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ASX Announcement

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Positive metallurgical testwork results achieved on concentrate material from the Kanyika Project, with extraction of both Niobium and Tantalum above 99%

Globe Metals & Mining Limited (ASX: GBE) (**Globe or Company**) is pleased to announce that it has received positive metallurgical testwork results on the concentrate material from the Kanyika Niobium Project (**Project**), with extraction of both Niobium and Tantalum above 99%.

Test work results

TCM Research Ltd (**TCM**) is currently conducting a metallurgical testwork program for the application of its proprietary vapour metallurgical processes on a concentrate sample sourced from the Project.

The initial base-line test (OR1) showed 98% Niobium and 90% Tantalum extraction. Based on this encouraging result, a series of kinetics and optimization tests were conducted. This culminated in tests (OR12 & OR13) showing above 99% extraction for both Niobium and Tantalum.

	Extraction %			
Test	**Nb2O5**	**Ta2O5**	**TiO2**	**ZrO2**
OR1	98,1%	89,7%	99,4%	53,2%
OR12	99,9%	99,8%	99,9%	92,7%
OR13	99,9%	99,8%	99,9%	95,9%

The tests further demonstrate high extraction yields for other potentially marketable products, namely Titanium and Zirconium, with extraction yields of above 99% and 96% respectively.

With an extraction of 99.9% achieved on OR13, the expectation of the engineering team is that the overall recovery across the refinery will be 99% comparing favourably to Globe's August 2021 feasibility study of 95% based on the HF process.

The test results validate the decision to move from using a hydrofluoric acid and sulphuric acid-based process with fluoride and sulphate rich wastes that need to be neutralised and disposed of to a chlorination-based process with no such toxic waste and where chlorine is regenerated and recycled.

Globe expects that partners, off-takers and future buyers will demand a sustainable Niobium oxide supply and the chlorination process meets that requirement. The metallurgical testwork program has now advanced to the next stage with separation and refining tests well underway.

Process overview

The process employs a selective reductive chlorination technique, where the target metals are volatilized and thereby removed from the host matrix. These metals can be further separated and purified to produce individual metals or compounds. The basis of the process is the formation metal chlorides, with differing melting and boiling point temperatures, allowing for downstream processing.

The second stage of the process involves the refining and production of saleable products. Metal Chlorides can be separated and refined via vapour metallurgical (dry) techniques, fractional condensation, de-sublimation, fractional distillation, chemical vapour transport and halide substitution.

The final stage of the process is where product differentiation options can be explored, with the ability to produce a range of saleable forms: mixtures or individual; chlorides, fluorides, oxides, carbonates, hydroxides, metals, or metal alloys and powders.

Specifically for Niobium/Tantalum concentrates where Niobium and Tantalum are usually the only metals extracted, TCM presents the opportunity to produce commercial co-products from other constituents in the concentrate like Titanium, Zircon, and Iron, and potentially the recovery of any rare earth elements present.

The process has numerous intrinsic benefits, including:

- Dry process – offering a substantial (CAPEX, OPEX, environmental) advantage over the previously considered (HF/H2SO4) process in eliminating the infrastructure requirements and complexity of wastewater and effluent monitoring and treatment.
- Producing a diverse range of value-added products.
- Revenue generating co-products limit the effects of downturns in commodity price cycles.
- Energy – Exothermic upfront extraction process providing a substantial amount of energy for re-utilization in other process areas (eg. concentrate drying) or for on-site power generation.
- Smaller, more efficient, self-sustaining process plants. On-site reagent generation and recycling substantially reduces input logistics, costs, and overall carbon footprint. Thus, offering a higher level of internal control over Scope 1, 2 and 3 emissions.
- Low Waste and Tailings potential – improving overall project value and acceptance, reducing the burden of environmental bonds, remediation, and closure liabilities.
- The technology offers superior overall ESG potential; facilitating stakeholder buy-in and attracting appropriate investment and like-minded suppliers, service providers, clients, and end users.

About TCM Research

TCM is headquartered in Ireland, with representation in Canada, South Africa and USA, and has been established to develop, apply, and commercialize a suite of Vapour Metallurgy, Processing and

Manufacturing Technologies that are innovative, environmentally responsible, highly competitive while adding value exponentially beyond their cost.

TCM has developed a suite of Vapour Metallurgy processing technologies for the treatment of a vast range of materials for the recovery of metals, including Niobium, Tantalum, Iron, Titanium, Vanadium, Tin, Tungsten, and Rare Earth Elements. The process offers the ability to produce a range of high value products for a diverse and growing range of industries, capturing increased benefit along the supply and value chain. The aim is to bridge the gap between the mining and manufacturing industries, thereby reducing overall environmental impact.

Commenting on the test results, Globe's CEO Grant Hudson said:

"An extraction of >99% is a marvellous result as we continue to maximise the efficiencies of our various processes, and will have a direct, positive and project-long effect on our profitability. Combined with its superior ESG profile these outcomes continue to validate our decision to switch to chlorination technology in our refinery and I look forward to positive results from the next stage of test-work".

Authorisation for Release

This announcement has been authorised for release by the Company's Chief Executive Officer, Grant Hudson.

