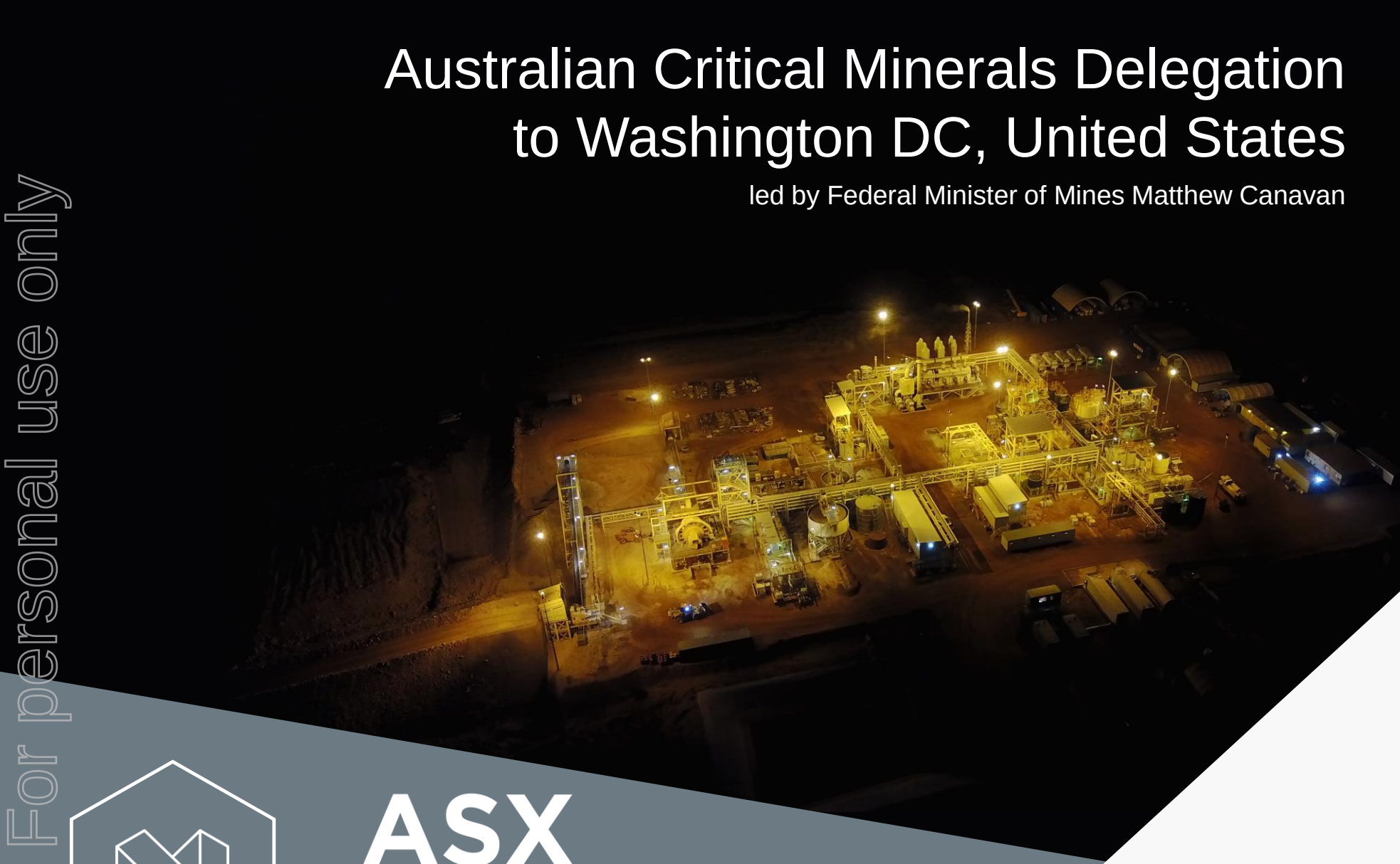
Australian Critical Minerals Delegation to Washington DC, United States

led by Federal Minister of Mines Matthew Canavan



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NORTHERN MINERALS

ASX NTU

November 2019

Presented by
George Bauk
MANAGING DIRECTOR / CEO

Disclaimer

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This document is of a summary form only and therefore contains general background information which may not be complete. It should be read in conjunction with and full review made of Northern Minerals disclosures and releases lodged with the Australian Securities Exchange ("ASX") and available at www.asx.com.au.

This document contains certain statements which may constitute "forward-looking statements." Such statements are only expectations or beliefs and are subject to inherent risks and uncertainties which could cause actual values, results or performance achievements to differ materially from those expressed or implied in this document. No representation or warranty, express or implied is made by Northern Minerals that any forward-looking statement contained in this document will occur, be achieve or prove to be correct. You are cautioned against relying upon any forward-looking statement. Except for statutory liability which cannot be excluded, each of Northern Minerals and its related body corporates and their officers, employees and advisers expressly disclaims any responsibility for the accuracy or completeness of the material contained in this document and excludes all liability whatsoever (including in negligence) for any loss or damage which may be suffered by any person as a consequence of any information in this document or any error in it or omission from it. Northern Minerals accepts no responsibility to update any person regarding any inaccuracy, omission or change in information in this document or any other information made available to a person, nor any obligation to furnish the person with any further information.

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Compliance Statement

The information in this document that relates to the Mineral Resource Estimates of the Wolverine, Gambit, Gambit West, Area 5, Cyclops, Banshee deposits and Pilot Plant Stockpiles is extracted from the Company's ASX Announcement dated 28 September 2018 entitled "Mineral Resource and Ore Reserve Update – Post Trial Mining Operations at June 30 2018" available to view on the Company's website (www.northernminerals.com.au) and www.asx.com.au, and was completed in accordance with the guidelines of the JORC Code (2012). 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 Mineral Resource 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.

The information in this document that relates to the Mineral Resource Estimate for the Dazzler deposit is extracted from the Company's ASX Announcement dated 6 March 2019 entitled "Dazzler shines with high-grade Maiden Mineral Resource" available to view on the Company's website (www.northernminerals.com.au) and www.asx.com.au, and was completed in accordance with the guidelines of the JORC Code (2012). 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 Mineral Resource 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.

The information in this document that relates to Ore Reserves is extracted from the Company's ASX Announcement dated 28 September 2018 entitled "Mineral Resource and Ore Reserve Update – Post Trial Mining Operations at June 30 2018" available to view on the Company's website (www.northernminerals.com.au) and www.asx.com.au, and was completed in accordance with the guidelines of the JORC Code (2012). 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 Ore Reserves 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.

The information in this document that relates to the Exploration Results from the Iceman deposit is extracted from the Company's ASX Announcement dated 11 September 2018 entitled "Assay results confirm Dazzler and Iceman discoveries" available to view on the Company's website (www.northernminerals.com.au) and www.asx.com.au, and was completed in accordance with the guidelines of the JORC Code (2012). 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 Exploration Results 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.

The information in this document that relates to production targets and forecast financial information derived from a production target is extracted from the Company's ASX Announcement dated 2 March 2015 entitled "DFS positions Browns Range Project as next dysprosium supplier" available to view on the Company's website (www.northernminerals.com.au) and www.asx.com.au. The Company confirms that all material assumptions underpinning the production targets and forecast financial information in the announcement released on 2 March 2015 continue to apply and have not materially changed.

TREO = Total Rare Earth Oxides – La_2O_3, CeO_2, Pr_6O_{11}, Nd_2O_3, Sm_2O_3, Eu_2O_3, Gd_2O_3, Tb_4O_7, Dy_2O_3, Ho_2O_3, Er_2O_3, Tm_2O_3, Yb_2O_3, Lu_2O_3, Y_2O_3
HREO = Heavy Rare Earth Oxides – Total of Sm_2O_3, Eu_2O_3, Gd_2O_3, Tb_4O_7, Dy_2O_3, Ho_2O_3, Er_2O_3, Tm_2O_3, Yb_2O_3, Lu_2O_3, Y_2O_3

Investor Presentation

Rare Earths news coverage

New financing measures to help build critical minerals sector

14 November 2019

Joint media release with Minister for Trade, Tourism and Investment, Simon Birmingham MP, and Minister for Defence, Senator Linda Reynolds

Australia has world-leading deposits of rare earth and critical minerals representing a substantial commercial opportunity. The Australian Government will secure the future of rare earth and critical mineral projects, including those strategically important to defence end-use, with new financial options and a dedicated project facilitation office within the Department of Industry.

Projects which boost our ability to extract and process critical minerals in Australia will be eligible for financial support through Export Finance Australia (EFA) including the Defence Export Facility. Changes will also be made to allow projects to access dual funding through the EFA as well as the Northern Australia Infrastructure Facility (NAIF).

Minister for Resources and Northern Australia Matt Canavan said the new arrangements meant Australian companies would be able to maximise their access to existing government support to expedite new rare earth and critical mineral processing activities in Australia.

