

VITAL DEMONSTRATES ABILITY TO PRODUCE RARE EARTH CONCENTRATE WITH GRADES ABOVE 35% REO

Highlights

- Vital demonstrates ability to produce high grade rare earth concentrate (>35% REO) from simple mechanical sorting and gravity concentration techniques
- Ore Sorting via X-Ray Transmission (XRT) via single pass sorting:
 - 36% REO concentrate produced from feed containing 10.5% REO with an REO recovery of 70% from coarse grade feed (8-20mm)
 - Concentrate grades up to 41% REO achieved
 - REO recoveries up to 87% achieved
- Gravity concentration on fines also produced high grade concentrate:
 - 40% REO concentrate achieved via conventional shaking tables at 80% recovery
- Optimisation work underway including incorporating multiple pass sorting (cleaning and scavenging) to further increase REO recovery and grade
- Cracking and leaching test work on this high grade rare earth concentrate underway with results due imminently
- JORC resource conversion nearing completion with results expected prior to year-end



Figure 1 A product and corresponding reject sample from one of the sorter runs. Red is high grade (>50% REO) bastnasite concentrate with white being waste (quartz) material.

Commenting on the concentration testwork, Vital Metals Managing Director, Geoff Atkins said:

“The results achieved confirm the potential for high grade (>35% REO) rare earth concentrate to be produced from the North T deposit at Nechalacho utilising low cost mechanical sorting. We believe that this is the first time that a high grade rare earth concentrate can be produced by using only simple ore sorting technology. This capability is critical for the development of low cost rare earth projects and these results will enable Vital to push forward with plans to develop a near-term rare earth production facility.”

Vital Metals Limited (ASX: **VML**) (“Vital” or the “Company”) is pleased to advise it’s 100% owned subsidiary, Cheetah Resources, has successfully completed beneficiation testwork on ore from the North T deposit at the Nechalacho Rare Earth project near Yellowknife, Northwest Territories, Canada.

The purpose of this testwork was to determine the amenability of this deposit to simple, mechanical concentration to enable near-term production.

Beneficiation – Ore Sorting

Ore sorting is the proposed technology to produce a bastnaesite concentrate from the North T ore body at the Nechalacho rare earth project, located near Yellowknife, Northwest Territories, Canada.