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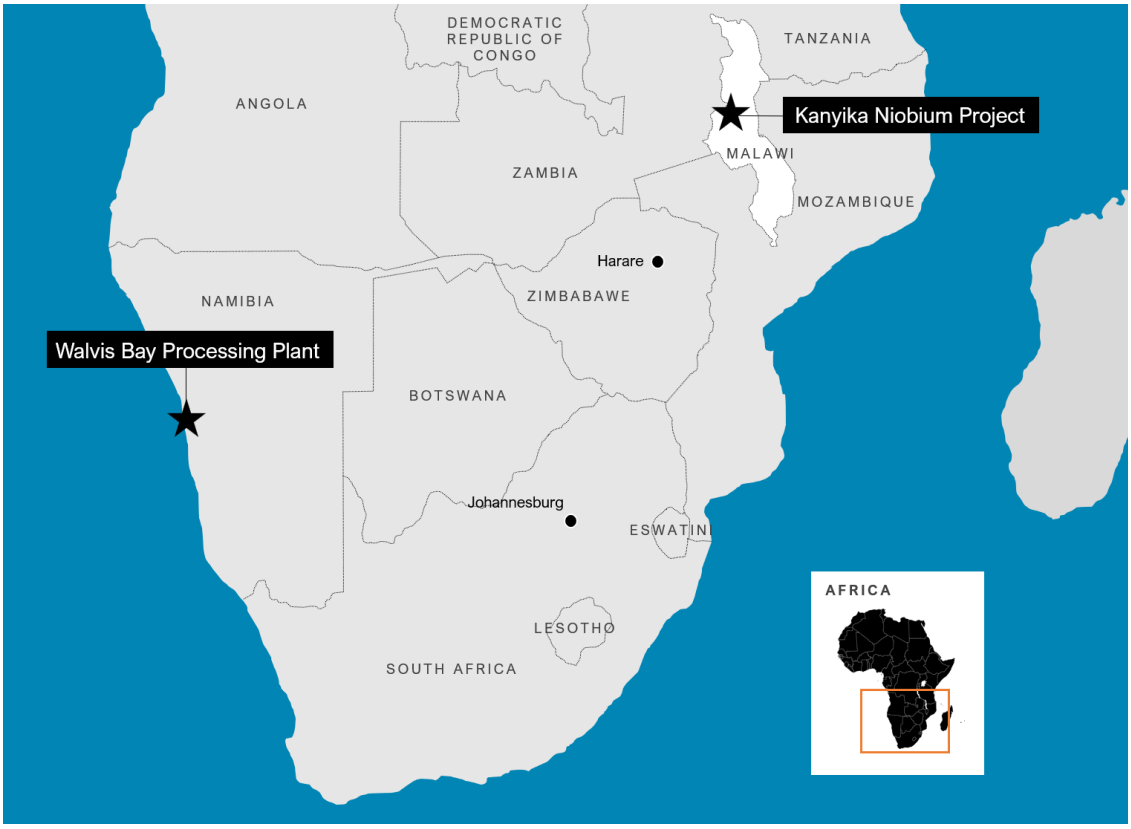
About the Kanyika Niobium Project

The Kanyika Niobium Project is located in central Malawi, approximately 55km northeast of the regional centre of Kasangu and is secured by Large-Scale Mining Licence No. LML0216/21 which grants the Company security of tenure and the right to mine niobium, tantalum, and deleterious uranium.

Drilling programs totalling 33.8 kilometres of percussion and core drilling have defined the extent of mineralisation. Structured and progressive engineering studies have resulted in the current (JORC 2012) Mineral Resource Estimate (refer below) and given rise to significant improvements and simplifications in the process flowsheet.

In addition, Globe has undertaken substantial metallurgical optimisation work and commissioned the pilot plant design work to demonstrate and further optimise metallurgical processes. Metallurgical optimisations studies have improved recoveries from 62% in 2012 to 75% today, through novel patented metallurgical processes.



The Kanyika operations will produce a pyrochlore mineral concentrate that contains both niobium and tantalum in commercially valuable volumes to be shipped to a refinery for advanced processing into high purity materials.

A Mineral Resource Estimate for the Kanyika Niobium Project under the 2012 JORC guidelines was reported to ASX on 11 July 2018 as follows:

Table 1: MRE for KNP using a 1,500 ppm Nb_2O_5 lower cut

Category	Resource (Mt)	Nb_2O_5 (ppm)	Ta_2O_5 (ppm)
Measured	5.3	3,790	180
Indicated	47	2,860	135
Inferred	16	2,430	120
TOTAL	**68.3**	**2,830**	**135**

Table 2: MRE for KNP using a 3,000 ppm Nb_2O_5 lower cut

Category	Resource (Mt)	Nb_2O_5 (ppm)	Ta_2O_5 (ppm)
Measured	3.4	4,790	220
Indicated	16.6	4,120	160
Inferred	2.8	4,110	190
TOTAL	**22.8**	**4,220**	**190**

Mineral Resource Estimates

The information in this report that relates to Mineral Resources is extracted from the report titled "Kanyika Niobium Project – Updated JORC Resource Estimate" released to the Australian Securities Exchange (ASX) on 11 July 2018 and available to view at www.globemm.com and for which Competent Persons' consents were obtained. Each Competent Person's consent remains in place for subsequent releases by the Company of the same information in the same form and context, until the consent is withdrawn or replaced by a subsequent report and accompanying consent.

The Company confirms that is not aware of any new information or data that materially affects the information included in the original ASX announcement released on 11 July 2018 and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the original ASX announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Persons' findings are presented have not been materially modified from the original ASX announcement.

Full details are contained in the ASX announcement released on 11 July 2018 titled “Kanyika Niobium Project – Updated JORC Resource Estimate” available to view at www.globemm.com.