

Study update on dysprosium rich Browns Range Project, post DFS

Highlights

- Work programs are underway to enhance the dysprosium rich Browns Range Project.
- Initiatives aimed at achieving further optimisation by reducing mining costs, increasing ore head grade and reducing solvent extraction separation costs through the removal of yttrium.
- Initiatives set to increase Browns Range Project's competitiveness.

Northern Minerals Limited (ASX: NTU; Northern Minerals) wishes to provide an update on the work it is currently undertaking to enhance the Browns Range Project's Definitive Feasibility Study (DFS). While Northern Minerals continually looks for ways to optimise processes and reduce costs, the team has progressed study work on three initiatives that are expected to increase the Browns Range Project's (the Project) competitiveness.

These initiatives are:

- modification of mining method;
- increase in ore head grade; and
- removal of yttrium.

While the focus of this update is on these initiatives, Northern Minerals is continuing to work on a number of other initiatives that it believes will deliver further benefits in the near future.



Powering Technology.

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Northern Minerals' Managing Director, George Bauk, said that while the Project had a number of competitive advantages that positions it as best in its class, the Company is committed to continuing to look at ways of enhancing the Project.

"The Project is a standout amongst its peers. Its xenotime mineralisation is a proven source of rare earth supply, its richness in dysprosium, and potential to deliver a 0.80 per cent total rare earth oxide (TREO) grade to the mill, clearly sets it apart. This coupled with the Project's advanced stage of licencing and future exploration potential puts us ahead of many of our competitors."

"As with many commodity markets today, the rare earth market is providing its challenges. But with every challenge comes an opportunity to build resilience during these times."

"We have set ourselves a challenge to take this Project to another level, through both cost saving initiatives and improving revenue, making the Project, if operating today, profitable."

Positioned for success Browns Range Project competitive advantage



Modification of mining method

Studies are underway to improve productivity and reduce forecast mining costs at the proposed Wolverine underground mine, which indicate a reduction of up to 40 per cent in DFS underground mining costs.

Northern Minerals will confirm on completion of these studies that the proposed modifications to the mine design and schedule, to eliminate the use of paste fill by using sub level caving mining is achievable.

Further optimisation of the mining schedule may involve scheduling of the Wolverine underground from the base of the Wolverine pit, re-evaluating the thickness and extraction of the Wolverine crown pillar and changing of the production sequence and layout.



Increase in ore head grade

Northern Minerals is assessing the potential to increase the TREO production rate by targeting higher grade ore in the earlier stages of mining and processing. This involves increasing the DFS mill head grade from 0.66 to 0.80 per cent by scheduling the current life of mine mill feed plan in a more favourable sequence. While this is expected to result in a 20 per cent increase in TREO production per annum it will reduce the current DFS mine life from eleven years to between seven to eight years.

Exploration planning is well advanced to increase the Project’s mineral inventory and classification level to extend high grade ore supplies to feed the operation, and extend the mine life. Any future exploration work is dependent on funding.



Removal of yttrium during hydrometallurgical process

Northern Minerals believes there is significant opportunity to reduce downstream solvent extraction (SX) separation costs, by separating yttrium in the hydrometallurgical process.

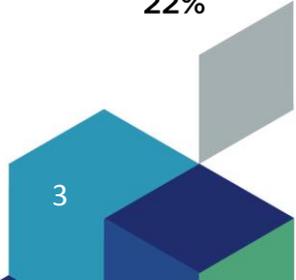
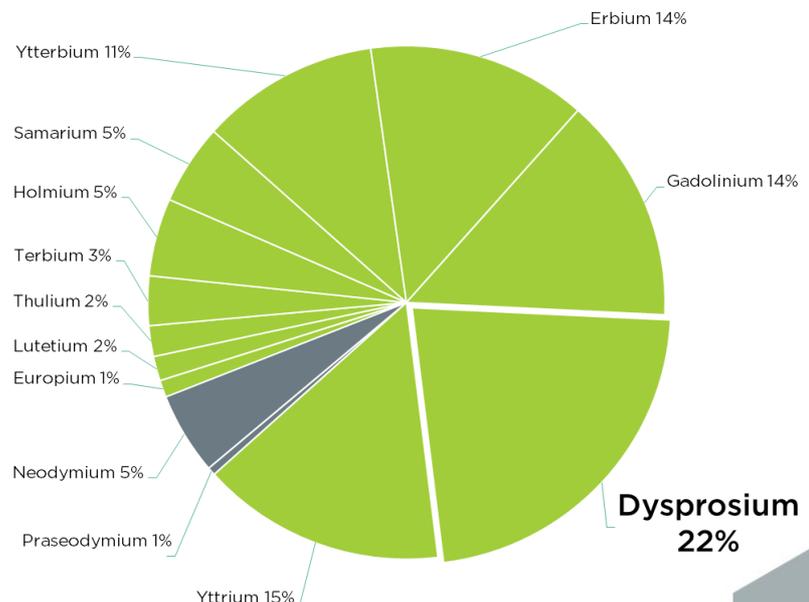
Removing approximately 90 per cent of the yttrium, which represents 62 per cent of the total TREO distribution, results in less mixed rare earth carbonate being produced. With less material required to be processed through the downstream SX separation process, this delivers a reduction in cost.

Completion of initial testwork at ANSTO Minerals has indicated that removal of yttrium, lanthanum and cerium can be achieved through a relatively simple addition to the hydrometallurgical process prior to mixed rare earth carbonate precipitation. Following these promising results, Northern Minerals has commenced a scoping level study, which includes bench scale testwork, to further test this concept.

With the current market signals indicating that sale of the yttrium oxide is likely to be limited for the foreseeable future, the yttrium removal step will increase the percentage of the dysprosium in the mixed rare earth carbonate product from 9 per cent Dy/TREO to 22 per cent Dy/TREO (see Figure 2) while still retaining a portion of yttrium for sale to potential customers.

The bench scale testwork at ANSTO Minerals is scheduled to finish mid-September, with the scoping study expected to be complete in the third quarter of this year. Northern Minerals plans to upscale this process to pilot plant level for a definitive feasibility study to be completed in the first quarter of 2016.

Figure 1: Mixed rare earth carbonate distribution after yttrium removal



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About Northern Minerals:

Northern Minerals Limited (ASX: NTU; Northern Minerals or the Company) is focussed on the delivery of the heavy rare earth (HRE) element, dysprosium. The Company has a large landholding in Western Australia and the Northern Territory that is highly prospective for this element. Through the development of its flagship project, the Browns Range Project (the Project), Northern Minerals aims to be the first significant world producer of dysprosium outside of China.

The Project is 100% owned by Northern Minerals and has a number of deposits and prospects containing high value dysprosium and other HREs, hosted in xenotime mineralisation. Dysprosium is an essential ingredient in the production of NdDyFeB (neodymium-dysprosium-iron-boron) magnets used in clean energy and high technology solutions. As a result of increasing global demand for these applications dysprosium supply is critical. The Project’s xenotime mineralisation facilitates the use of a relatively simple and cost effective processing flowsheet to produce a high value, high purity dysprosium rich product.

Optimisation of the Definitive Feasibility Study completed in February 2015 will improve the Project’s economic viability. Construction is targeted to commence at the Project in 2016, followed by commissioning in late 2017 to produce a high purity mixed rare earth (RE) carbonate for export.

Exploration continues at Browns Range (WA and NT), and is also underway at the geologically similar John Galt and Boulder Ridge projects. For more information northernminerals.com.au.



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