



ASX Announcement

7 November 2025

Binding Agreement Executed with University of Arizona to Advance REE Downstream Supply Chain Opportunity

Great Northern Minerals Ltd (ASX:GNM) (GNM or the Company) is pleased to announce it has entered into an exclusive binding patent option agreement (**Patent Option Agreement**) with the University of Arizona to obtain the license for the development of an advanced flotation technology for bastnaesite rare earth ores, directly applicable to GNM's Catalyst Ridge project in the Mountain Pass district.

HIGHLIGHTS:

- The Patent Option Agreement allows the Company to progress the development of an **advanced flotation technology for bastnaesite rare earth ores**.
- The University of Arizona developed process use of hydroxamic acid-based collectors to deliver 80–90% REE recovery, 30–40% REO grade, approximately 50% lower reagent use and reduced operating temperatures.
- The technology has been progressed through to **TLR-5 based on ore from the Mountain Pass Mine**. Associated with the Patent Option Agreement is the proposed sponsored research program with the University of Arizona, which will focus on progressing the technology through to **TLR-6**.
- This lab-proven U.S. technology offers GNM early-stage metallurgical de-risking and **potential access to U.S. critical minerals funding** with alignment with national security supply chain strategies as the Company aims to be the next producer of REE in the USA.
- Overall, the technology significantly improves recoverability and processing throughout, increasing efficiencies with lower energy and reagent use, provides higher grade concentrate, while decreasing the level of waste.
- GNM is actively assessing other critical mineral processing technology opportunities.

Non-Executive Chairman, Eddie King, commented:

"This partnership represents a major step forward in unlocking the full value of Catalyst Ridge. Given the current global significance of processing at the MP Materials Mountain Pass Mine, this collaboration is especially timely. By leveraging world-class research and proven flotation innovations, we aim to significantly enhance REE recovery and reduce processing costs. We look forward to working closely with the University of Arizona team to deliver a robust, scalable beneficiation pathway for this strategically important technology."

Details of Patent Option Agreement

Under the Patent Option Agreement, GNM now holds the right to negotiate the exclusive license of the technology advanced flotation technology for REE that has been developed by the University of Arizona. The Company will now work closely with the University of Arizona to formalise the exclusive licensing agreement.

In addition, GNM will work with the University of Arizona's School of Mining Engineering & Mineral Resources, led by Associate Professor Jinhong Zhang, to confirm the associated sponsored research program. The sponsored research program will undertake a comprehensive multi-phase program that will build on prior patented research and successful pilot studies conducted on similar ore types, including those from the Mountain Pass Mine in the United States. The program is expected to run over a 24-month period, with key milestones including laboratory validation, flowsheet development, and scaling to a pilot progressing plant.

The material terms of the Patent Option Agreement include:

- **(Option):** The University of Arizona grants GNM an exclusive option to negotiate for an exclusive license in respect of the development of an advanced flotation technology for bastnaesite rare earth ores;
- **(Option Period):** The Option is valid for a six (6) month period;
- **(License Agreement):** Upon exercise of the Option, the University of Arizona and GNM will, negotiate in good faith, a license agreement on commercially reasonable terms; and
- **(Termination):** The Patent Option Agreement will end on the earlier of:
 - GNM not exercising the Option within the Option Period; or
 - the University of Arizona and GNM do not agree on the terms of the license agreement within 90 days of the date of exercise of the Option; or
 - the University of Arizona and GNM entering into a binding license agreement.

The Patent Option Agreement otherwise contains terms which are considered standard for an agreement of this nature.

University of Arizona Technology

The University of Arizona's School of Mining Engineering & Mineral Resources is a globally recognised leader in mineral processing research, with a strong focus on sustainable extraction technologies, surface chemistry, and advanced flotation systems. The department combines cutting-edge laboratory capabilities with industry partnerships to solve complex challenges in mineral beneficiation and resource recovery.

Associate Professor Jinhong Zhang, who holds the position as Freeport McMoRan Copper & Gold Chair in Mineral Processing, is a leading expert in flotation chemistry and surface characterization. The Professor has gained significant experience in REE process and his research spans mineral processing, environmental engineering, and nano-scale surface interactions.