"We are determined to develop our rare earth and critical mineral assets for the benefit of Australia and our technology-driven industries. By allowing proponents to secure financing through both EFA and the NAIF, we are enhancing opportunities for our critical mineral sector. This opens up new opportunities in trade and manufacturing, creating jobs of the future for thousands of Australians.

6 News

Thursday 14 November 2019
The Australian Financial Review | www.afr.com AFR

Canberra splashes cash for rare earths

Exclusive

Brad Thompson

The Morrison government is pulling out all stops to make cheap money available for rare earths and other critical minerals projects as it works with the United States on ways to reduce China's near stranglehold on supply.

The government will set up a dedicated office within the Department of Industry as it looks to secure critical minerals projects in Australia with an emphasis on those strategically important in defence.

Defence Minister Linda Reynolds said the government's moves would "help deliver the capability that keeps Australia safe".

The government will make projects that boost mining and processing of rare earths and other key ingredients in military technology eligible for financial support through Export Finance Australia, including the Defence Export Facility.

The government is also tweaking rules around the much-maligned $5 billion Northern Australian Infrastructure Facility so the granting of its low-interest loans does not exclude projects from additional taxpayer-funded support.

Key points

- Dedicated office to be set up to secure critical minerals projects used in defence.
- Strategic goal to reduce Australian and US reliance on Chinese resources.

The critical minerals push comes as Resources Minister Matt Canavan and US Commerce Secretary Wilbur Ross prepare to co-chair a meeting of the US-Australia Critical Minerals Dialogue in Washington on Tuesday.

Australia and the US have made it clear they are worried about rare earths supply in particular because the resources are needed in leading-edge technology, including guided missile systems and other defence equipment.

China's President Xi Jinping raised fears of cutting off supply in May when he made a pointed visit to a rare earths plant in a flashpoint in his trade battles with US President Donald Trump.

The plant he visited has separated heavy rare earths supplied by ASX-listed Lynas Corporation, the world's biggest non-China producer. Senator Canavan said Australian firms could maximise access to government support to expedite new on-shore rare earths and critical minerals processing.

"We are determined to develop our rare earths and critical minerals assets for the benefit of Australia and our technology-driven industries," he said.

The dedicated office with the Department of Industry will be tasked with helping industry players with investment, financing and market access.

Senator Canavan said Australia should become a global powerhouse in critical minerals needed in electric vehicles, smartphones and renewable energy as well as the military.

Senator Reynolds, who in August welcomed a move by emerging heavy rare earths supplier Northern Minerals to sign a 100 per cent off-take agreement with a non-Chinese customer in Thyssenkrupp, said critical minerals were inputs to defence capability.

"These measures will play a vital role in supporting a secure, ethical and sustainable supply of critical minerals, and in doing that help deliver the capability that keeps Australians safe," she said.

It is understood the US military has welcomed moves by Lynas to develop rare earths processing capacity in Texas under a joint venture with Blue Line Corporation that would produce high-value dysprosium and terbium.

Lynas sends rare earths mined at Mount Weld in WA to its plant in Malaysia, where it produces neodymium and praseodymium but cannot separate dysprosium and terbium.

Malaysian authorities have given Lynas a deadline to build a new first-stage processing plant in Australia.

Rare earths scramble

Exclusive | The Morrison government is pulling out all stops to make cheap money available for rare earths and other critical minerals projects as it works with the US to reduce China's near stranglehold on supply. It will set up an office specifically to secure critical minerals projects strategically important in defence.

Canavan heads to US to punt critical minerals

15TH NOVEMBER 2019 BY: ESMARIE IANNUCCI - CREAMER MEDIA SENIOR DEPUTY EDITOR: AUSTRALASIA

PERTH (miningweekly.com) – Federal Resources Minister **Matt Canavan** on Friday said that he would use high-level talks in the US over the coming week to promote Australia as an emerging producer of critical minerals and a reliable global supplier of resources and energy.

Canavan is travelling to the US for talks with senior members of the US government and to meet executives of major mining, manufacturing and resources companies.

He will meet Commerce Secretary **Wilbur Ross** and US Secretary of the Interior **David Bernhardt** to promote Australia's emerging critical minerals sector and to push for international cooperation to help boost the global trade and diversified supply of critical minerals.

"Critical minerals and rare earths are crucial to the high-technology industries of the future and are essential components of batteries, wind turbines, LCD screens, solar panels, microchips and even mobile phones," Canavan said.

"The US has a need for critical minerals and Australia's abundant supplies makes us a reliable and secure international supplier of a wide range of those including rare earth elements.

"Mining and resources have underpinned Australia's economic growth and prosperity for more than 100 years, and the critical minerals sector provides an exciting opportunity to build on that foundation as a safe and reliable supplier to the world."

The visit builds on the September agreement between Prime Minister **Scott Morrison** and President **Donald Trump** to develop a US-Australia Action Plan for Critical Minerals Cooperation to support investment, research and development, and diversity in critical minerals supply chains.

Miners to secure defence funding

PAUL GARVEY

A $4.4bn fund for defence exports will be thrown open to potential rare earths miners as part of the federal government's latest efforts to stimulate a new wave of mining projects.

Federal Resources Minister Matt Canavan will today announce that would-be rare earths miners will be able to apply for support from Export Finance Australia's defence export facility, opening a new avenue of government funding for the industry.

Mr Canavan, who will fly to the US on Thursday for a series of meetings with senior US government officials in Washington next week, said the government would also open a new facilitation office to support companies looking to secure investment and finance for their so-called "critical mineral" projects.

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Dysprosium – critical to the future

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Chinese dominance

State controlled production from largely dirty in situ leach deposits

US critical alert

Trump Government identified rare earths as critical to US economic growth

Defence reliance

98% of dysprosium production currently from China

With each electric vehicle using just over 100g of dysprosium, the company understands that demand may increase to over 3,500tpa by 2030. With over 98% of Dy production from China, there is strong interest in the US and globally for new, sustainable sources of supply.

The competition is unethical

Southern China in situ leach mining operation

Northern Minerals Browns Range Pilot Plant

- 98% of world's heavy rare earths are produced by China;
- Many operations are in situ leach operations, which are dirty and environmentally dangerous;
- Leaching affects the groundwater and water table, making it unsafe for residents;
- Chinese Government has clamped down on illegal operators, either by shutting down or 'legalising' through assimilation into current operators;
- Mining and processing methods largely due to low grade ore, 20 - 40 ppm Dy versus Browns Range 600 – 800 ppm Dy.

China dominates global supply including unethical supply, not green not clean.

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Dysprosium price is up 27% since the start of 2019

Source: Asian Metals

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NORTHERN MINERALS

Value proposition

Globally significant

Browns Range is one of a few non-Chinese producers of dysprosium

Initiatives

Several projects underway, including ore sorting and separation, to increase value

EV growth & military use

A key ingredient in permanent magnets used in EVs and military use

Exploration upside

New Dazzler Mineral Resource points to improved economics

Pilot plant production

Commissioning has commenced and mixed rare earth carbonate produced

Stable investment jurisdiction

First world economy, infrastructure, environmental and work practices

Browns Range East Kimberley, WA

A ten year $235m journey

	DISCOVERY	EXPLORATION	EVALUATION AND APPROVALS			DFS	NEW PLAN	DEVELOPMENT		PRODUCTION
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019

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Our Aspiration

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Test Pilot Plant

Mine xenotime ore
Produce mixed RE carbonate
Export to offtake customers

02 Refine Project

Validate & refine flowsheet
Implement ore sorting
Improve xenotime conc. grade
Investigate plant efficiencies

