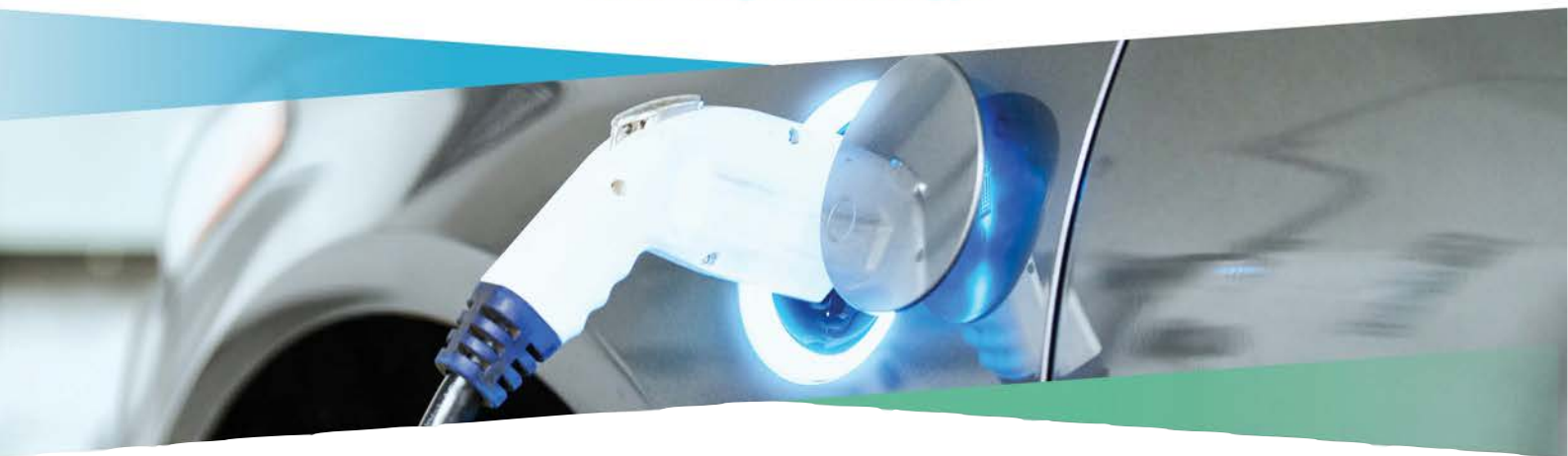




# NORTHERN MINERALS

Powering Technology.



## Quarterly Activities Report

JUNE 2019

Northern Minerals is the only heavy rare earth producer outside China. Commissioning of the Browns Range Heavy Rare Earth Pilot Plant Project in the East Kimberley region of Western Australia continued during the quarter as the Company assesses the technical and economic feasibility of a full scale operation.



Northern Minerals Limited (ASX:NTU; Northern Minerals or the Company) is focused on production from the Browns Range Heavy Rare Earth Pilot Plant Project in northern Western Australia. Through the development of its flagship project, the Browns Range Project (the Project), Northern Minerals is the first and only meaningful producer of dysprosium outside of China.

The pilot plant is continuing to assess the technical and economic feasibility of a full-scale commercial operation. Northern Minerals is continuing to increase output from the pilot plant to steady state to assess the quality of the rare earth carbonate produced. Test work has identified areas of new knowledge that have been applied to the pilot plant.

Corporate Overview



## Highlights:

- The prices of dysprosium (Dy) and terbium (Tb) have continued to increase during the quarter, with the Dy price up 62% YTD and the Tb price up 38% YTD (as at end June 2019)
- Pilot plant at Browns Range is continuing commissioning with steady state continuous production targeted for mid CY2020
- Extension drilling at the Dazzler deposit continues to highlight the future prospectivity as a high-grade ore source
- Duncan and Gordon Downs Roads have received \$51m in joint funding from the Commonwealth and State Government in the WA FY20 Budget, allowing for the potential of uninterrupted production year-round once completed
- A new A\$15 m Placement and Convertible Debt Agreement was undertaken during the quarter to sophisticated investors, subject to shareholder approval
- A Placement and accelerated non-renounceable entitlement offer to raise A\$21.95m commenced during the quarter. Post-quarter, a further A\$30m was raised from sophisticated clients of Argonaut Securities
- Two existing debt facilities were retired during the quarter, strengthening the Company's balance sheet
- The Company's claim for research and development (**R&D**) refundable tax offset in relation to the 2017/18 tax year has been denied by AusIndustry. The Company has commenced an appeal process to overturn this decision
- As an interim measure, the Company and the Australian Taxation Office (**ATO**) agreed to a staged repayment plan for the disputed liability