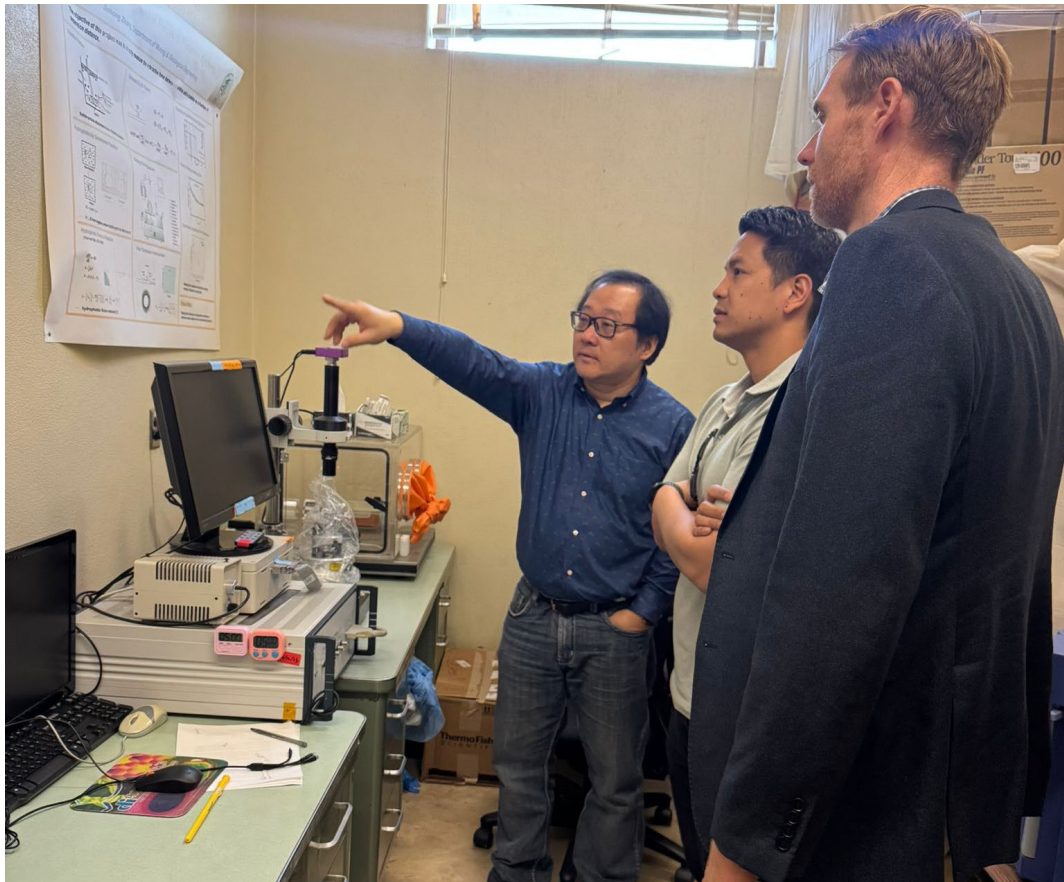


Figure 1: GNM team at the University of Arizona with Associate Professor Jinhong Zhang.



Figure 2: University of Arizona School of Mining Engineering & Mineral Resources.

Details of Flotation Technology

The University of Arizona's School of Mining Engineering & Mineral Resources, under the leadership of Associate Professor Jinhong Zhang, has developed a patented flotation scheme that significantly improves the recovery and selectivity of REEs from bastnaesite ores. This innovation addresses longstanding challenges in REE beneficiation, particularly the low selectivity and high reagent consumption associated with traditional oleic acid-based flotation. The technology has been developed based on bastnaesite ores from MP Materials' Mountain Pass Mine.

Key technological advancements include:

- **Novel Collector Chemistry:** The use of hydroxamic acid-based collectors, demonstrates superior selectivity for bastnaesite over gangue minerals like calcite and barite.
- **Optimised Reagent Scheme:** The mixed collector approach reduces overall reagent dosage by up to 50% compared to conventional methods, while maintaining high flotation efficiency.
- **Lower Operating Temperatures:** The new scheme achieves optimal recovery (80–90%) and concentrate grades (30–40% REO) at significantly lower flotation temperatures (40–60°C), reducing energy costs.
- **Surface Chemistry Insights:** Advanced analytical techniques such as Atomic Force Microscopy (AFM) and Fourier Transform Infrared Spectroscopy (FTIR) confirm the selective adsorption mechanisms of the new collectors, enabling fine-tuned reagent strategies.
- **Simplified Flowsheet:** The improved flotation kinetics and selectivity allow for a streamlined processing circuit, reducing complexity and operational overhead.

Next Steps

The Company will work in close partnership with the University of Arizona to formalise the exclusive licensing agreement and associated sponsored research agreement. Once the exclusive licensing agreement and associated sponsored research agreement are finalised, work will commence on the sponsored research program.

As this technology has already been validated through TLR2-TLR5 with extensive lab-scale testing on ore from the Mountain Pass Mine the program will be ready to develop the technology through to TLR-6. This will involve proving out the technology on a commercial scale through the development of a pilot progressing plant. In parallel to developing the pilot processing plant the team will work on testing any potential bastnaesite material from GNM's Catalyst Ridge Project. This will evolve rerunning TLR2-TLR5 using bastnaesite material from GNM's Catalyst Ridge Project.

About the Catalyst Ridge Project

The Catalyst Ridge Project is located in the world-renowned Mountain Pass District, a globally significant REE mining area in California's Mojave Desert. The Project is made up of four separate claim areas comprising of a total of 214 lode mining claims totalling approximately 18km and is a highly prospective REE and antimony opportunity within the world class Mountain Pass District. The Project is strategically located in a key United States critical minerals hub, supported by strong government initiatives to strengthen domestic supply chains.

