

ASX RELEASE

30 October 2024

**Progress update on 1 Ton-per-day Flash Joule Heating
Demonstration Plant with design on track****HIGHLIGHTS:**

- **Design Progress:** Mechanical and process design for the 1TPD Flash Joule Heating (FJH) demonstration plant is progressing well and remains on schedule for completion by mid-Q1 2024.
- **Engineering Partnership:** MTM's engineering partner, KnightHawk Engineering, has agreed to a **success-based payment arrangement**, with their remuneration linked directly to the plant's operational success.
- **Major Technical Advancement:** The design now incorporates **continuous operation capabilities**, replacing the initial batch processing approach - representing a significant breakthrough for scalability and efficiency.
- **Commercialisation Efforts:** MTM continues active engagement to secure feedstock supply agreements, initiate product offtake discussions, and pursue strategic partnerships, targeting key metals such as gallium, indium, lithium, and high-gold-content e-waste.
- **US Engagements:** MTM will present at prestigious [COSM Technology Summit](#) in Seattle, Washington USA this week, engaging with top investors and innovators including Amazon, Microsoft, and NVIDIA. While in the USA, MTM will also meet with potential strategic partners to explore collaborations.

MTM Critical Metals Limited (ASX: MTM) MTM Critical Metals Ltd ("MTM" or "the Company") is pleased to provide an interim update on the design and implementation of its 1-ton-per-day (1TPD) Flash Joule Heating (FJH) demonstration plant. The detailed mechanical and process design work is being undertaken by KnightHawk Engineering (KnightHawk), a firm renowned for its expertise across a range of engineering disciplines and heat transfer technology.

Founded in 1991, KnightHawk brings a legacy of rapidly scaling innovative technologies, with a prestigious client portfolio that includes industry giants such as Shell, ExxonMobil, Chevron, and NASA. This expertise has proven invaluable in advancing MTM's technology from lab testing to demonstration-scale, laying the groundwork for full commercialisation. The current design phase has introduced a major technical breakthrough, transitioning from **batch to continuous operations** - a significant engineering advancement that enhances scalability, efficiency, and reliability.

This demonstration plant will process diverse feedstocks, including high-gold-content e-waste, gallium and indium from semiconductor scrap, and lithium from spodumene. The plant plays a pivotal role in MTM's pathway towards commercial operations, with procurement set to begin in Q1 2025 and commercial operations targeted for Q4 2025. These developments reflect MTM's strategy of aligning its engineering, technology, and commercial milestones with partners that are committed to sustainable solutions.

MTM Chief Executive Officer, Michael Walshe, said: *"This progress marks another significant milestone on our journey to unlock the full commercial potential of Flash Joule Heating technology. The shift to continuous operation not only enhances the scalability of the plant but also improves our ability to recover valuable metals efficiently and sustainably. We are excited about the success-based partnership with KnightHawk Engineering, which underscores the shared confidence in the technology and its ability to disrupt traditional recovery methods."*

"As we prepare to present at the COSM technology summit next week, we are eager to engage with new strategic partners, secure key feedstock and offtake agreements, and deepen relationships with existing collaborators such as Rice University and KnightHawk. The next few months are critical as we build momentum towards the construction phase and position MTM for long-term growth across multiple verticals in the metals sector".



Figure 1: Conceptual artist impression of FJH 1TPD Demonstration Plant.