03 Develop Full Project

Economies of scale
New customer base
Global disruption to supply

Downstream Potential

Product separation
Satellite deposits
New RE revenue streams

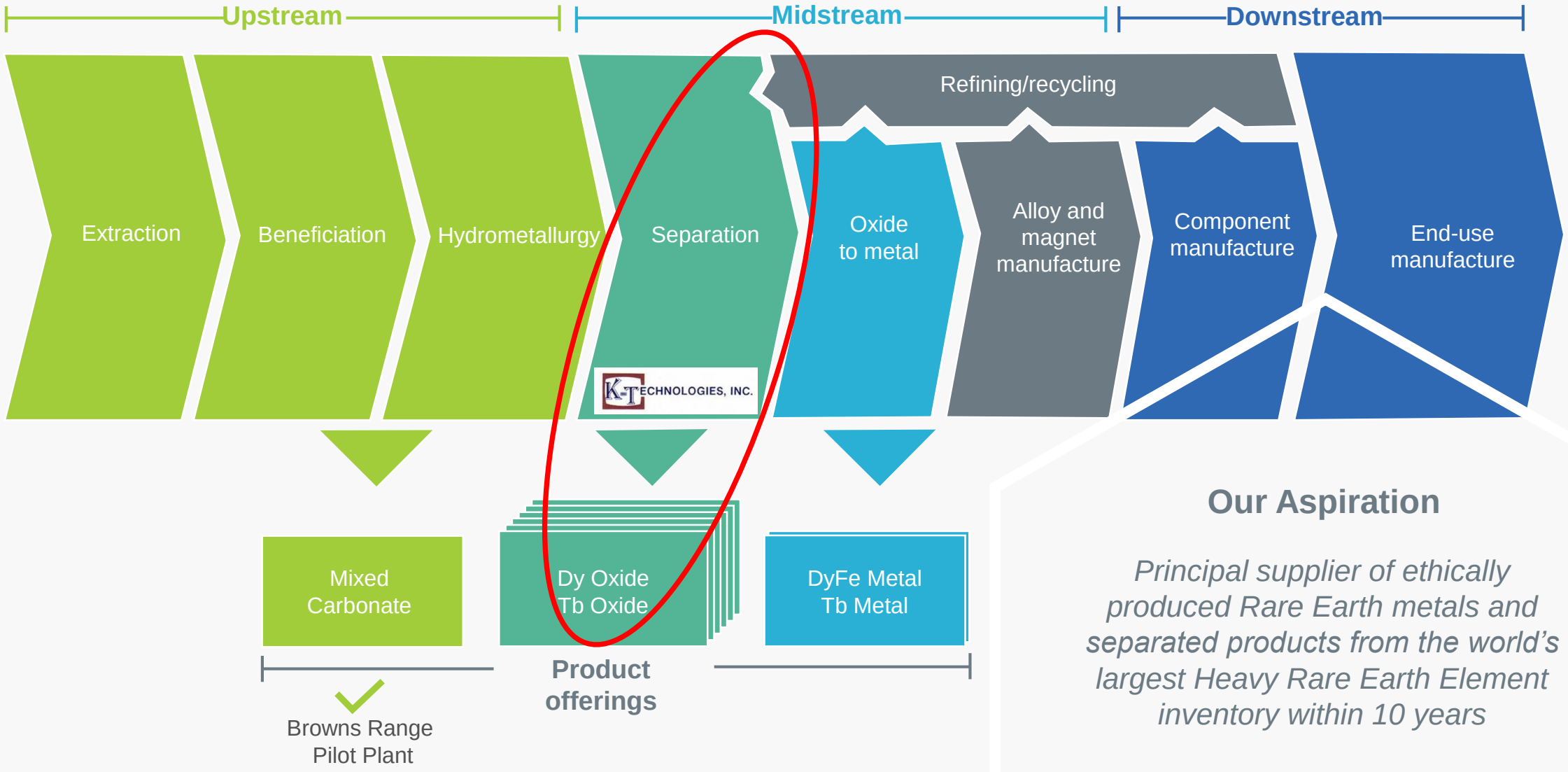
Accelerate Exploration

Goals include:
Increased mine life
Improve head grade
Targeting 20+ year mine life

Principal supplier of ethically produced rare earth metals and separated products from the world's largest heavy rare earth element inventory within 10 years

=> Decision point on whether to proceed to next stage

Rare earth magnet supply chain



Our Aspiration

Principal supplier of ethically produced Rare Earth metals and separated products from the world's largest Heavy Rare Earth Element inventory within 10 years

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Browns Range Pilot Plant flowsheet

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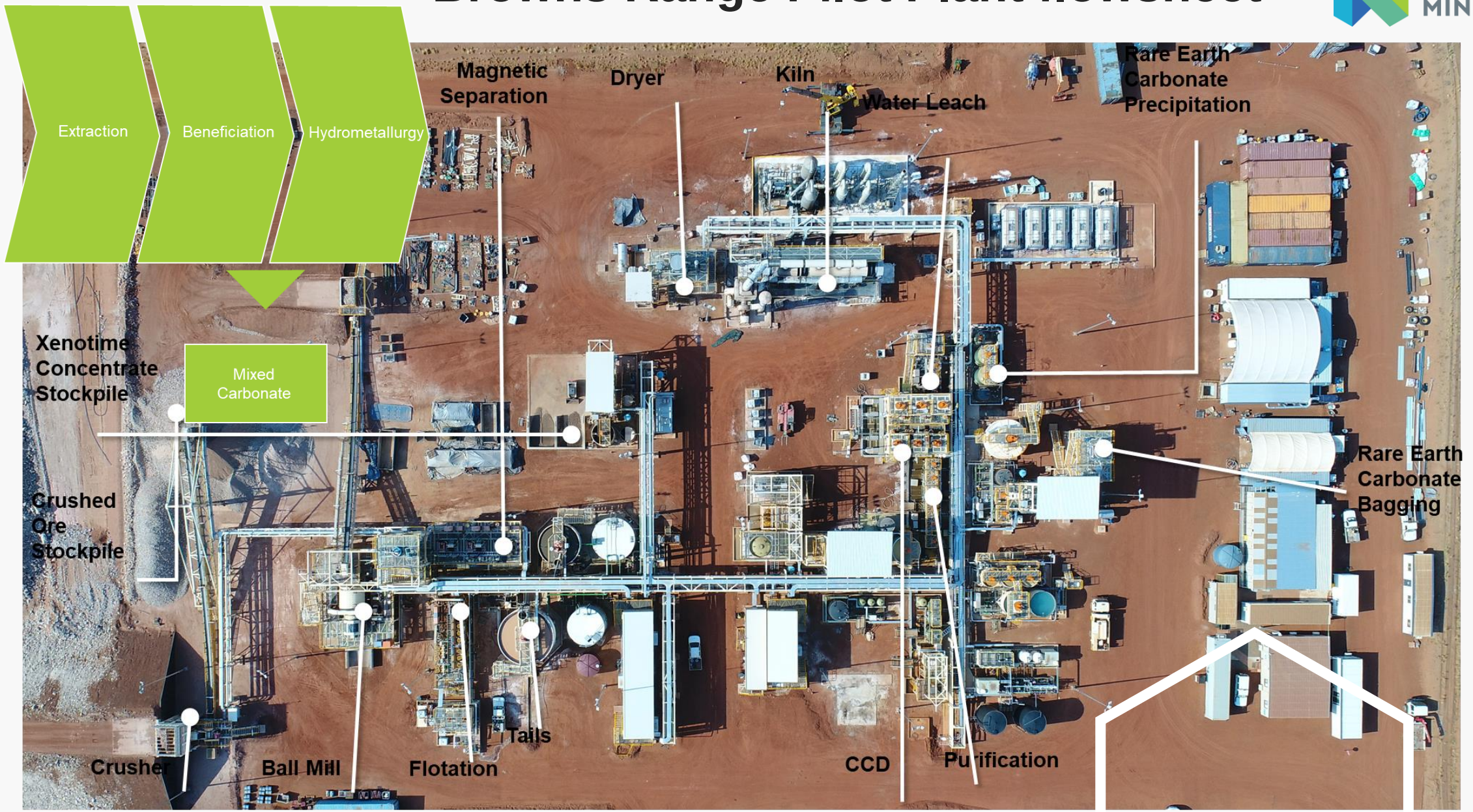

Quality offtake partner - thyssenkrupp

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Northern Minerals has entered into an offtake agreement with thyssenkrupp Materials Trading GmbH (thyssenkrupp) for all mixed heavy rare earth carbonate from the Browns Range Pilot Plant Project, including all stockpiled product.

The agreement also includes an option for thyssenkrupp to participate in the potential full-scale project.

thyssenkrupp

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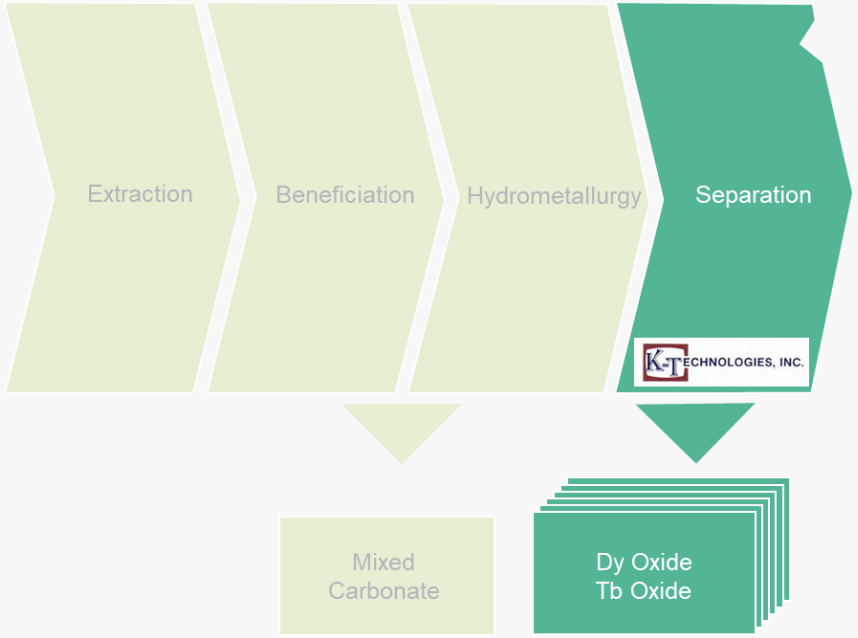

Rare earth separation scoping study underway

K-TECHNOLOGIES, INC.