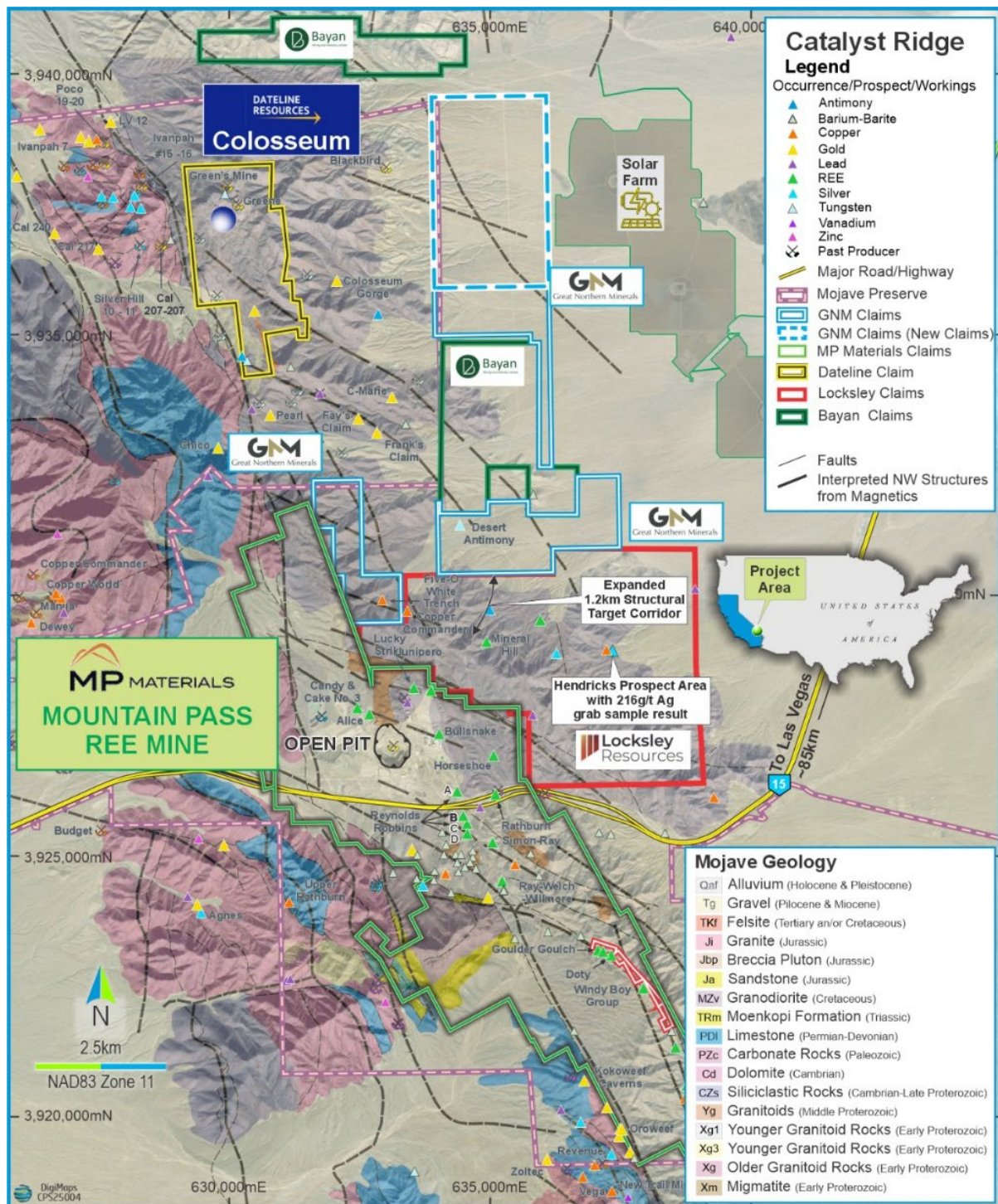


Figure 3: Interpreted bedrock geology map from the US Geological Survey¹ showing the location of GNM claims in relation to the Mountain Pass REE deposit, associated nearby mineral occurrences and other companies operating in the area.

References

¹Denton., K. Geophysical characterization of a Proterozoic REE terrane at Mountain Pass, eastern Mojave Desert, California, USA. USGS.

Forward Looking and Cautionary Statements

Forward looking statements, opinions and estimates included in this announcement are based on assumptions and contingencies which are subject to change without notice, as are statements about market and industry trends, which are based on interpretations of current market conditions. Forward looking statements are provided as a general guide only and should not be relied on as a guarantee of future performance. Forward looking statements may be affected by a range of variables that could cause actual results to differ from estimated results, and may cause the Company's actual performance and financial results in future periods to materially differ from any projections of future performance or results expressed or implied by such forward looking statements.

This announcement has been authorised by the Board of Great Northern Minerals Limited.

*****ENDS*****

For further information please contact:

Scott Downsborough

General Manager

Great Northern Minerals Limited

+61 8 9481 0389

scott@greatnorthernminerals.com.au