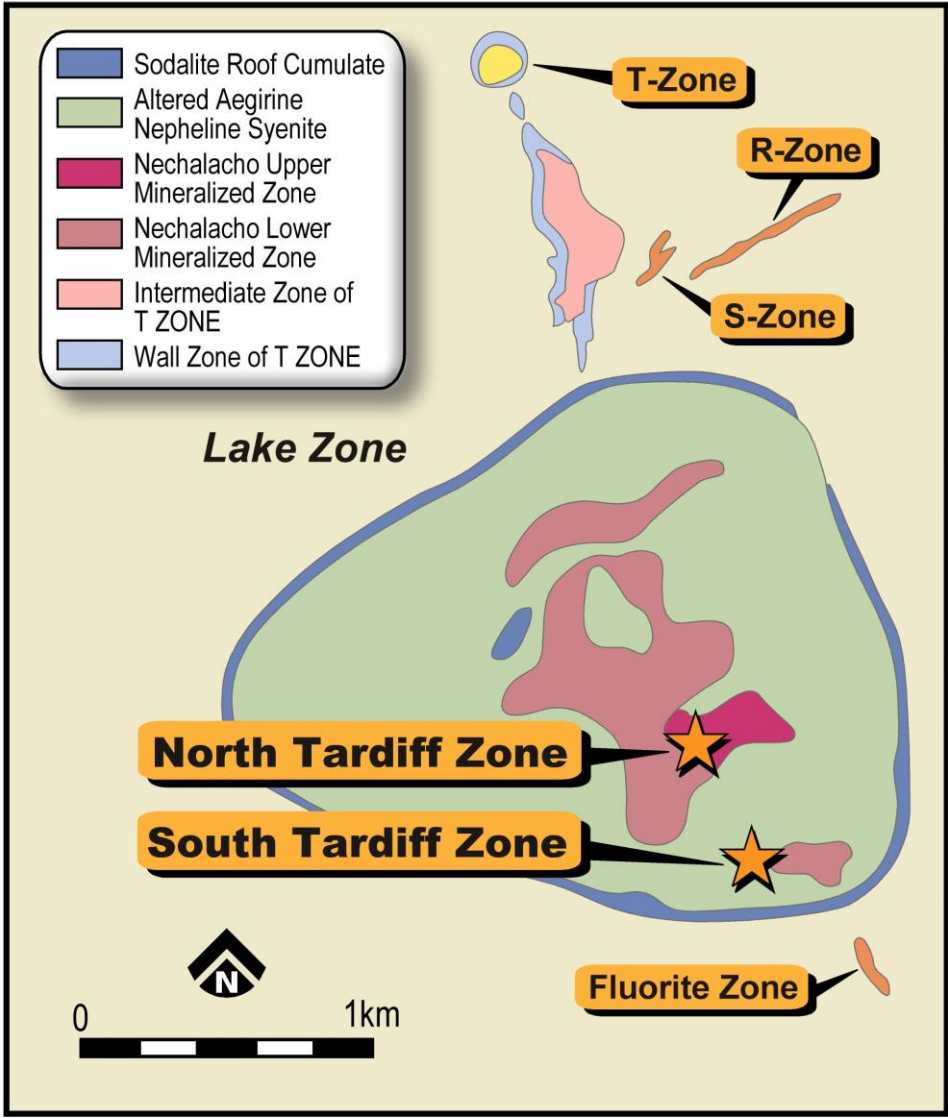


Fig. 2: Location of North T Zone with respect to Upper Zone

Ore sorting involves the separation of the bastnaesite mineralisation from the quartz gangue using X-Ray Transmission (XRT) technology. This sensor was deemed suitable due to the significant differences in atomic density between bastnaesite and quartz.

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Fig. 3: Ore sample from North T Zone showing red bastnaesite crystals with quartz waste

TOMRA Sorting Mining (TOMRA) engineers conducted a Performance Test at Saskatchewan Research Council (SRC) on three sets of samples to determine whether TOMRA products are capable of sorting bastnaesite from quartz. The material was pre-screened into the size fractions: 8-20mm, 20-30mm and 30-60mm. Oversize was crushed further, while the undersized fraction was retained for gravity testwork.



Fig. 4 TOMRA COM Tertiary XRT Ore Sorter used in the ore sorting Performance Test at SRC

Results

For training of the COM Tertiary XRT, a sample sheet of rocks with varying bastnaesite mineralisation was set up. The sorting of ore is made simple by the fact that the bastnaesite has a very high atomic density whilst the gangue, which is quartz, is very low atomic density. The colour pixels, as shown in Figure 5, are assessed as a percentage of the single rock area with that percentage then used for the sorting purpose.

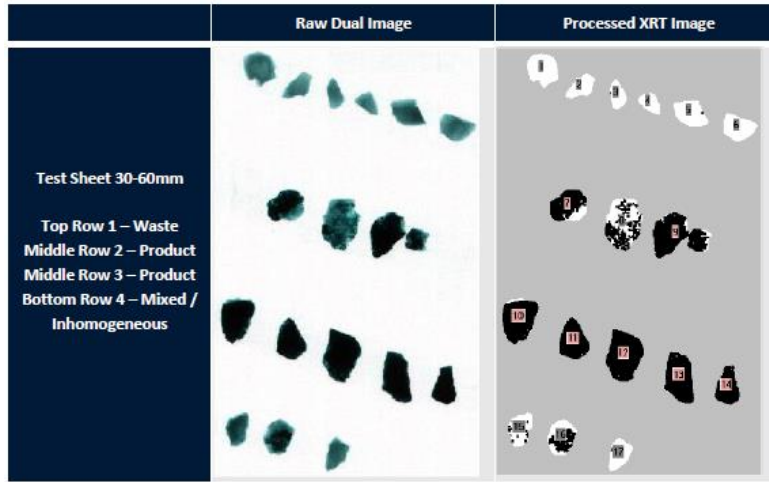


Figure 5 Sample Sheet for COM Tertiary XRT training purposes.

Each size range was tested at three different settings of reject vs product. The testwork showed that a 36% REO product could be produced from feed containing 10.5% REO at a REO recovery of 70%. Products with REO up to 41% were produced along with REO recoveries up to 87% and upgrade factors up to 5. REO in the waste stream was reduced to 1.7% with corresponding REO loss down to 13%. Figure 5 shows an example of the product and reject produced which shows high bastnaesite proportion (red rocks) reporting to the concentrate and very little in the reject.

In all the tests, the material was fed through a single time with no cleaning or scavenging carrying out on product or reject. Since the ore sorting equipment has a large capacity compared to the throughput for plant requirements, an installed ore sorter will be flexible and used in a number of different modes to produce a high grade bastnaesite product to be transported for downstream processing.

Gravity Testwork on Fines

Spiral testwork and shaking table testwork was undertaken on the fine material. Shaking table testwork proved that an upgrade of over four times to 40% REO product at an REO recovery of 80% could be achieved, producing product and rejects as shown in Figure 6.

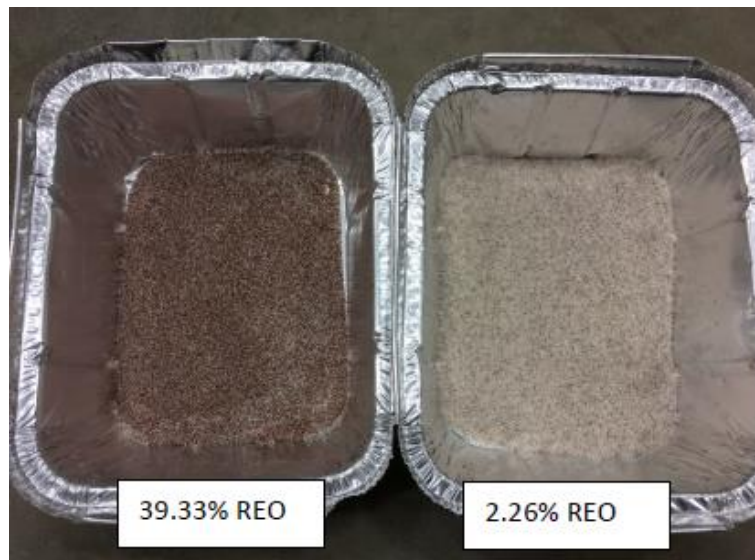


Figure 6 A high grade REO concentrate and corresponding reject sample from one of the shaker table runs.