- Scoping study commenced to investigate downstream processing of mixed rare earths into separated rare earth oxides;
- U.S.A based K-Technologies Inc selected to undertake bench scale testwork and Scoping Study;
- Samples dispatched to the U.S.A and testwork commenced in September 2019;
- Preliminary results positive Continuous Ion Exchange and Continuous Ion Chromatography testwork;
- If successful, the addition of separation technologies will allow the Company to value-add and increase the range of potential customers.

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Further exploration underway

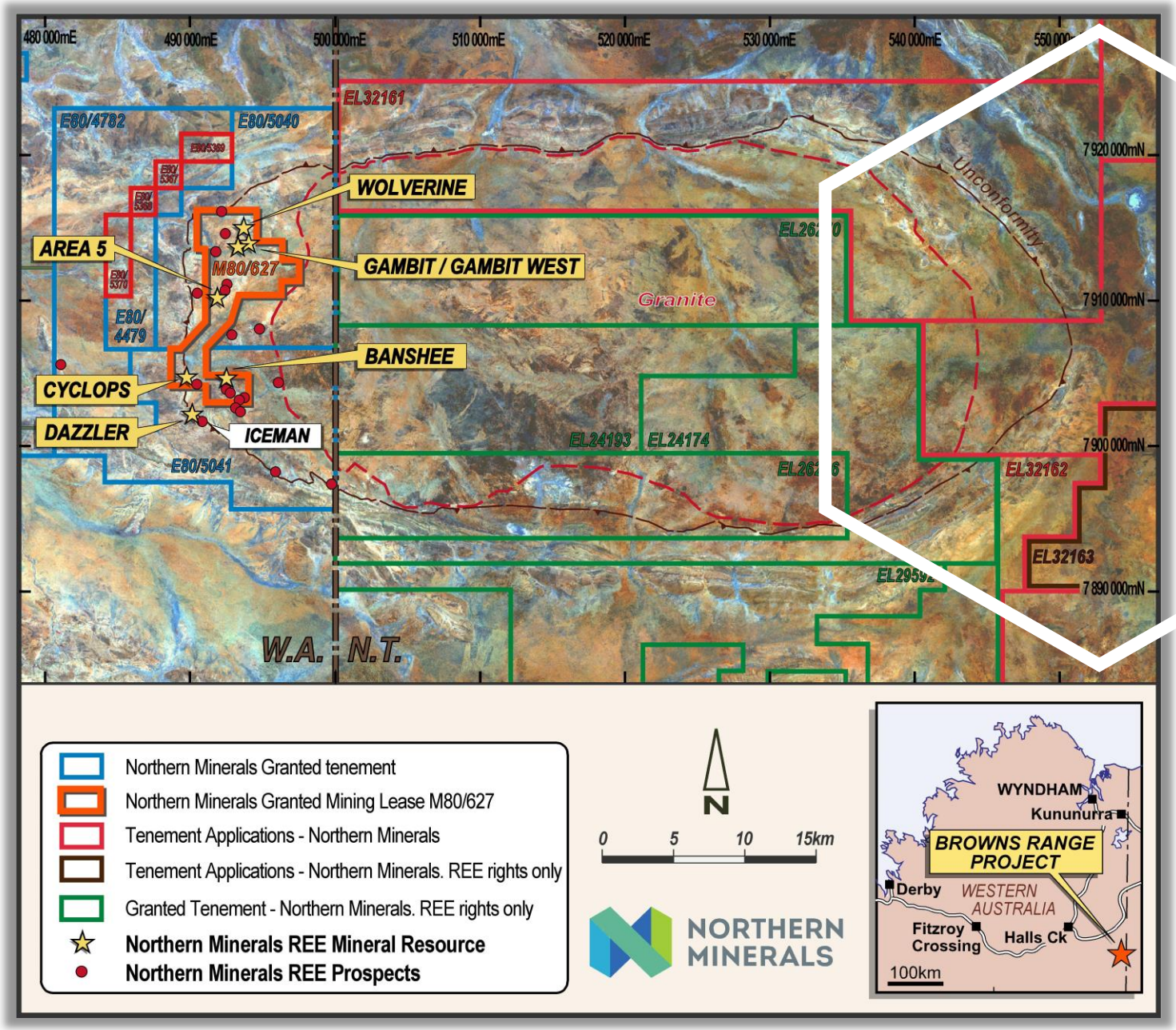
The Browns Range dome is a massive geological feature covering 1,500km^2 and stretching 60km x 30km most of which hasn't been effectively explored

Current 11-year mine life

Based on 3000t TREO annual production (reported in accordance with reporting criteria of the 2012 JORC code as per ASX announcement on 23 March 2016)

20+ year life target

Focus on growing mine life from 11 years to +20 through high grade discoveries such as Dazzler in 2018.



Dazzler Mineral Resource

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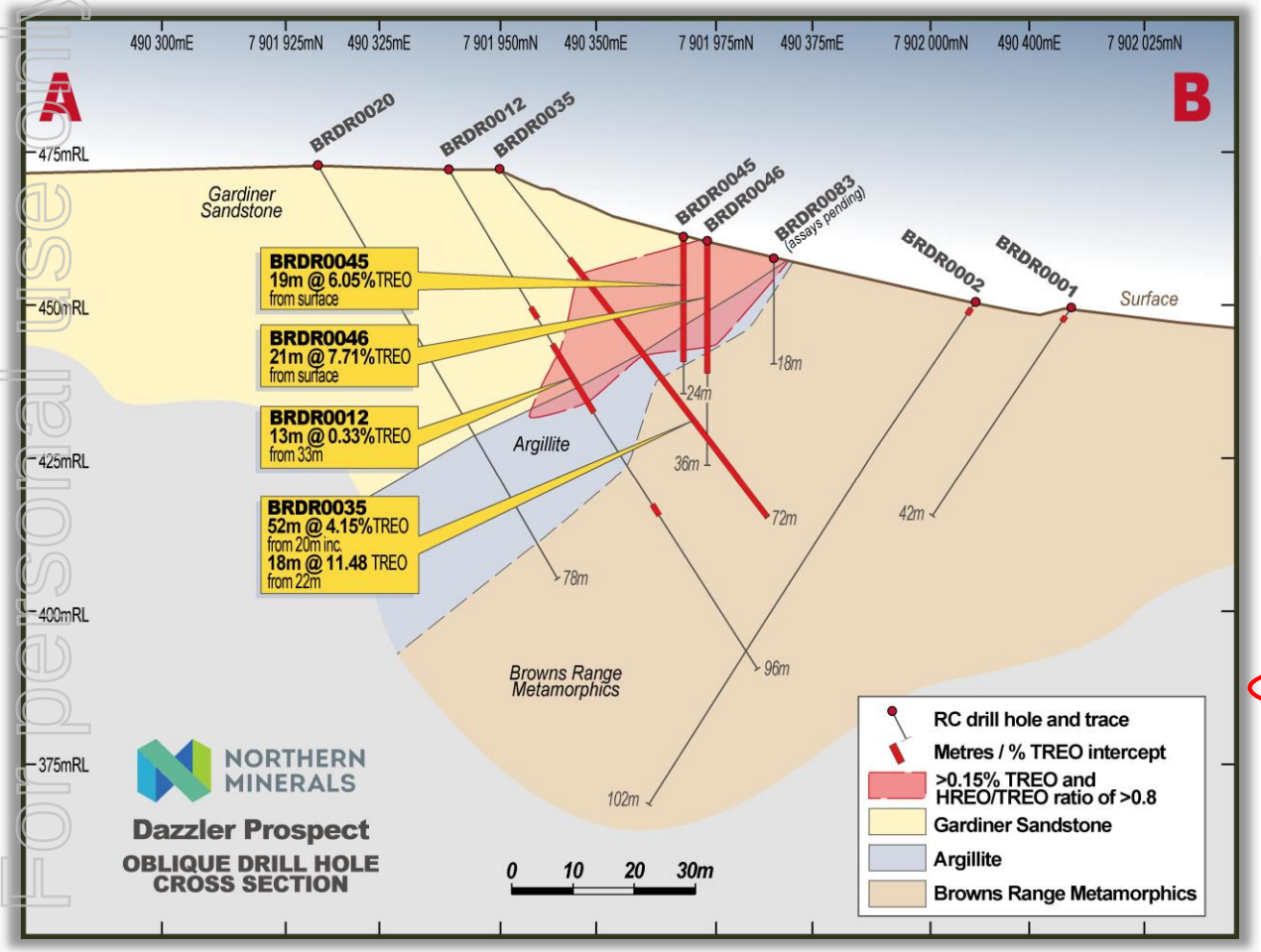

Category	Mt	TREO	Dy_2O_3	Y_2O_3	Tb_4O_7	HREO	TREO
		%	kg/t	kg/t	kg/t	%	kg
Indicated	-	-	-	-	-	-	-
Inferred	0.14	2.23	2.08	12.79	0.27	93	3,200,000
Total	0.14	2.23	2.08	12.79	0.27	93	3,200,000

REO	% of Total REO
La_2O_3	1.20
CeO_2	3.44
Pr_6O_{11}	0.48
Nd_2O_3	2.21
Sm_2O_3	1.40
Eu_2O_3	0.46
Gd_2O_3	4.88
Tb_4O_7	1.21
Dy_2O_3	9.32
Ho_2O_3	2.13
Er_2O_3	6.89
Tm_2O_3	1.09
Yb_2O_3	7.05
Y_2O_3	57.30
Lu_2O_3	0.95

Strengthening our balance sheet

In the year 2019 to date we have:

- Raised and banked A$73m;
- Repaid A$27m to close out Brevet R&D loan;
- Repaid the Lind facility;
- A$20m subscription announced – subject to FIRB / Shareholder Approval;
- 1st Payment made to Sinosteel of A$2.1m in Oct 19.