## Browns Range Project Update

The Company has constructed and is operating a pilot scale project aimed at assessing the technical and economic feasibility of a full-scale commercial operation. The testwork program has commenced and the first shipment of pilot plant production of Rare Earth Carbonate was achieved in the December quarter 2018. At the end of the June 2019 quarter, a total of 45,660kg of Rare Earth Carbonate had been produced since the beginning of the year to test the pilot plant operation and to collect data to feed back into the processing flowsheet.



The Company will continue to ramp up output from the pilot plant to steady state to assess technical viability of the process and the quality of the rare earth carbonate produced. The Company expects that incremental steps will be made from new knowledge from the testwork program to adjust both the rate of production, process efficiency and the quality of product.

The Duncan and Gordon Downs Roads that provide access to the Ringer Soak community and Browns Range, have been allocated \$51 million in joint funding by the Commonwealth and State Government in the WA FY2020 Budget. The three-year staged project will allow for the potential of uninterrupted access to Browns Range year-round and allow for production to run continuously once completed.

Further drilling at the Dazzler deposit has highlighted the potential of the deposit as a future high-grade ore source for Browns Range. RC drilling to the southeast of Dazzler and northwest of Iceman has highlighted a new target area, with three drill holes intersecting significant mineralization.



Figure 1: Panoramic view of the Browns Range Pilot Plant hydrometallurgical circuit



## Continued positive signs for the dysprosium and terbium prices

During the June quarter, the Company continued to report positive moves in both the dysprosium and terbium prices, with the Dy price per kilogram increasing by circa 62% and the Tb price up 38% over the period January 2019 through to the end of June 2019.

