

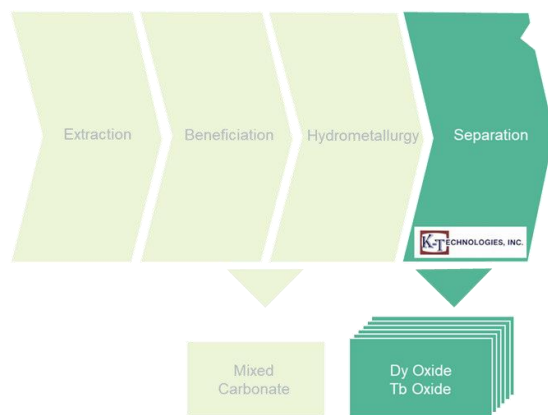
Separation testwork and ore sorter project update

Highlights

- Positive results from first stages of bench scale separation testwork at K-Tech using Continuous Ion Exchange and Continuous Ion Chromatography;
- Ore Sorting Project well advanced with civil works scheduled to commence in November;
- Subject to approvals, the Company aims to have the ore sorter installed and commissioned by mid-2020; and
- Majority of pilot plant initiatives to improve recovery, availability and throughput have been completed and are being commissioned.

Australian heavy rare earths producer, Northern Minerals Limited (ASX: NTU) (the **Company**) is pleased to provide an update on the separation study at K-Tech, the ore sorting project and pilot plant initiatives associated with the Browns Range Pilot Plant Project.

Separation Scoping Study



In August 2019, the Company announced the commencement of a Scoping Study to investigate separation technology on intermediate mixed rare earths materials produced at Browns Range.



Figure 1: K-Tech testing facilities in Florida, USA.

Powering Technology.

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If adopted, this technology will allow Northern Minerals to produce separated rare earth oxides, including dysprosium oxide and terbium oxide, for sale directly to permanent magnet makers globally, rather than a mixed heavy rare earth carbonate.

The bench scale separation testwork commenced in September 2019 at K-Tech's Florida laboratory and preliminary results indicate the Stage 1 continuous ion exchange (**CIX**) has been successful.

The rare earths (**RE**) load in preference to the non-RE on the resin. Regeneration was successful and the composition of the regeneration solution showed that final non-RE/RE ratio is in the range that would allow for the regeneration solution to be used as the feed for the Stage 2 continuous ion chromatography (**CIC**) step, where initial separation of the rare earths by group begins.

Stage 2 bench testing simulating the first phase of the CIC has also been successful, as regeneration solution from Stage 1 has been introduced to the CIC test columns and demonstrate that group separations of RE's have occurred. Testwork will continue to optimise this stage of the separation and collect sufficient group RE samples to proceed to Stage 3: Individual RE separation and purification.

The bench scale testwork will continue through the December quarter and into Q1 2020, with the Scoping Study to follow on completion of the testwork.

If the bench scale testwork and Scoping Study is successful, the Company intends to undertake a pilot testwork program and install the technology as part of the current Pilot Plant Project at Browns Range to assess the saleability of this differentiated product to an end user customer base.

Ore Sorting Project

The Ore Sorting Project announced by the Company in July 2019 is progressing on schedule. The front-end engineering design (**FEED**) for the ore sorter system is complete and detailed engineering is nearing completion. The Company has selected and paid a deposit on a Steinert ore sorter machine and the procurement of the balance of plant is on schedule with most of the equipment packages issued for enquiry.

Concrete works are scheduled to commence during November and are expected to be complete before the onset of the wet season.

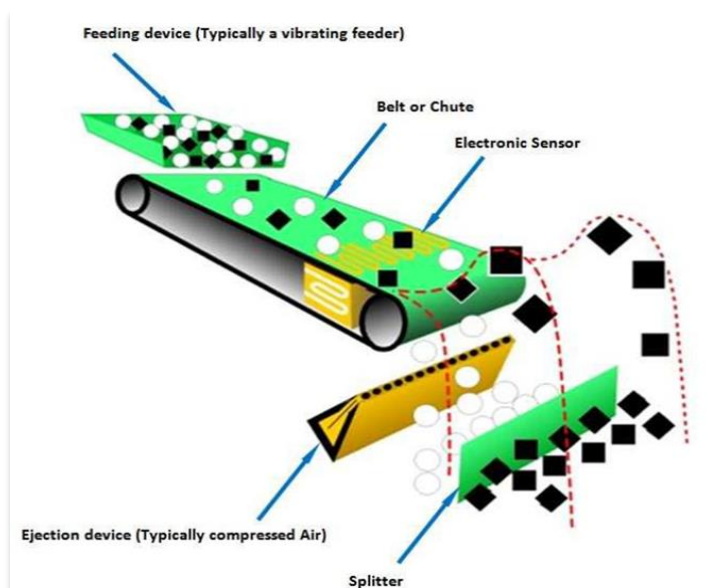


Figure 2: Schematic view of a typical ore sorter

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As previously announced, the findings from initial testwork and studies indicate that the inclusion of ore sorting at Browns Range has the potential to double the mill feed grade, potentially leading to an increased production rate of heavy rare earth carbonate and a potential lowering of operating costs (see the Company's announcement dated 11 October 2018).