The key focus for the remainder of the year is:

- R&D appeal process is underway with AusIndustry as we repay ATO total of $14.5m (A$11.4m remaining - 24 month payment plan);
- Continue to repay debt:
  - Continue to pay monthly ATO debt;
  - Repay JHY convertible note of A$4m (Dec 19) with cash or shares at the election of JHY.

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NTU Board

Colin McCavana
Non-executive Chairman
appointed 2006

Mr McCavana has more than 35 years of management experience worldwide in the earthworks, construction and mining industries.

George Bauk
Managing Director / CEO
appointed 2010

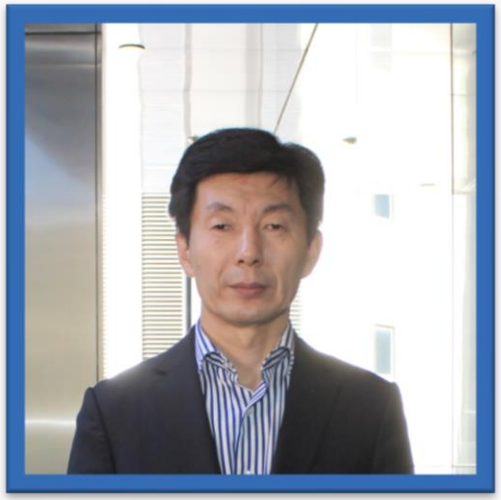
Mr Bauk is an experienced executive, with 30 years' experience in the resources industry. Mr Bauk is Chairman of Lithium Australia and Non-executive Director of BlackEarth Minerals.

Adrian Griffin
Non-executive Director
appointed 2006

An Australian trained mining professional with exposure to metal mining and processing throughout the world, Mr Griffin has been involved in the development of extraction technology for platinum group metals and agricultural commodities.

Ming Lu
Non-executive Director
appointed 2018

Mr Lu is a CPA qualified senior finance leader with over a decade of commercial experience in successful multinational businesses worldwide.



Bin Cai*
Alternate Non-executive Director
Appointed 2013

Yanchung Wang
Non-executive Director
(appointed 2013) (not in photo)

Ms Wang acts as a strategic investor for a number of Chinese based companies.

*Mr Cai is the MD of Conglin International Investment Group Pty Ltd based in Brisbane.

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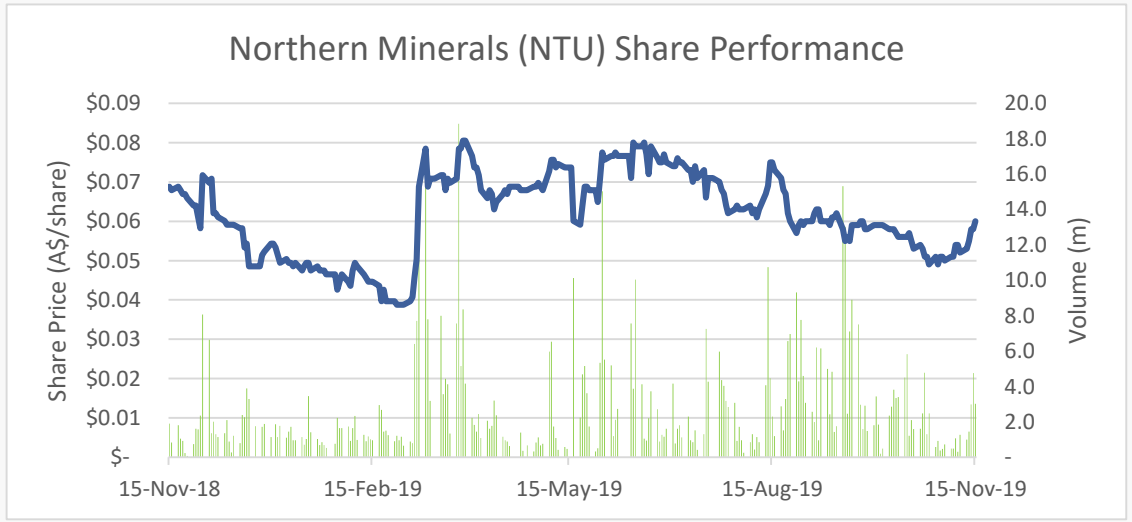
Corporate overview

Major shareholders	31 October 2019
Citicorp Nominees	16.3%
ACIIG	8.3%
Huatai Mining Pty Ltd	7.2%
Congyan Xue	5.5%
Remaining Top 20	23.6%
Other	39.1%

Source: Iress

Ordinary Shares as at 15 November 2019	2,555M
Options and Performance Rights as at 15 November 2019	115M
Market Capitalisation as at 15 November 2019	$153M
Cash (30 September 2019)	$18.8M
Debt (as at 31 October 2019): ATO (under appeal with AusIndustry) Sinosteel Convertible Notes (unsecured)	 $11.4M $8.3M $11.5M
Plant book value	$70M
12 month low - high	$0.0388 -$0.0805
Average daily volume (12 month avg)	2,685M

All amounts in AUD



Source: Iress

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In 2020 we will:

- accelerate exploration aiming to expand the resource base;
- implement ore sorting;
- reach nameplate capacity of the pilot plant;
- complete separation scoping study;
- continue to test the economic and technical viability of the pilot plant.

Why invest in Northern Minerals?

US and Australian Governments have identified a crisis in the supply chain for rare earths, in particular for dysprosium and terbium products.

US and Australian Governments have taken action to facilitate the development of alternative and ethical rare earths supply chains.

Northern Minerals is a producer of rare earths in Australia.

Northern Minerals aspires to be the principal supplier of ethically produced rare earth metals and separated products from the world's largest heavy rare earth element inventory within 10 years.

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Thank you

ASX
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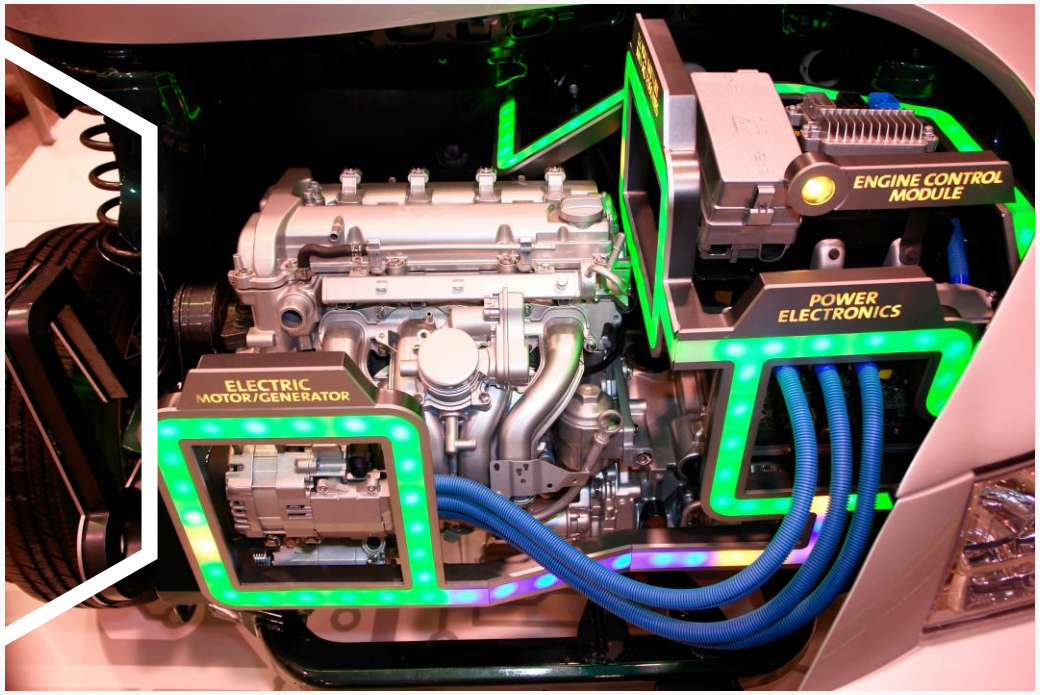