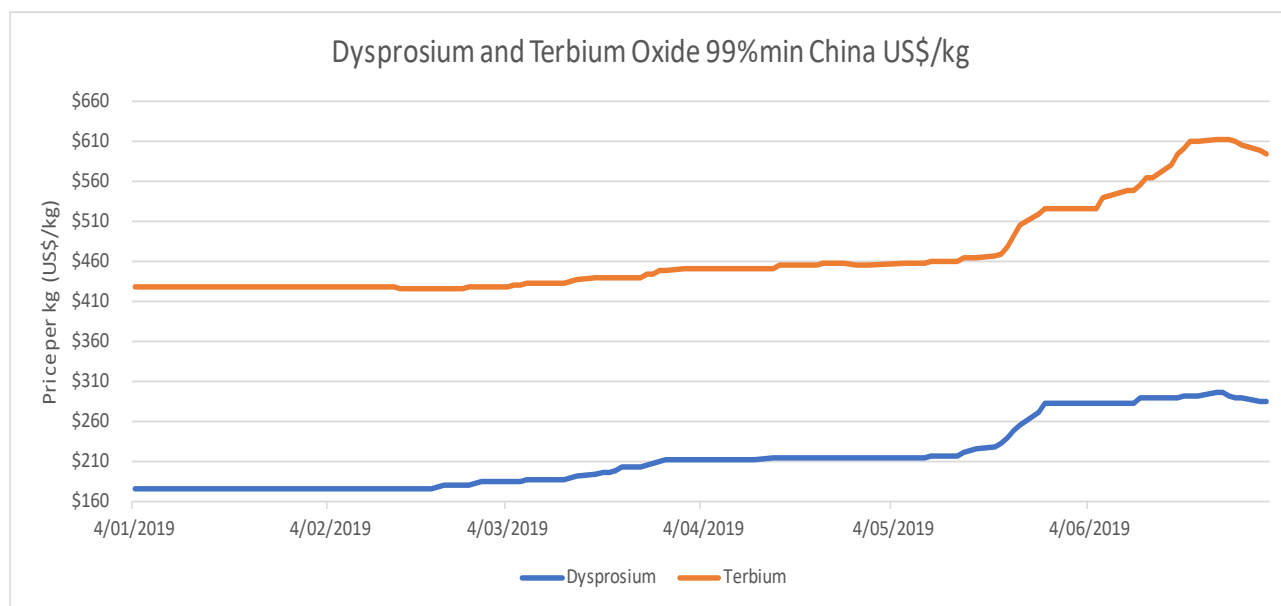


Figure 2: Dysprosium and Terbium Oxide Prices – H1 2019

Source: Asian Metals

## Browns Range commissioning continues

The Browns Range Pilot Plant Project has been developed in order to assess the economic and technical feasibility of a larger scale development. As this is the first hard rock xenotime-hosted rare earth development anywhere in the world, it is important that the Company fully understands and tests the metallurgical processes before committing to a full-scale development.

As such, 271 individual R&D experiments have been planned for the three-year pilot plant stage, with a number of experiments in the beneficiation and hydrometallurgical circuits already generating new knowledge and changes to the process.

While the Company is targeting continuous steady state production by mid 2020, the variable nature of the R&D program means that the Company is unlikely to be in a position to forecast production rates during the program.

Due to the uncertainty with regards to the AusIndustry assessment of the Company's R&D claim, a number of enhancement initiatives were paused during the quarter. However, following renewed interest from equity investors in the sector, the Company has raised new funds, including \$30 million post quarter end, and will recommence these investigations during the coming quarters.





Areas that will be expanded and accelerated as a result of the funding injection include:

- installation of an ore sorting circuit that has the potential to double the grade of the feed to the pilot plant and thereby increasing output;
- assessment of product separation techniques; and
- ramped up exploration program targeting Dazzler-style high-grade mineralisation.

During the June quarter, the plant commissioning continued, with various R&D tests undertaken and several components and system either modified or replaced during the period. The feed system for the kiln has been identified as an area that requires further modification, with these activities expected to occur early in the December quarter.

## Dazzler results shine

An RC drilling program was undertaken at Dazzler and Iceman during the quarter. A program of reverse circulation (RC) drilling was completed, with 17 holes for 1,143m completed at Dazzler and 5 holes for 300m at Iceman.

Drilling at Dazzler was mostly exploration drilling to the southeast of the deposit towards the Iceman prospect, with a further two infill drill holes successfully completed at Dazzler. Anomalous portable XRF (pXRF) measurements of yttrium have been recorded from several drill holes (see Table 1 below).

Table 1 – Dazzler Prospect RC drilling – Significant pXRF results (>1m >1000ppm pXRF yttrium)

Hole Id	Drill target	Width (m)*	From (m)	To (m)	Average pXRF Yttrium ppm
BRDR0021	Extension	3	9	12	1,109
BRDR0023	Infill	16	16	32	2,622
BRDR0030	Exploration	2	10	12	1,902
BRDR0030	Exploration	11	30	41	1,330
BRDR0032	Exploration	6	16	22	1,324
BRDR0035	Infill	38	19	57	23,538
		Inc. 18	22	40	48,352
BRDR0036	Exploration	8	3	11	2,582

“\*” Downhole widths only, true width is currently unknown.

All other drill holes from Dazzler not reported in the table above had no significant pXRF measurements of yttrium (i.e. nothing >1m @ >1,000ppm pXRF yttrium).





The RC drilling to the southeast of Dazzler and northwest of Iceman has highlighted a new target area, with three drill holes (BRDR0030, 0032 & 0036) intersecting zones with anomalous pXRF measurements of yttrium. There were no significant pXRF measurements of yttrium from the five RC drill holes completed at the Iceman prospect.

The measurement of yttrium using a pXRF is a method that has been used extensively at Browns Range. Historical data demonstrates final assayed Yttrium has a strong correlation with pXRF (Yttrium) field analysis of RC drill samples at Browns Range. However, the pXRF results that are the subject of this report are preliminary only and the “pXRF Yttrium” is only an indication of the expected order of magnitude for Yttrium final analysis. The analyses that are the subject of this report will be submitted for laboratory assay, and some variation from the results presented herein should be expected.

Final assay results from the drilling are still outstanding as at the date of this report.

