



**ASX
NTU**



**NORTHERN
MINERALS**

Heavy Rare Earths Producer

September 2018

**Presented by
George Bauk**

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Compliance Statement

The information in this presentation that relates to the Mineral Resource Estimates of the Wolverine deposit is extracted from the report entitled "Increased Mineral Resource delivers more good news" dated 23 February 2015 and is available to view on the Company's website (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.

The information in the announcement that relates to the Mineral Resource Estimates of the Cyclops and Banshee deposits is extracted from the report entitled "Further Increase in Brown Range Mineral Resource" dated 15 October 2014 and is available to view on the Company's website (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.

The information in the announcement that relates to the Mineral Resource Estimates of the Gambit, Gambit West and Area 5 deposits is extracted from the report entitled "Wolverine Total Resource Doubled in a Major Upgrade of Browns Range HRE Mineral Resource Estimate" dated 26 February 2014 and is available to view on the Company's website (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.

The information in the announcement that relates to Ore Reserves is extracted from the report entitled Increased Ore Reserve for Browns Range created on 2 March 2015 and is available to view on the Company's website (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.

The information in this report that relates to Exploration Results or Exploration Targets is based on information compiled by Mr Robin Wilson, a full-time employee of Northern Minerals, a Competent Person, who is a member of the Australasian Institute of Mining and Metallurgy. Robin Wilson has sufficient experience which is 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". Mr Wilson consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The potential quantity and grade of the Exploration Target is conceptual in nature. There has been insufficient exploration completed in the areas of the Exploration Target and it is uncertain if further exploration will result in the estimation of a Mineral Resource.

The information in the announcement that relates to production targets is extracted from the report entitled "DFS positions Browns Range Project as next dysprosium supplier" dated 2 March 2015 and is available to view on the Company's website (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 production targets in the relevant market announcement 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