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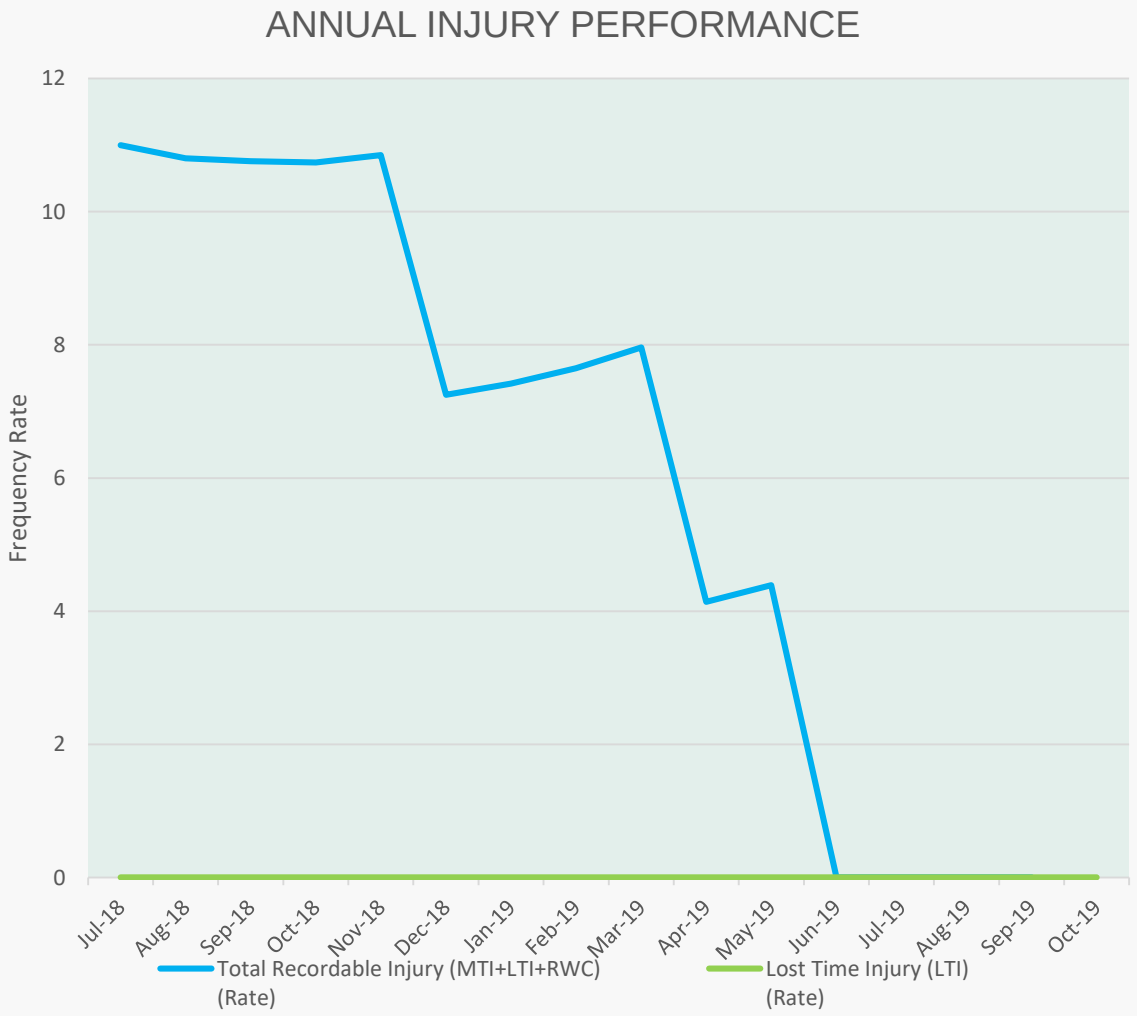
APPENDICES

Health and Safety



- No LTI at the operation for 2 years;
- TRIFR reached zero in June 2019;
- Emergency Response training – e.g. confined space rescue;
- Improvement in Safety Culture;
- Enhancing safety team;
- Crisis Management Training.

Total Recordable Injury Frequency Rate calculations measure the total number of recordable injuries (MTI+LTI+RWC, excluding First Aid) per million hours worked, where MTI = Medical Treatment Injury, LTI = Lost Time Injury, RWC = Restricted Work Case

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Environment

- Committed to ethically produced rare earths;
- Environmental Management System in place;
- Updated Mine Closure Plan submitted to DMIRS;
- Progressive rehabilitation as areas become available;
- Expanding the environment team;
- Ore sorter approvals underway;
- Dingo Risk Management Strategy - long-term welfare of the local dingo population and the safety of site personnel and visitors;
- Solar power evaluation for camp underway.

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Corporate leadership

Our people embody the Northern Minerals SPIRIT, a culture of continually striving to deliver exceptional outcomes, leadership and improvements.

CFO

Mark Tory
CFO and **Company Secretary**

Specialist in innovative finance and capital management

EO

Bin Cai
Executive Officer

Bin has a record of successful strategic investments in emerging Australian resources companies.

GEM

Robin Wilson
Geology and Exploration Manager

Original Browns Range discoverer, on the hunt for new resources

HR

Hayley Patton
Human Resources Manager

Experienced HR Professional with broad industry experience

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Operational leadership

Our team of operational specialists have years of experience in the production of rare earths. Having experts in their fields allows us to maximise value for shareholders.

COO

Robin Jones
Chief Operating Officer
Driven Browns Range pilot plant to be the newest dysprosium producer

EM

Eben Van Rooyen
Engineering Manager
Charged with building Browns Range as a new greenfields site

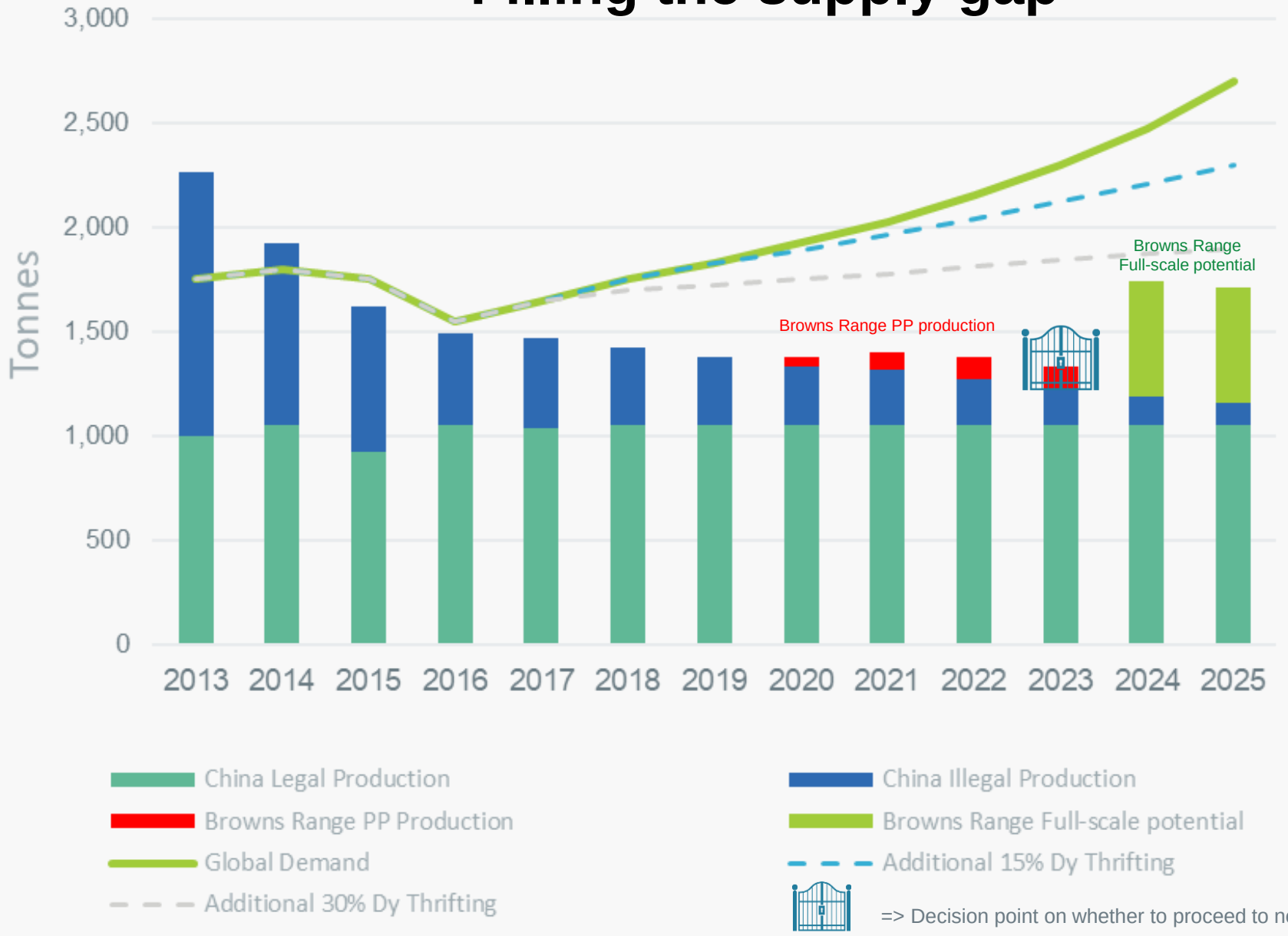
GM

Tony Hadley
General Manager Operations
Experienced rare earths operator, focused on delivering results

R&D

Louis de Klerk
Research and Development Manager
Focus on R&D, continuous improvement & assessment against benchmarks

Filling the supply gap



Chinese illegal production is expected to continue falling as the Government cracks down. Even with efficiencies in electric motors, the supply/demand gap is expected to continue widening.