## Northern Minerals to benefit from WA Budget

During the quarter, the WA State Government announced that it had allocated \$51 million of Commonwealth and State Government funds over three years to upgrade the Duncan and Gordon Downs Roads, which provide the main access route to the Ringer Soak Community and the Browns Range site. The upgrade of these roads should potentially allow uninterrupted access to Browns Range throughout the year, including during the wet season.

Currently, it is planned that the Browns Range Pilot Plant Project will operate for ten months of the year, however once the road upgrade is completed, the project will be capable of operating continuously throughout the year. The Company is appreciative of the support that it has received from the Commonwealth WA Governments since the project's inception.

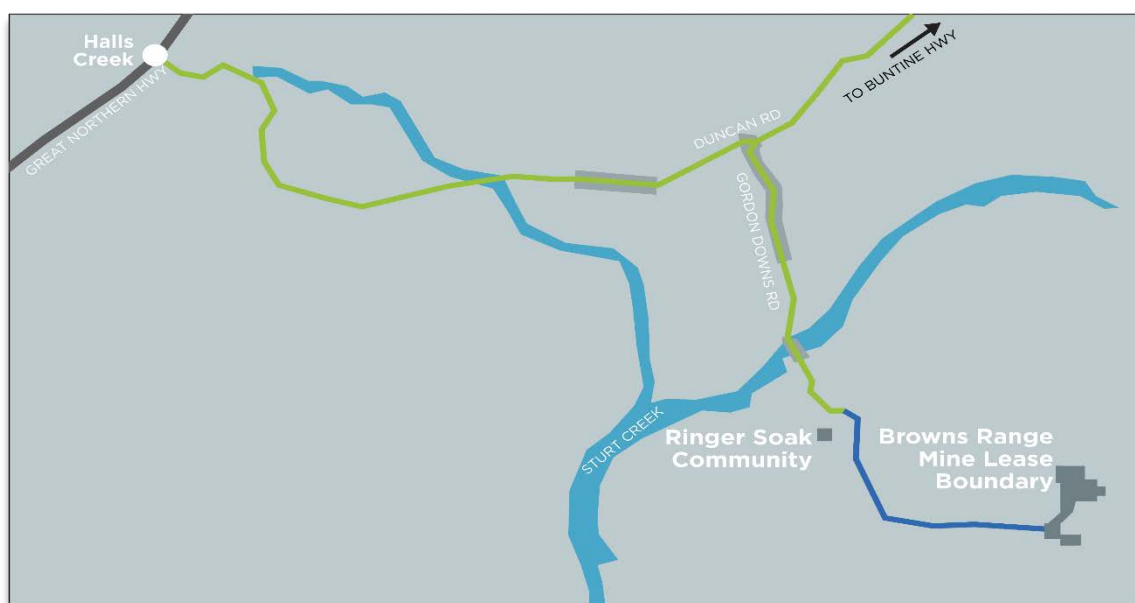


Figure 3: Map of local roads to be upgraded by the WA and Commonwealth Governments



## Corporate and Financial

### R&D refundable tax offset

On 14 May 2019, the Company received formal notification from AusIndustry that it is of the opinion that the Company's 2016/17 and 2017/18 R&D Claims relate to activities that are "ineligible R&D activities" which would not be eligible for the R&D tax offset for those income years.

The Company and its advisors are strongly of the view that the activities do constitute eligible R&D activities given that the Browns Range Project is the only xenotime-hosted heavy rare earth project anywhere in the world and there are no precedents for the development of a commercial scale beneficiation and hydrometallurgical process for the recovery of heavy rare earth elements.

The Browns Range Pilot Plant Project was conceived and developed as an R&D project in order to assess the economic and technical feasibility of a project intended to be up to 10x larger. Over 271 individual R&D experiments have been planned for the three-year program, at which time the Company believes it should have sufficient information to make an investment decision on a larger scale development.

The Company has lodged a formal appeal with AusIndustry regarding its decision. In the first instance, the R&D claims will be independently reviewed by an independent assessor within AusIndustry.

In the interim, the Company and the ATO have reached an in-principle agreement that will allow staged payments over 24 months of the 2016/17 refund and 2017/18 advanced payment amounts while the case is being appealed.