The Company is currently working with stakeholders and regulators on obtaining the approvals required for the installation of the ore sorter at Browns Range and is aiming to have the ore sorter system installed and commissioned by mid-2020, subject to receiving these approvals in a timely manner.



Figure 3: Proposed location of ore sorting circuit

Pilot plant initiatives

The majority of the initiatives were completed during a planned shutdown in September/October, which includes significant changes to the kiln comprising: seals, feed system, materials of construction changes, and mechanical devices designed to limit scaling in the kiln to improve availability and throughput.

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Additional initiatives and modifications in various sections of the beneficiation and hydrometallurgical circuits to enhance recovery, availability and throughput have also been completed and are currently being commissioned.



Figure 4: Kiln with upgraded feed system

Northern Minerals' Managing Director and CEO, George Bauk, said *"It's exciting to see positive results from the first stages of bench scale testwork being undertaken at K-Tech. If successful, we would have a clear pathway to advance downstream in the supply chain to supply separated products to a much wider customer base."*

"We have moved quickly to advance the ore sorter project, identified as a potential game changer for the project. Higher grades going into the plant would result in higher production rates and lower operating costs, a double win in terms of improving the economics of the Browns Range Project."

"It's also very pleasing to see the initiatives identified by our operations team being implemented safely on site and which we expect will start to flow through into improved operational performance in the coming months."

ENDS

For and on behalf of Northern Minerals Limited

Mark Tory
Company Secretary

Compliance Statement – Ore Sorting Test Work

The information in this announcement in relation to ore sorting test work is extracted from the Company's ASX announcement dated 11 October 2018 (Ore sorting study shows potential to double the mill feed grade on Browns Range heavy rare earth stockpiles) and is available to view at www.asx.com.au. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement.

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About Northern Minerals:

Northern Minerals Limited (ASX: NTU; Northern Minerals or the Company) has completed practical completion of the Browns Range Heavy Rare Earth Pilot Plant Project in northern Western Australia and commenced pilot plant production of heavy rare earth carbonate.

The Pilot Plant Project will continue to assist the company evaluate the economic and technical feasibility of mining at Browns Range, and will provide the opportunity to gain production experience and surety of supply for our offtake partner.

Through the development of its flagship project, the Browns Range Project (the Project), Northern Minerals aims to build the Western Australian operation into the first significant world producer of dysprosium outside of China.

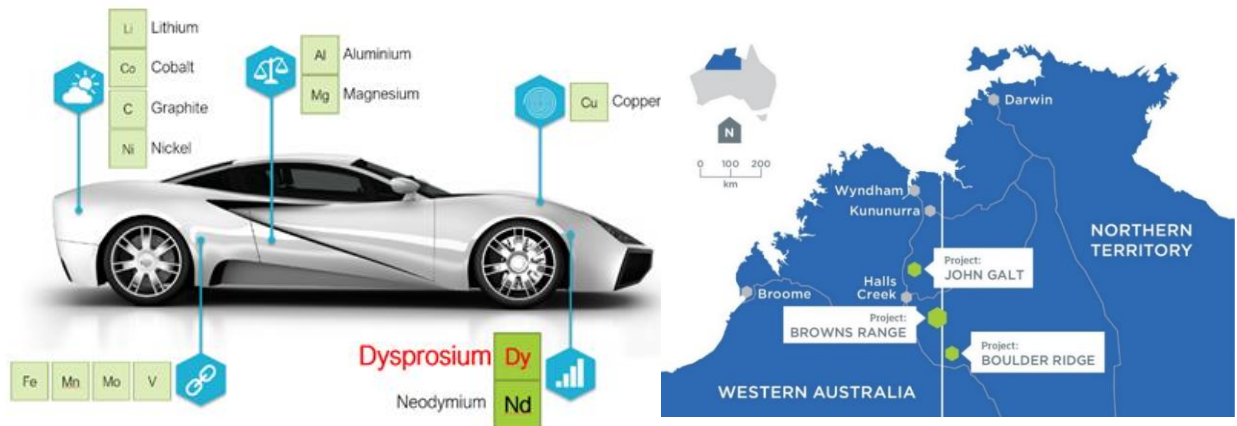
The Project is 100% owned by Northern Minerals and has several deposits and prospects containing high value dysprosium and other HREs, hosted in xenotime mineralisation.

Dysprosium is an essential ingredient in the production of DyNdFeB (dysprosium neodymium iron-boron) magnets used in clean energy and high technology solutions.

For more information: northernminerals.com.au.

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Electric Vehicles – Not just a lithium story!



ASX Code:	NTU	Market Capitalisation:	A\$155.9m
Issued Shares:	2,555m	Cash (as at 30 September 2019):	A\$18.8m

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