

## Northern Minerals' ore sorter set to boost Brown's Range economics

Northern Minerals Limited (ASX: NTU) (**Company**) has gained the regulatory approvals for the installation of ore sorting at Browns Range. The ore sorting equipment concentrates ore prior to the beneficiation circuit by selecting ore and rejecting waste based on x-ray transmission. This has the potential to double the feed grade and reduce production costs. Both the Western Australian Office of the Environmental Protection Agency and the Department of Water and Environmental Regulation have cleared the installation and commissioning.

The total capital investment for the procurement, installation and commissioning of the ore sorter is budgeted at \$5.9 million. Construction has commenced on the structural and mechanical equipment, with commissioning scheduled for mid-2021.

Previous trials of ore sorting technology at Browns Range, announced in [October 2018](#), identified the potential to double the mill feed grade. This would lead to an increased production rate of heavy rare earth carbonate and a potential lowering of overall operating costs.

Once the ore sorting system is commissioned, Northern Minerals plans to run additional testwork at pilot plant scale on all ore types to establish baseline data on feed grade improvements.

This work will also help evaluate material flow-through benefits of ore sorting on overall processing efficiencies. This data will feed into any future commercial, large-scale project feasibility studies at Browns Range.



**Figure 1: Ore Sorter system installation works have commenced at Browns Range**

### Powering Technology.

Northern Minerals  
Level 1  
675 Murray Street  
West Perth WA 6005

PO Box 669  
West Perth WA 6872  
northernminerals.com.au  
info@northernminerals.com.au

ASX: NTU  
T: +61 8 9481 2344  
F: +61 8 9481 5929  
ABN: 61 119 966 353

## Downstream processing options

Northern Minerals is also evaluating the economics of further downstream processing options for Browns Range ore.

To date, Browns Range has produced a mixed heavy rare earth carbonate for small-scale export to off-take partners. The options being assessed would take a further step along the supply chain to produce separated heavy rare earth oxides.

The Company announced in [August 2019](#) it had commenced a scoping study with United States-based K-Technologies, Inc. (K-Tech) to investigate a separation technology on intermediate mixed rare earths materials produced at Browns Range.

K-Tech's technology is focused on continuous ion exchange (CIX), continuous ion-chromatography (CIC) and related advanced separation methodologies.

The study continues to progress well, with positive test results being achieved at K-Tech's facilities in Florida albeit slower than planned because of constraints associated with COVID-19.

However, Northern Minerals expects to see separated dysprosium and terbium oxides from the study before the end of this year.

Separately to collaborating with K-Tech, Northern Minerals is pursuing studies into traditional solvent extraction to produce oxides from the mixed heavy rare earth material produced at Browns Range.

**Northern Minerals CEO Mark Tory said:** *"With approvals in place for the ore sorter and installation now under way, we will be in a strong position to thoroughly evaluate the flow-through benefits of that technology at a Pilot Plant scale.*

*"The results will provide a valuable input into future feasibility studies to assess the commercial viability of a large-scale heavy rare earths mining and processing operation at Browns Range.*

*"In addition to our investment in ore sorting to improve the mill feed grade, we are also committed to assessing opportunities to further unlock value at Browns Range through downstream processing to oxide products, which opens up a wider field of off-take and future project financing opportunities."*

### For further information:

Mark Tory  
Chief Executive Officer  
Colin McCavana  
Chairman  
Northern Minerals  
+61 8 9481 2344

### For media and broker enquiries:

Michael Cairnduff  
Director  
Cannings Purple  
0406 775 241  
[mcairnduff@canningspurple.com.au](mailto:mcairnduff@canningspurple.com.au)

### About Northern Minerals:

Northern Minerals Limited (ASX: NTU) (Northern Minerals or the Company) is one of a few producers of heavy rare earth element Dysprosium outside of China via production from the Browns Range Heavy Rare Earth Project in northern Western Australia.

The Company commenced the production of heavy rare earth carbonate in late 2018 as part of a three-year pilot assessment of economic and temporarily technical feasibility of a larger scale development at Browns Range. In March 2020, the operation was placed into care & maintenance as a result of COVID-19 and has partially restarted operations in August 2020.

The work program provides the opportunity to gain production experience and surety of supply for our offtake partner, Thyssenkrupp, as well as allowing the assessment of various project enhancement initiatives including ore sorting and the separation of the product into individual rare earth oxides.

Through the development of its flagship project, the Browns Range Project (the Project), Northern Minerals aims to build the Western Australian operation into a 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, military and high technology solutions.

For more information: [northernminerals.com.au](http://northernminerals.com.au).



ASX Code:	NTU	Market Capitalisation:	A\$142.0m
Issued Shares:	4,436m	Cash (as at 11 September 2020):	A\$11.9m