### Equity and Debt

#### February Placement completed

In February, the Company announced it had entered into multiple subscription agreements with sophisticated investors, for the placement of 400,000,000 fully paid ordinary shares in the Company at an issue price of A\$0.05 per share to raise A\$20 million (before costs).

During the quarter, tranches 2 and 3 were completed, with A\$10 million received and 200,000,000 shares issued.

Funds raised from the issues of these shares will be used for R&D, exploration and working capital purposes.

#### \$15 million Placement and Convertible Debt Agreement

On 23 April 2019, the Company announced that it had entered into Placement and Convertible Debt Agreements to raise A\$7.5 million each from unrelated sophisticated and professional investors. The Placement was priced at \$0.05 per share, with 150,000,000 Ordinary shares issued to the investors.





The Convertible Debt has the following terms and conditions:

- Interest rate: 10% per annum
- Term: Repayable or convertible by 30 June 2020
- Conversion price: \$0.10 per share
- Conversion conditions: at debt holders' election, the debt can be converted into Ordinary shares, subject to the Company either having sufficient authority to issue the shares or shareholder approval, whichever is applicable.

The Placement and Convertible Debt funds will be used to progress the Enhancement Initiatives at Browns Range, including ore sorting and product separation as well as strengthening the balance sheet. The funds were also used to pay down the R&D finance facility from Innovation Structured Finance Co., LLC and the Lind Facility. The security restrictions associated with the facilities has been removed.

### **\$21.95 million Placement and Accelerated Non-Renounceable Entitlement Offer**

In June 2019, in order to strengthen the Company's balance sheet, the Company completed a Placement to raise \$15 million via the issue of 333,333,333 shares at A\$0.045 to sophisticated and professional investors. In addition to the Placement, the Company announced that it intended to raise up to A\$6.95 million via an accelerated non-renounceable entitlement offer to eligible shareholders. The entitlement offer was priced at \$0.045 per share and was oversubscribed.

The Company intends to use the funds raised under the Placement and Entitlement Offer to:

- (1) meet commitments to the Australian Taxation Office (ATO) in accordance with the in-principle agreement with the ATO regarding repayment of amounts owing as described in the ASX announcement dated 5 June 2019 (pending the outcome of the Company's rights of review as described in the ASX announcement dated 17 May 2019);
- (2) progress the Company's enhancement initiatives at Browns Range, including further exploration, ore sorting and product separation; and
- (3) provide general working capital.

### **Post Quarter end - \$30 million Placement**

Post quarter end, the Company announced that it had entered into subscription agreements with sophisticated and wholesale clients of Argonaut Securities for the placement of 483,870,970 Ordinary shares at \$0.062 to raise A\$30 million. The funds will be used to accelerate and expand the project enhancement initiatives including ore sorting, product separation investigations, increased exploration, potential debt retirement and general working capital.

The Placement is split into three separate tranches with funds to be received by 23 July 2019, 9 August 2019 and 31 August 2019, as detailed below:







Tranche	Shares	Issue Price	Subscription Amount	Completion Date
1	158,720,430	A\$0.062	A\$9,840,667	On or before 23 July 2019
2	161,290,323	A\$0.062	A\$10,000,000	On or before 9 August 2019
3	163,860,217	A\$0.062	A\$10,159,333	On or before 31 August 2019
<b>Total</b>	<b>483,870,970</b>		<b>A\$30,000,000</b>	

The Placement is being undertaken within the Company's placement capacity under ASX Listing Rules 7.1 and 7.1A.

Specifically, all 158,720,430 Shares under Tranche 1 will be issued under the Company's placement capacity under Listing Rule 7.1A. 59,086,268 Shares under Tranche 2 will also be issued under the Company's placement capacity under Listing Rule 7.1A however, if this is not possible due to the 'minimum issue price' in Listing Rule 7.1A.3 not being satisfied, those Shares will be issued under the Company's placement capacity under Listing Rule 7.1. All of the Shares under Tranche 3 will be issued under the Company's placement capacity under Listing Rule 7.1. The Company may seek to ratify the issue of these Shares at its next general meeting.

## Director appointments

During the quarter, Northern Minerals appointed two new directors, Ms Xiaohua Liu and Mr Congyan Xue to the Board as non-executive directors.