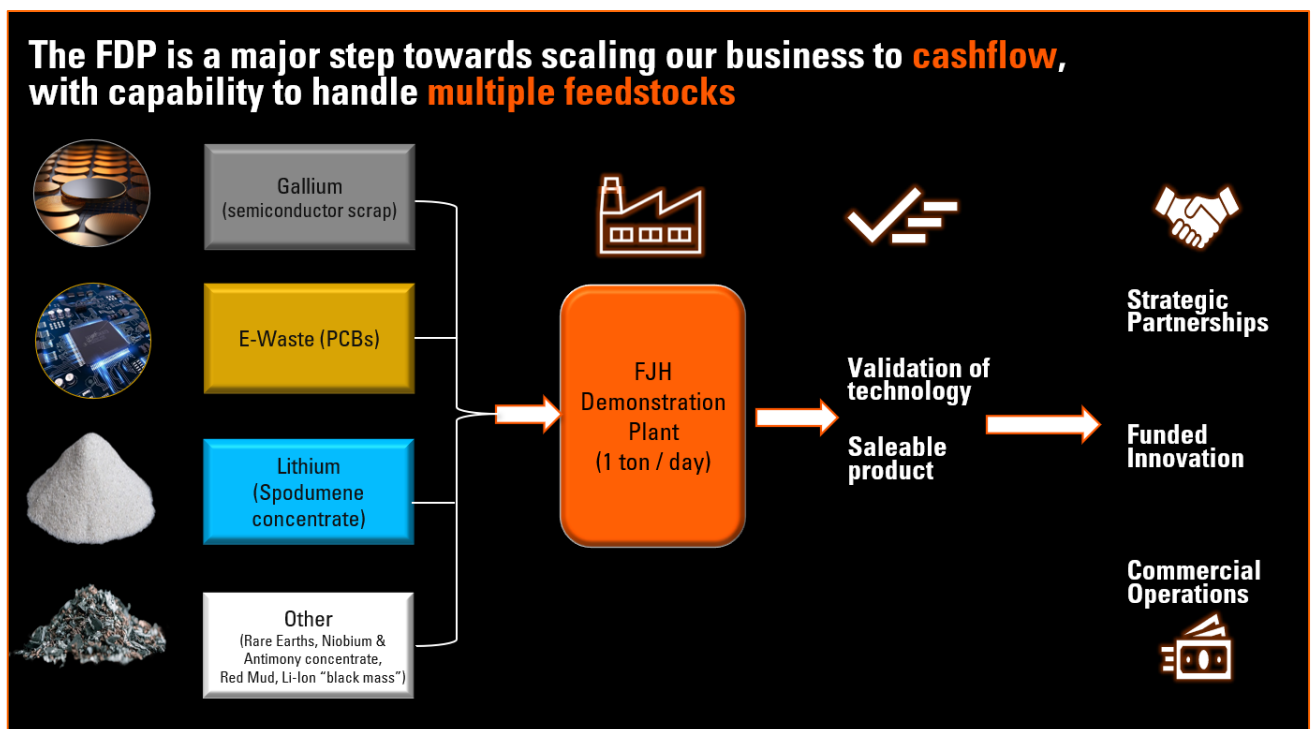


Figure 2: Indicative strategy for FJH 1TPD Demonstration Plant

Success-Based Partnership with KnightHawk Engineering:

As part of MTM's innovative approach to partnerships, KnightHawk Engineering has agreed to a success-based remuneration model, directly linking their compensation to the operational success of the demonstration plant. This arrangement highlights the confidence both parties have in the technology's commercial viability and operational performance.

Building Strategic Partnerships and Industry Engagements:

The Company is actively engaging with potential partners to secure feedstock supply agreements and product offtake contracts. These discussions focus on key materials such as gallium, indium, lithium, and high-gold-content e-waste, aligned with MTM's mission to recover critical metals sustainably.

This week, the MTM team will present at the COSM technology summit in the USA, taking the opportunity to meet potential strategic partners and continue collaborations with key partners such as Rice University and KnightHawk Engineering.

Indicative FJH Demo Plant Commercialisation Timeline

The indicative commercialisation timeline for the 1TPD FJH demonstration plant outlines a clear pathway from design to commercial operations. With the plant on track to begin commissioning operations by Q3 2025, MTM will focus on three priority verticals:

1. Semiconductor Waste Recycling: targeting gallium & indium.
2. High value e-waste containing gold, silver, copper, tin, palladium and other valuable metals.
3. Mineral processing: extraction of lithium from spodumene and other refractory mineral challenges.

Key partnerships are already in progress across these areas, with sample testing and collaboration discussions actively underway to accelerate commercialisation. This plant will serve as a critical proof-of-concept, demonstrating the scalability and economic viability of FJH technology across multiple high-value feedstocks.



BUSINESS	PROJECT	PARTNERS	PRIORITY	2024	2025	2026	2027
WASTE / RECYCLING 	E-Scrap / Gallium & Indium	Partnership in progress	1	Bench testing	Pilot	Commercial Operations	
	E-Scrap / Gold, Silver, Copper, Palladium, Tin	TBC - Discussions underway	2	Bench testing	Pilot	Commercial Operations	
	Red Mud / Alumina & Titanium	TBC - Discussions underway					
MINERAL PROCESSING 	Lithium	Partnership in progress	3	Bench testing	Pilot	Commercial Operations	
	Rare Earths	Partnership in progress					
	Niobium	Sample testing underway					
	Antimony / Refractory gold	Sample identified					

Figure 3: Indicative Commercialisation Timeline with Three priority verticals highlighted

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 a dynamic company with a dual focus on mineral exploration and metal recovery technology development. We hold exploration assets prospective for niobium (Nb), rare earth elements (REE), and gold, strategically located in Western Australia and Québec. Additionally, we possess exclusive licensing rights to the innovative Flash Joule Heating technology, a cutting-edge metal recovery and mineral processing method developed by esteemed researchers at Rice University, USA.

