive commercial tests on a range of samples including;

- the recovery of rare earth elements (REE's), metals and metallic compounds from CFA, Bauxite Residue (Red Mud), Ores, Bitumen and Coal;

- the recovery of REE, metals (including gold, silver, platinum and palladium) and metallic compounds from E-Waste (electronic equipment, consumer electronics, power tools, print circuit board, CPU's and smartphones); and
- the recycling of degraded or end of life Lithium-Ion Batteries to recover metals including lithium, manganese, copper, cobalt and nickel.

Results from the testing of the FJH technology will assist MTM and KnightHawk to design a pilot scale plant and ultimately a commercial scale unit.

Recent in-person discussions between MTM, KnightHawk and Rice have examined the possible new applications for the proposed use of the FJH technology. Negotiations are under way to finalise the worldwide exclusive licensing agreement which is expected to be completed by the end of May 2024. This date can be extended by both parties by mutual agreement.

While full application use is still to be finalised, the company is confident that the progression of the FJH technology will complement MTM's advancement of a portfolio of rare earth and critical mineral exploration assets across Australia and Canada.

**MTM Managing Director, Mr Lachlan Reynolds** said *"The construction of the prototype is a key milestone in the ultimate commercialisation of the FJH technology. This is an important part of the value that has been realised in the recent Flash Metals acquisition. Having had the opportunity to meet with the KnightHawk Engineering team, visit their facilities in Houston and see the work that they have already completed on the flash joule heating prototype model, we are very excited to see the development that has already taken place.*

*"There is a high degree of understanding within the KnightHawk multi-disciplinary team around what is required to develop a commercial scale test unit that can prove that commercial quantities of material can be treated to achieve the best possible metal recoveries. With a growing global focus on supply chains and the sustainable production of key critical minerals, the development of the FJH technology has the potential to create significant value for our shareholders."*

### **About KnightHawk**

[KnightHawk](#) was founded in 1991 and specializes in identifying high technology solutions in a short timeframe. They have executed projects throughout the United States, Europe, and Asia. Their clients range from individual entrepreneurs to the large industrial organisations such as Shell, Exxon Mobil, Chevron and NASA. They have a depth of experience and expertise and are leaders in design, failure analysis and troubleshooting across a range of engineering disciplines. KnightHawk was selected for its expertise across a wide range of disciplines and their focus on ensuring outcomes in a timely manner.

**This announcement has been authorised for release by the Board of Directors.**

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**About MTM Critical Metals Limited**

MTM Critical Metals Limited is an exploration company which is focused on searching for niobium (Nb) and rare earth elements (REE) in Western Australia and Québec. Additionally, the Company has acquired an option to exclusively negotiate the licencing rights to an early-stage processing technology for REE and precious metals known as Flash Joule Heating, which has been developed by researchers at Rice University, USA. MTM's West Arunta Nb-REE licences lie within one of Australia's critical metal exploration hotspots where over \$60m in exploration expenditure has been collectively invested in the district by a number of ASX companies including WA1 Resources Limited (ASX:WA1), Encounter Resources Limited (ASX:ENR), Rio Tinto Limited (JV with Tali Resources Pty Ltd) (ASX:RIO), CGN Resources Limited (ASX:CGR), and IGO Limited (ASX:IGO). The Company also holds tenements in other prolific and highly prospective mineral regions in Western Australia. The Mukinbudin Nb-REE Project comprises two exploration licences located 250km northeast of Perth in the South West Mineral Field of Western Australia. The East Laverton Projects is made up of a regionally extensive package of underexplored tenements prospective for REE, gold and base metals. The Mt Monger Gold Project comprises an area containing known gold deposits and occurrences in the Mt Monger area, located ~70km SE of Kalgoorlie and immediately adjacent to the Randalls gold mill operated by Silver Lake Resources Limited. In Québec, the Pomme Project is a known carbonatite intrusion that is enriched in REE and niobium and is considered to be an extremely prospective exploration target adjacent to a world class REE resource (Montviel deposit). The Company has an experienced Board and management team which is focused on discovery to increase value for shareholders.

**Previous Disclosure**

The information in this announcement is based on the following MTM Critical Metals Limited ASX announcements, which are all available from the MTM Critical Metals Limited website [www.mtmcriticalmetals.com.au](http://www.mtmcriticalmetals.com.au) and the ASX website [www.asx.com.au](http://www.asx.com.au).

Date	Description
19 December 2023	MTM to acquire West Arunta Niobium-REE Project
27 March 2024	Flash Metals Acquisition, Tranche 2 of the Placement and Convertible Note Settlement Completed

The Company confirms that it is not aware of any new information or data that materially affects the information included in the original ASX announcements and that all material assumptions and technical parameters underpinning the relevant ASX announcements continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are represented have not been materially modified from the original ASX announcements.

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The figures, valuations, forecasts, estimates, opinions and projections contained herein involve elements of subjective judgment and analysis and assumption. MTM Critical Metals does not accept any liability in relation to any such matters, or to inform the Recipient of any matter arising or coming to the company's notice after the date of this document which may affect any matter referred to herein. Any opinions expressed in this material are subject to change without notice, including as a result of using different assumptions and criteria. This document may contain forward-looking statements. Forward-looking statements are often, but not always, identified by the use of words such as "seek", "anticipate", "believe", "plan", "expect", and "intend" and statements than an event or result "may", "will", "should", "could", or "might" occur or be achieved and other similar expressions. Forward-looking information is subject to business, legal and economic risks and uncertainties and other factors that could cause actual results to differ materially from those contained in forward-looking statements. Such factors include, among other things, risks relating to property interests, the global economic climate, commodity prices, sovereign and legal risks, and environmental risks. Forward-looking statements are based upon estimates and opinions at the date the statements are made. MTM Critical Metals undertakes no obligation to update these forward-looking statements for events or circumstances that occur subsequent to such dates or to update or keep current any of the information contained herein. The Recipient should not place undue reliance upon forward-looking statements. Any estimates or projections as to events that may occur in the future (including projections of revenue, expense, net income and performance) are based upon the best judgment of MTM Critical Metals from information available as of the date of this document. There is no guarantee that any of these estimates or projections will be achieved. Actual results will vary from the projections and such variations may be material. Nothing contained herein is, or shall be relied upon as, a promise or representation as to the past or future. MTM Critical Metals, its affiliates, directors, employees and/or agents expressly disclaim any and all liability relating or resulting from the use of all or any part of this document or any of the information contained herein.