Source: Adamas Intelligence Resource

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Mineral Resources

Deposit	Classification	Mt	TREO %	Dy_2O_3 kg/t	Y_2O_3 kg/t	Tb_4O_7 kg/t	HREO %	TREO kg
Wolverine	Indicated	2.88	0.84	0.74	4.89	0.11	89	24,195,000
	Inferred	1.97	0.89	0.76	5.15	0.11	88	17,588,000
	Total[1]	4.85	0.86	0.75	4.99	0.11	89	41,786,000
Gambit West	Indicated	0.12	1.8	1.62	10.98	0.22	94	2,107,000
	Inferred	0.13	0.51	0.4	2.67	0.05	81	674,000
	Total[1]	0.25	1.11	0.97	6.56	0.13	91	2,781,000
Pilot Plant Stockpiles	Indicated	0.2	0.99	0.86	5.73	0.12	89	1,934,000
	Inferred	0.03	0.26	0.2	1.35	0.03	79	89,000
	Total[1]	0.23	0.88	0.76	5.08	0.11	89	2,022,000
Gambit	Indicated							
	Inferred	0.21	0.89	0.83	5.62	0.11	96	1,878,000
	Total[1]	0.21	0.89	0.83	5.62	0.11	96	1,878,000
Area 5	Indicated	1.38	0.29	0.18	1.27	0.03	69	3,953,000
	Inferred	0.14	0.27	0.17	1.17	0.03	70	394,000
	Total[1]	1.52	0.29	0.18	1.26	0.03	69	4,347,000
Cyclops	Indicated							
	Inferred	0.33	0.27	0.18	1.24	0.03	70	891,000
	Total[1]	0.33	0.27	0.18	1.24	0.03	70	891,000
Banshee	Indicated							
	Inferred	1.66	0.21	0.16	1.17	0.02	87	3,484,000
	Total[1]	1.66	0.21	0.16	1.17	0.02	87	3,484,000
Dazzler	Indicated							
	Inferred	0.14	2.23	2.08	12.79	0.27	93	3,200,000
	Total[1]	0.14	2.23	2.08	12.79	0.27	93	3,200,000
Total[1]	Indicated	4.58	0.71	0.6	4	0.09	86	32,189,000
	Inferred	4.61	0.61	0.51	3.47	0.07	87	28,198,000
	Total[1]	9.19	0.66	0.56	3.73	0.08	86	60,389,000

[1] – Rounding may cause some computational discrepancies (TREO (metal) tonnes estimated from Mt x TREO%)
Mineral Resources as per NTU 2019 Annual Report Statement of Ore Reserve and Mineral Resources dated 11calc October 2019

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Ore Reserves

Deposit	Class	Mt	TREO kg/t	TREO kg	Dy_2O_3 kg/t	Dy_2O_3 kg	Tb_4O_7 kg/t	Tb_4O_7 kg	Y_2O_3 Kg/t	Y_2O_3 kg
OPEN PIT										
Wolverine	Probable	0.72	6.17	4,458,000	0.55	400,000	0.08	57,000	3.6	2,598,000
Area 5	Probable	0.47	2.24	1,048,000	0.14	65,000	0.02	10,000	0.99	463,000
UNDERGROUND										
Wolverine	Probable	2.1	8	16,833,000	0.7	1,483,000	0.1	221,000	4.71	9,908,000
Total Reserve[1]	**Probable**	3.29	6.78	22,339,000	0.59	1,948,000	0.09	288,000	3.94	12,969,000

1 Rounding may cuase some computational discrepancies

Ore reserves as per NTU announcement 28 September 2018.

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- Product specification available for REC
- REC samples validated by several downstream separators
- REC suitable for solvent extraction separation
- Low thorium and uranium levels
- First shipment – December 2018

REO contained in mixed RE carbonate	Targeted Annual production (000s kg)
Lanthanum	5.8
Cerium	15.2
Praseodymium	2.8
Neodymium	10.6
Samarium	11.4
Europium	2.4
Gadolinium	34.8
Terbium	6.7
Dysprosium	49.4
Holmium	13.5
Erbium	39.3
Thulium	5.6
Ytterbium	33.1
Lutetium	4.5
Yttrium	337.6
Total TREO produced	573
Total carbonate produced	1,100

Figures may not add due to rounding
TREO = Total Rare Earth Oxides- Total of Dy_2O_3,La_2O_3, CeO_2, Pr_6O_{11}, Nd_2O_3, Sm_2O_3, Eu_2O_3, Gd_2O_3, Tb_4O_7, Ho_2O_3, Er_2O_3, Tm_2O_3, Yb_2O_3, Lu_2O_3, Y_2O_3

Production table from ASX announcement dated 4 February 2016 in relation to new business plan for Browns Range and presentation of the business plan and ASX announcement dated 2 March 2015 in relation to DFS

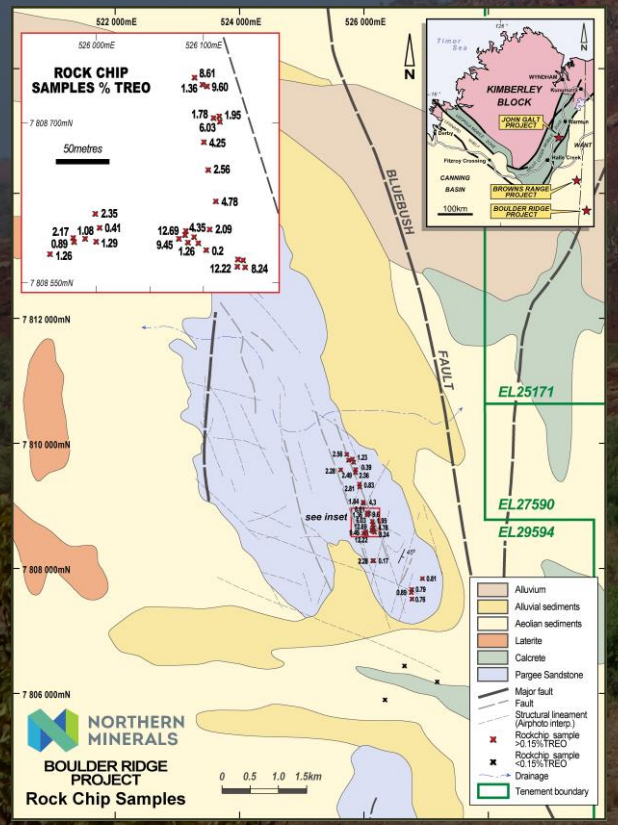
NORTHERN MINERALS

Pilot Plant

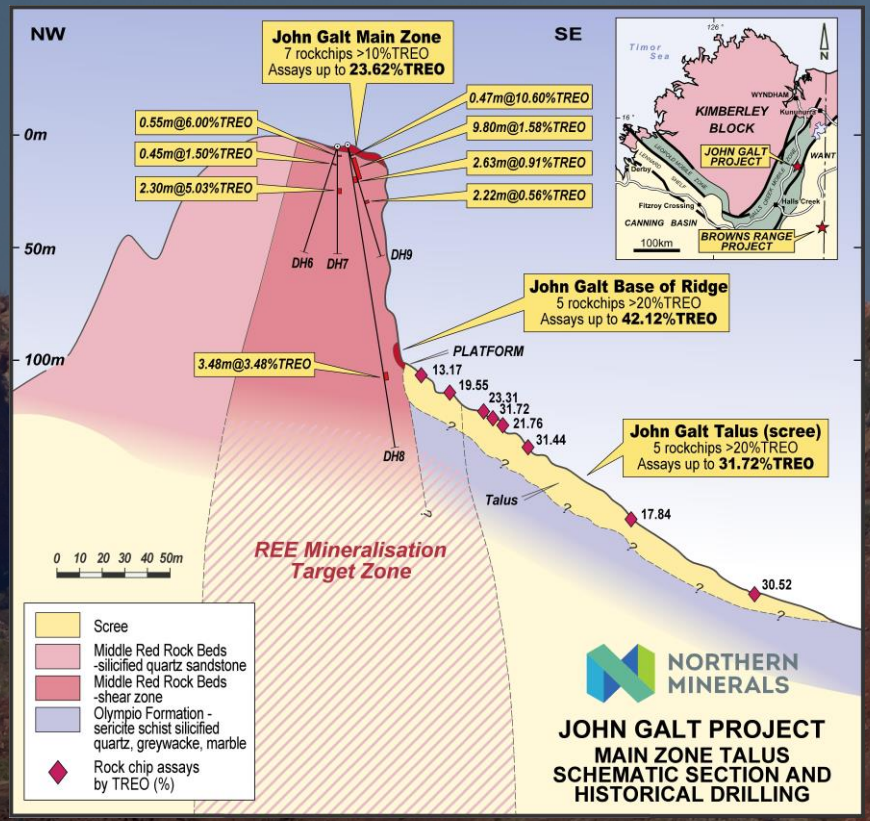
NORTHERN MINERALS

Beyond Browns Range

- Rock chip samples from the Boulder Ridge project confirm high-grade Heavy Rare Earths (HRE)
- Best results exceed 12% TREO, including up to 1.15% Dysprosium, with a dominance of HRE – up to 99%
- Reinforces significant growth potential in Browns Range and Tanami regions