Conclusions and Next Steps

Beneficiation of the Nechalacho T-Zone Bastnaesite mineralised section was successfully tested by sorting into a high grade bastnaesite product containing up to 40% REO and a reject material using a Tomra COM XRT Ore sorter. The ore sorting process has sufficient flexibility to produce a high grade product from similar feed materials. Additionally, at lower ore grades, the ore sorter will produce similar results due to the grain size of the mineralisation vs the particle size that can be sorted through the sorter. Fines produced in the mining, crushing and screening stage can also be processed to produce a high grade bastnaesite utilising shaking tables, thereby increasing overall REO recovery.

The successful testwork demonstrates that it is possible to produce a high grade REO product from ore from the North T Zone at Nechalacho. This is confirmation that the North T Zone is the ideal focus for the establishment of a near term operation.

In addition to this concentration work, leaching testwork has also been underway. The testwork aims to confirm that rare earths are able to be leached from a high grade concentrate into a solution, from which a high purity mixed rare earth product will be produced. An announcement on the results of this work will be made as they are available.

ENDS

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ABOUT VITAL METALS

Vital Metals Limited (ASX:VML) is an explorer and developer focussing on rare earths, technology metals and gold projects. Our projects are located across a range of jurisdictions in Canada, Africa and Germany.

Nechalacho Rare Earth Project

The Nechalacho project is a high grade, light rare earth (bastnaesite) project located at Nechalacho in the Northwest Territories of Canada and has potential for a start-up operation exploiting high-grade, easily accessible near surface mineralisation. The Nechalacho Rare Earth Project hosts within the Upper Zone, a NI 43-101 compliant Indicated Resource of 47.21Mt grading at 1.52% REO and Inferred Resource of 102Mt grading at 1.38% for a combined Mineral Resource estimate of 149.30Mt grading at 1.42% REO.

Wigu Hill Project

The Company has signed a project development and option agreement with Montero Mining & Exploration Ltd, to acquire and develop the Wigu Hill Project located near Kisaki in Tanzania.

The Wigu Hill project is a light rare earth element deposit and consists of a large carbonite complex with bastnaesite mineralisation with a NI 43-101 Inferred resource estimate of 3.3Mt at 2.6% LREO5 including 510,000t @ 4.4% LREO5 on 2 of 10 possible drill targets.

Nahouri Gold Project – Burkina Faso

The Nahouri Gold Project (100% Vital) is located in southern Burkina Faso. The Project is made up of three contiguous permits; the Nahouri, Kampala and Zeko exploration permits. The Project is located in highly prospective Birimian Greenstone terrain with 400 sq km of contiguous tenements lying on the trend of the Markoye Fault Corridor.

Aue Project – Germany

The Aue Project (100% Vital) is located in the western Erzgebirge area of the German state of Saxony. The permit, comprising an area of 78 sq km is located in the heart of one of Europe's most famous mining regions surrounded

by several world class mineral fields. Historical mining and intensive exploration work carried out between from the 1940s and 1980s showed high prospectivity of the Aue permit area for cobalt, tungsten, tin, uranium and silver mineralisation.

Investors should note that the Mineral Resource estimate for the Nechalacho Project Upper Zone is a foreign estimate and is not reported in accordance with the JORC Code. A competent person has not done sufficient work to classify this foreign estimate as a mineral resource in accordance with the JORC Code and it is uncertain that following further exploration or evaluation work that this foreign estimate will be able to be reported as a mineral resource in accordance with the JORC Code.

Investors should note that the Mineral Resource estimate for the Wigu Hill Rare Earth Project is a foreign estimate and is not reported in accordance with the JORC Code. A competent person has not done sufficient work to classify this foreign estimate as a mineral resource in accordance with the JORC Code and it is uncertain that following further exploration or evaluation work that this foreign estimate will be able to be reported as a mineral resource in accordance with the JORC Code.

ASX Listing Rule 5.13 Information

The Company has previously disclosed the foreign estimates in compliance with ASX Listing Rule 5.12 in the announcement dated 25 June 2019 titled "Vital to Transform into Rare Earth Oxide Developer" ("Announcement"). The Company is not in possession of any new information or data relating the foreign estimates that materially impacts on the reliability of the estimates or the Company's ability to verify the foreign estimates in accordance with Appendix 5A (JORC Code). The Company confirms that the supporting information provided in the Announcement continues to apply and has not materially changed.