Ms Liu is an investment banker, with over 7 years' experience in corporate advisory and equity markets, predominantly in China. Ms Liu is a Chinese citizen and resides in Beijing. Ms Liu has a Masters of Law from the China University of Geosciences in Beijing and a Bachelor of Law from Tianjin University of Commerce.

Mr Xue is a corporate finance executive, with over 15 years' experience in fundraising, corporate advisory and mergers and acquisitions, predominantly in China. Mr Xue is a Chinese citizen and resides in Beijing. Mr Xue has a Masters in Global Finance from the Hong Kong University of Science and Technology and the NYU Stern School of Business. He also holds a Masters degree in International Finance from the University of Leeds.

## Conferences and Marketing

During the June quarter, the Company presented at the 11<sup>th</sup> Rare Earth Summit in Qingdao and the Energize Tomorrow conference.

The Company hosted two site visits during the quarter, one for media and one for government, government agencies and industry representatives.



## September Quarter Activities

Key news flow expected during the September 2019 quarter includes:

- Continued testing of the R&D activities at the Browns Range Pilot Plant
- Potential update on the review of the Company's R&D claim by AusIndustry
- Completion of \$30 million Placement and shareholder approval of Placement/Convertible Note issue
- Ore sorter to be selected and engineering commences
- Research and testwork on product separation technologies
- Follow up drilling and metallurgical testwork at the Dazzler prospect, other Dazzler-style prospects and expanded regional exploration targets

**For further information:**

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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 production of heavy rare earth carbonate.

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.

The R&D Pilot Plant Project provides the opportunity to gain production experience, surety of supply for the Company's offtake partner and assess the economic and technical feasibility of the larger full-scale development.

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

### Compliance Statement

The information in this report relating to Exploration Results was compiled by Mr Robin Wilson who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Wilson is a full time employee of Northern Minerals Limited and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' (the JORC Code). Mr Wilson consents to the inclusion of this information in the form and context in which it appears.

The information in this announcement that relates to the Exploration Results at Dazzler is extracted from the report entitled "Encouraging portable XRF results from Dazzler drilling" dated 20th May 2019 and is available to view on the company's website ([www.northernminerals.com.au](http://www.northernminerals.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 and that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.



## Tenement Report

Project	Location	Tenement ID	State	Status	Holder Application	Interest
Browns Range WA	Browns Range	E80/4479	WA	Granted	Northern Minerals	100%
	Browns Range	E80/4806	WA	Surrendered	Northern Minerals	100%
	Browns Range	E80/4782	WA	Granted	Northern Minerals	100%
	Browns Range	E80/5040	WA	Granted	Northern Minerals	100%
	Browns Range	E80/5041	WA	Granted	Northern Minerals	100%
	Browns Range	M80/627	WA	Granted	Northern Minerals	100%
	Browns Range	L80/76	WA	Granted	Northern Minerals	100%
	Browns Range	L80/77	WA	Granted	Northern Minerals	100%
	Browns Range	L80/78	WA	Granted	Northern Minerals	100%
	Browns Range	L80/79	WA	Granted	Northern Minerals	100%
	Browns Range	E80/5260	WA	Application	Northern Minerals	100%
	Browns Range	E80/5261	WA	Application	Northern Minerals	100%
Browns Range NT	Browns Range	EL24193	NT	Granted	Northern Star Resources	REE rights only
	Browns Range	EL24174	NT	Granted	Northern Star Resources	REE rights only
	Browns Range	EL32161	NT	Application	Northern Minerals	100%
	Browns Range	EL26270	NT	Granted	Northern Star Resources	REE rights only
	Browns Range	EL26286	NT	Granted	Northern Star Resources	REE rights only
	Browns Range	EL32162	NT	Application	Northern Minerals	100%