BOULDER RIDGE



JOHN GALT

- Rock chip samples up to 42% TREO with approximately 95% Heavy REO
- Preliminary metallurgical tests indicate excellent recovery rates (>90%)
- Potential for concentrate grades >40%
- High grade mineralisation in talus (scree) material
- Hard-rock source of scree is the primary target

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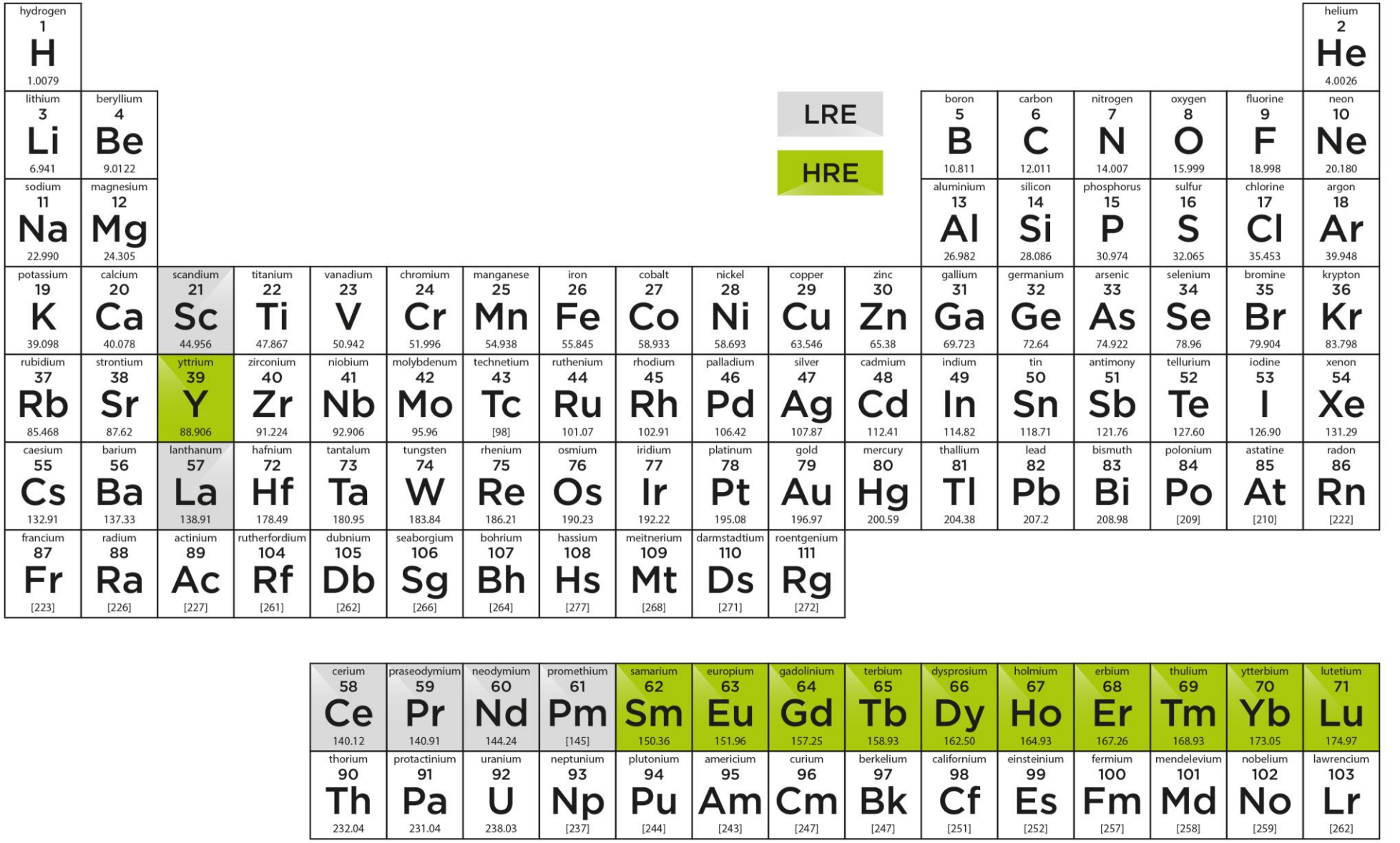
What are Rare Earths?



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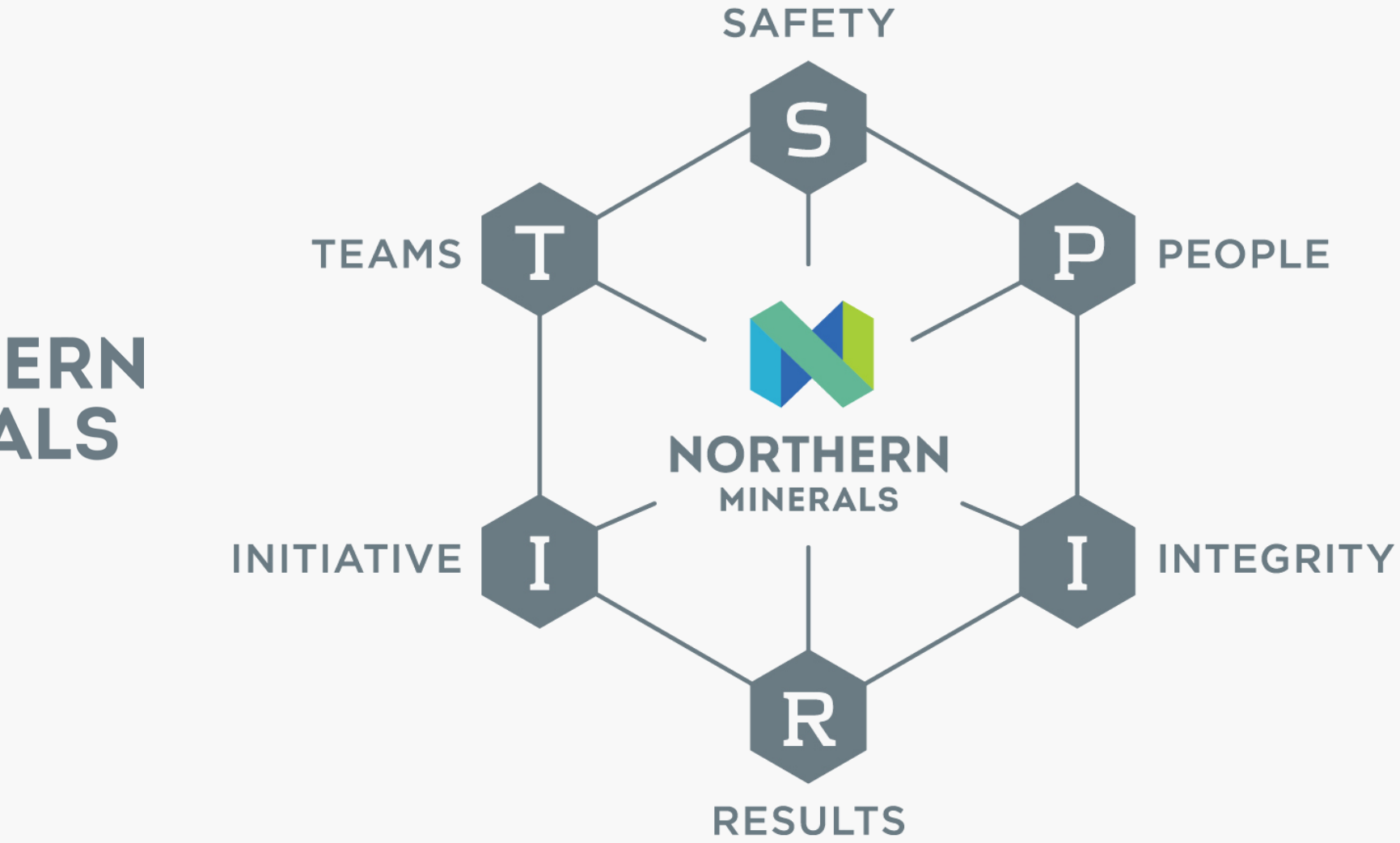
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