Value proposition

01

Globally significant

Browns Range is the only non-Chinese producer of dysprosium

04

Enhancement initiatives

Several projects underway, including ore sorting, to increase value

02

Electric vehicle growth

Dysprosium is a key ingredient in permanent magnets used in EVs

05

Exploration upside

New discoveries at Dazzler & Iceman point to improved economics

03

In production

Commissioning has commenced and xenotime concentrate produced

06

Stable investment jurisdiction

First world economy, infrastructure, environmental and work practices

Corporate leadership

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

01

George Bauk, MD/CEO

Since 2010, George has lead the team from initial discovery to production

03

Robin Wilson, Expl. Mgr

Original Browns Range discoverer, on the hunt for new resources

02

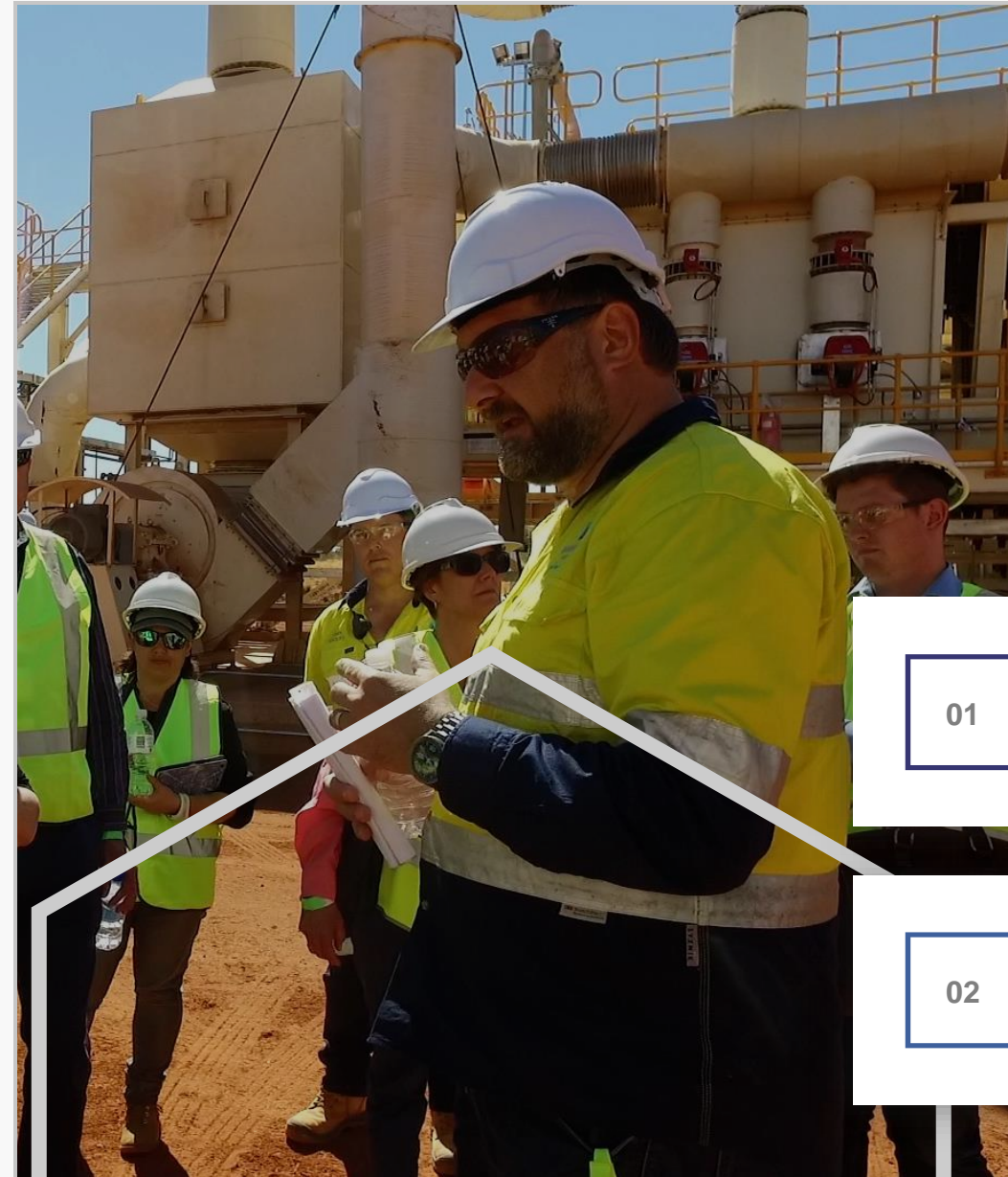
Mark Tory, CFO

Specialist in innovative finance and capital management

04

Bin Cai, Executive Officer

Strong Chinese connections, critical for finance, construction & offtake





Operational leadership

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

01

Robin Jones, COO

Driven Browns Range to be the newest dysprosium producer

03

Eben Van Rooyen – Res. Mgr

Charged with building Browns Range as a new greenfields site

02

Tony Hadley, General Manager

Experienced rare earths operator, focused on delivering results

04

Louis de Klerk, R&D Mgr

Focus on R&D, continuous improvement & assessment against benchmarks

Browns Range Project

In **September 2018**, Northern Minerals became the only non-Chinese producer of dysprosium with the commissioning of the three-year Pilot Plant Project, aimed at assessing the technical and economic feasibility of the full-scale operation.



\$67m Capital Development

Three-year project producing 3,300 tonnes of heavy rare earth carbonate



Dysprosium & Terbium

Key heavy rare earth value drivers



Dy – critical to the EV evolution

With each electric vehicle using just over 100g of dysprosium, demand is expected to 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.