## QUARTERLY ACTIVITIES REPORT

June 2019



John Galt	John Galt	E80/4298	WA	Granted	Northern Minerals	100%
	John Galt	E80/4779	WA	Surrendered	Northern Minerals	100%
	John Galt	E80/4967	WA	Granted	Northern Minerals	100%
	John Galt	E80/5070	WA	Granted	Northern Minerals	100%
	John Galt	E80/5230	WA	Application	Northern Minerals	100%
Boulder Ridge	Boulder Ridge	EL29594	NT	Granted	Northern Minerals	100% (excluding gold rights)
	Boulder Ridge	EL24849	NT	Application	Northern Minerals	100% (excluding gold rights)
	Boulder Ridge	EL24935	NT	Application	Northern Minerals	100% (excluding gold rights)
Gardiner-Tanami NT	Boulder Ridge	EL24177	NT	Granted	Northern Star Resources	REE rights only
	Boulder Ridge	EL25171	NT	Granted	Northern Star Resources	REE rights only
	Tanami	EL23932	NT	Granted	Northern Star Resources	REE rights only
	Tanami	EL25009	NT	Granted	Northern Star Resources	REE rights only
	Ware Range	EL26498	NT	Granted	Northern Star Resources	REE rights only
	Ware Range	EL26541	NT	Granted	Northern Star Resources	REE rights only
	Parguee	EL27367	NT	Granted	Northern Star Resources	REE rights only
	Tanami	EL29592	NT	Granted	Northern Star Resources	REE rights only
	Tanami	EL29593	NT	Granted	Northern Star Resources	REE rights only
	Tanami	EL29595	NT	Granted	Northern Star Resources	REE rights only
	Ware Range	EL24179	NT	Application	Northern Star Resources	REE rights only



## QUARTERLY ACTIVITIES REPORT

June 2019



Gardiner-Tanami NT	Ware Range	EL24947	NT	Application	Northern Star Resources	REE rights only
	Ware Range	EL25003	NT	Application	Northern Star Resources	REE rights only
	Ware Range	EL25004	NT	Application	Northern Star Resources	REE rights only
	Tanami	EL32163	NT	Application	Northern Star Resources	REE rights only
	Tanami	EL29619	NT	Application	Northern Star Resources	REE rights only
	Tanami	EL29621	NT	Application	Northern Star Resources	REE rights only
	Tanami	EL26635	NT	Granted	Northern Star Resources	REE rights only
	Boulder Ridge	EL28868	NT	Application	Northern Star Resources	REE rights only
	Boulder Ridge	EL30132	NT	Application	Northern Star Resources	REE rights only
	Boulder Ridge	EL27590	NT	Granted	Northern Star Resources	REE rights only
Rabbit Flats	Rabbit Flats 1	EL25157	NT	Application	Northern Star Resources	REE rights only
	Rabbit Flats 2	EL25158	NT	Application	Northern Star Resources	REE rights only
	Rabbit Flats 3	EL25159	NT	Application	Northern Star Resources	REE rights only
	Rabbit Flats 4	EL25160	NT	Application	Northern Star Resources	REE rights only
	Rabbit Flats 5	EL23935	NT	Application	Northern Star Resources	REE rights only
Kurundi	Kurundi	EL29616	NT	Granted	Horn Resources	REE rights only



# NORTHERN MINERALS

Powering Technology.

## Contact:

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Managing Director/CEO

Mark Tory  
Chief Financial Officer/ Company  
Secretary  
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## Directors:

Colin McCavana  
Non-executive Chairman

George Bauk  
Managing Director / CEO

Adrian Griffin  
Non-executive Director

Yanchung Wang  
Non-executive Director

Ming Lu  
Non-executive Director

Congyang Xue  
Non-executive Director

Xiaohua Liu  
Non-executive Director

Bin Cai  
Alternate Director

## Management:

Robin Jones  
Chief Operating Officer

Robin Wilson  
Exploration Manager

Mark Tory  
CFO/ Company Secretary

Tony Hadley  
General Manager

Eben Van Rooyen  
Engineering Manager

## About Northern Minerals

Northern Minerals Limited (ASX:NTU; Northern Minerals or the Company) is focused on production from the Browns Range Heavy Rare Earth Pilot Plant Project in northern Western Australia. The Browns Range Project is the first and only meaningful producer of dysprosium outside of China.

Commissioning is progressing on the three-year pilot plant project with first production of heavy rare earth carbonate in October 2018. The pilot plant development will continue with its R&D studies and will provide the opportunity to gain production experience, surety of supply for our offtake partner and assess the economic and technical feasibility of the larger full scale development.

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