Flash Joule Heating (FJH) is an advanced electrothermal process that enhances metal recovery and mineral processing compared to traditional methods. By rapidly heating materials in a controlled atmosphere, FJH efficiently extracts metals like lithium from spodumene, gallium from scrap, and gold from e-waste, among others. This technology has the potential to revolutionise metal recovery by reducing energy consumption, reagent use, and waste, offering a more economical and environmentally friendly alternative.

MTM's West Arunta Nb-REE exploration assets are situated in one of Australia's premier exploration hotspots, where over \$60 million has been invested by ASX-listed companies such as WA1 Resources, Encounter Resources, Rio Tinto (in JV with Tali Resources), and IGO Limited. MTM also holds tenements in other key mineral regions across Western Australia, including the Mukinbudin Nb-REE Project, East Laverton Gold & Base Metals Project, and Mt Monger Gold Project. In Québec, the Pomme Project is a highly promising carbonatite intrusion rich in REE and niobium, located near the world-class Montviel deposit.

ABOUT KNIGHTHAWK ENGINEERING

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.

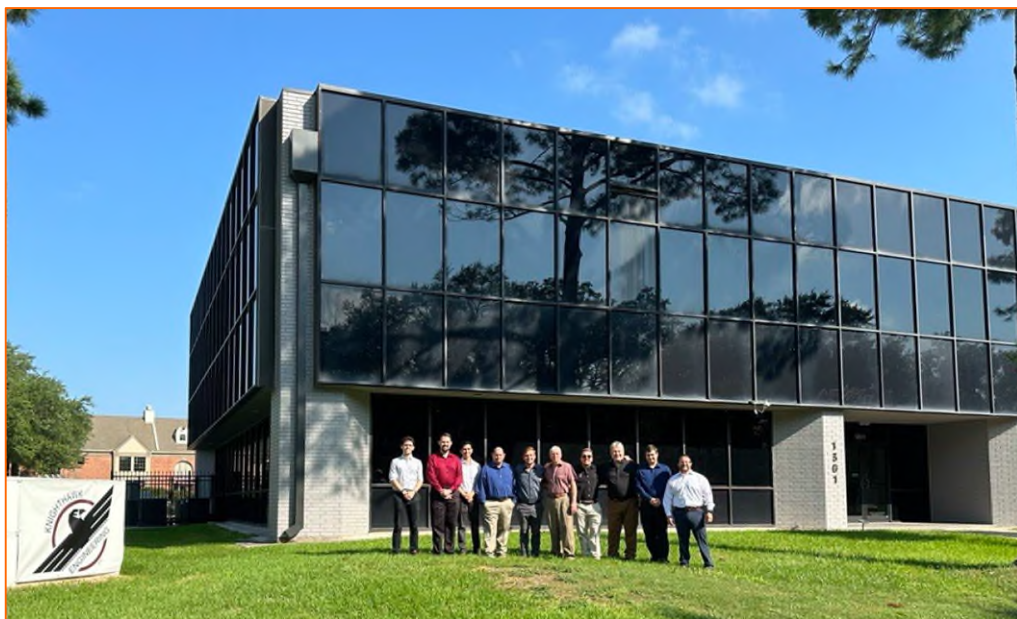


Figure 4: Knighthawk Engineering, FJH Team, Houston Texas

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 and the ASX website www.asx.com.au.

Previous **demonstration plant announcement** highlighted

Date	Description
03/04/2024	Flash Joule Heating Prototype Complete, Testing Commenced
06/05/2024	Flash Joule Heating Prototype Test Increases REE Recovery
31/05/2024	Global Licence Agreement Secured for Flash Joule Heating Technology with Rice University
24/06/2024	Positive Advances with Metal Recovery Test Work
09/07/2024	Positive Lithium Extraction Results from Flash Joule Heating
13/08/2024	Addition of Chlorination enhancement to FJH Licence
21/08/2024	Flash Joule Heating converts Spodumene to Lithium Chloride
27/08/2024	Gallium Recovered from Semiconductor Waste Using FJH Tech
06/09/2024	MTM Advances FJH Commercialisation with 1TPD Demo Plant
12/09/2024	High Gold Recovery from E-Waste using FJH Technology
18/09/2024	Further Advances in Lithium Refining with Flash Joule Heat
25/09/2024	High Silver & Copper Recovery from e-Waste using FJH
08/10/2024	High Multi-Metal Recovery from E-Waste incl. Palladium & Tin
16/10/2024	MTM Secures \$8M In Oversubscribed Raise to Accelerate Growth
18/10/2024	MTM to present at COSM Technology Summit

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.