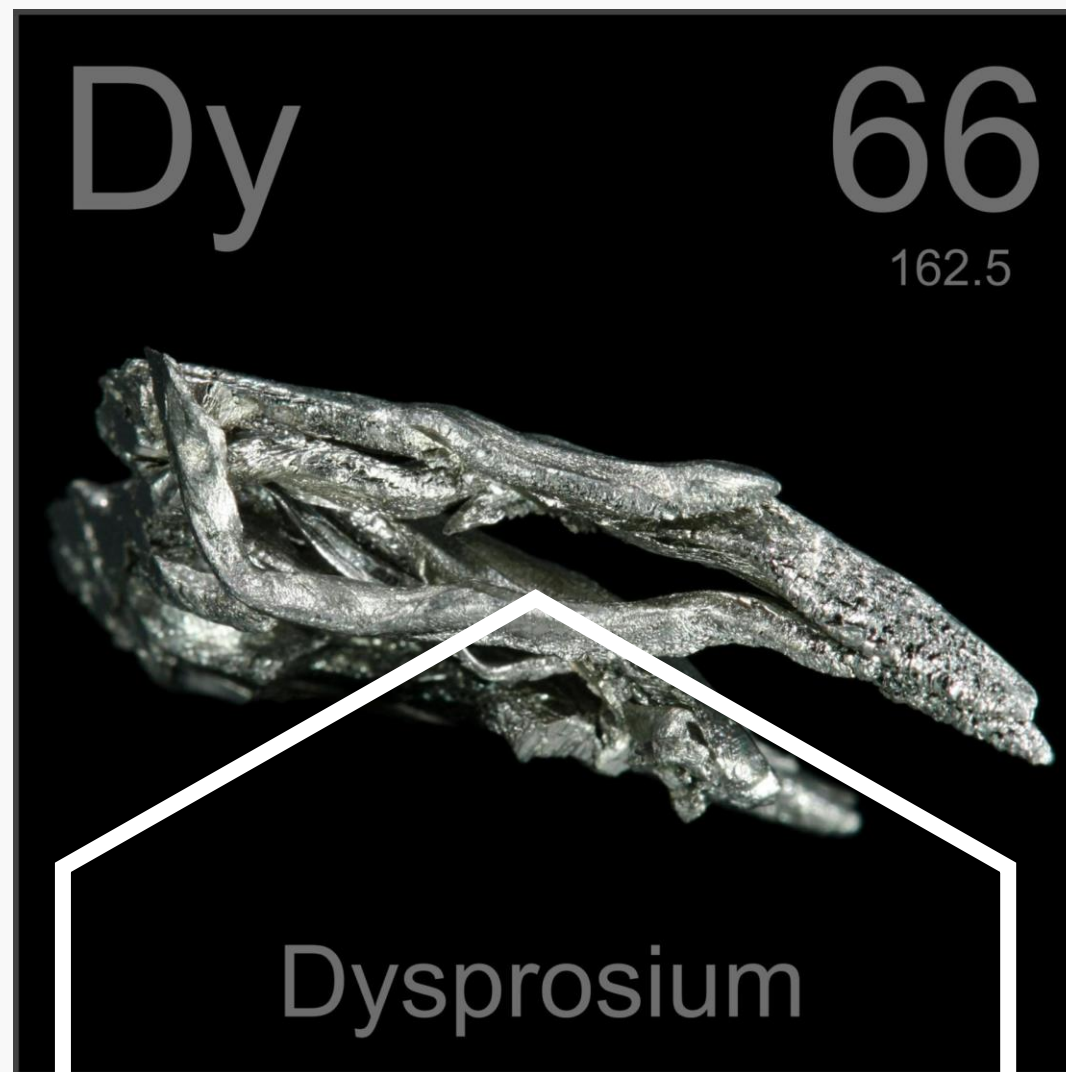
Chinese dominance

State controlled production from largely dirty in situ leach deposits



US critical alert

Trump Government identified rare earths as critical to US economic growth





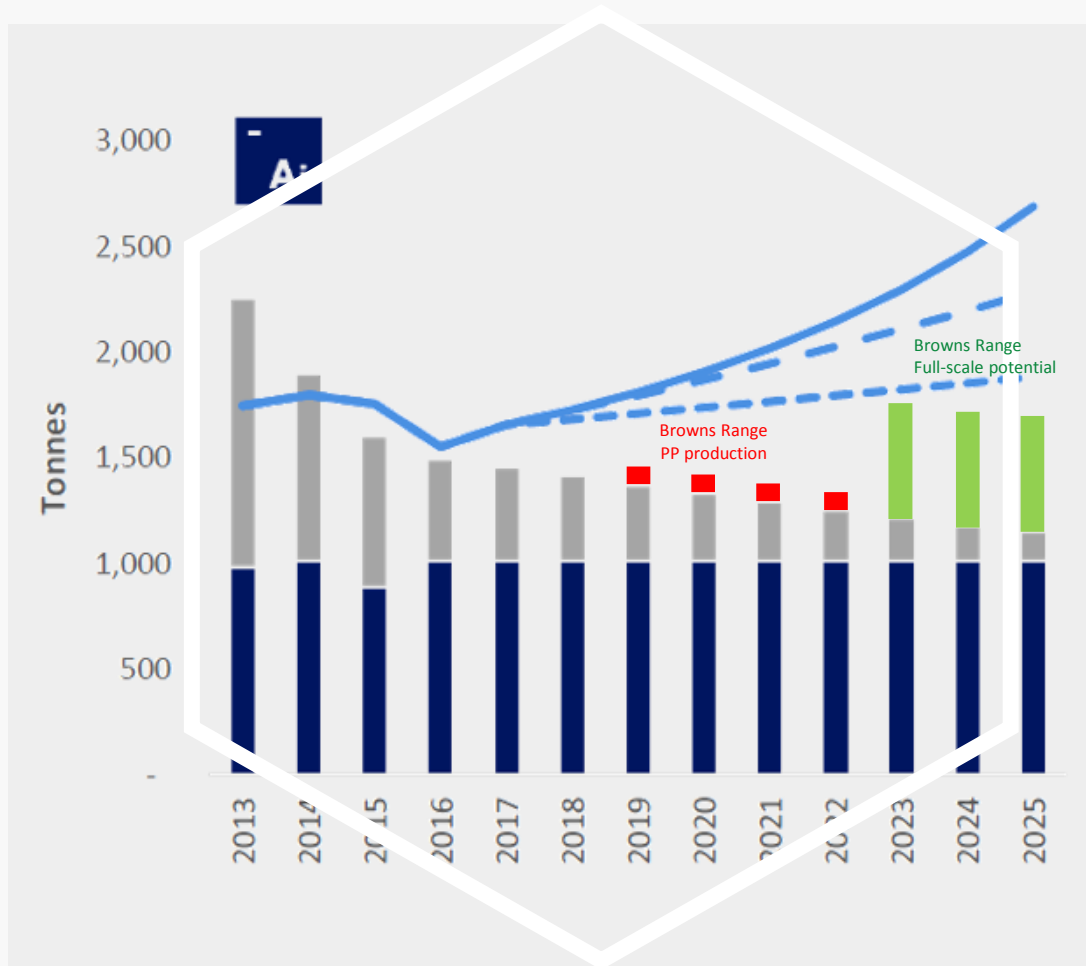
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Australian Dysprosium

The Pilot Plant Project incorporates a beneficiation plant and hydrometallurgical circuit, producing heavy rare earth carbonate.

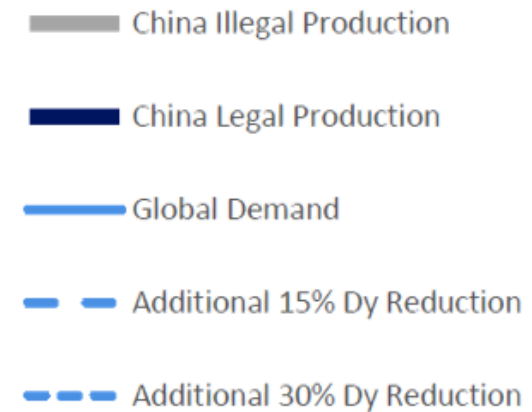
All nameplate offtake for the Pilot Plant Project has been committed to Lianyugang New materials Sales Co Ltd (JFMAG), a 51% owned subsidiary of Guangdong Rare Earths Group.

Additional production above the nameplate capacity is not committed and available for offtake.



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 research

Browns Range flowsheet

Xenotime
Concentrate
Stockpile

Ore
Stockpile

Magnetic
Separation

Dryer

Kiln

Water leach

Rare Earth
Carbonate
Bagging

Crusher

Ball mill

Flotation

Tails

CCD

Purification

Staged development plan

01

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

Downstream Enhancements

Product separation
Satellite deposits
New RE revenue streams

04

Develop Full Project

Economies of scale
New customer base
Global disruption to supply

05

Accelerate Exploration

Increased mine life
Improve head grade targeting
Targeting 20+ year mine life



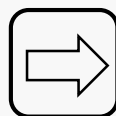
Blue sky potential

The Browns Range dome is a massive geological feature covering 1,500km² and stretching 60km x 30km most of which hasn't been effectively explored



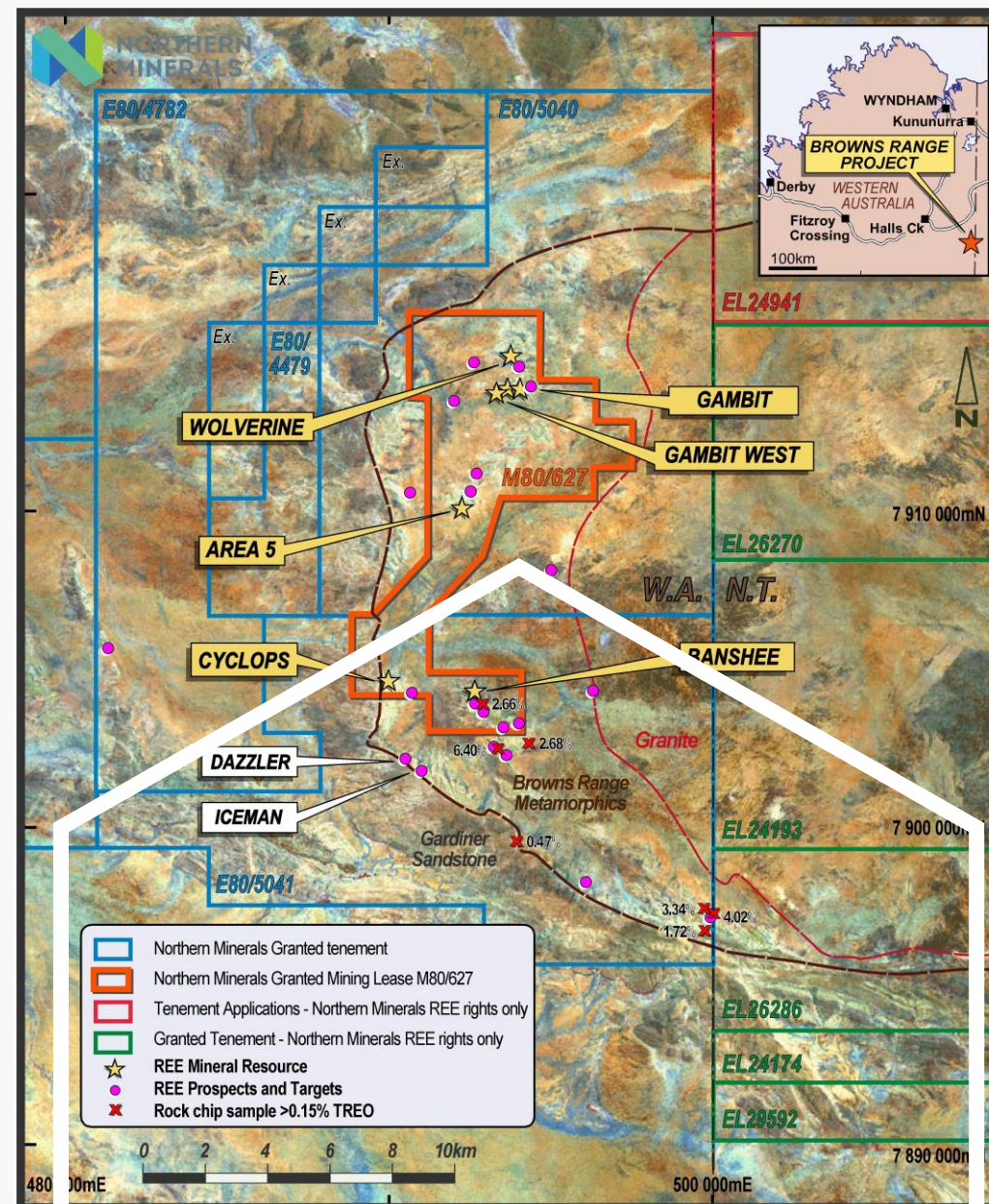
New discoveries

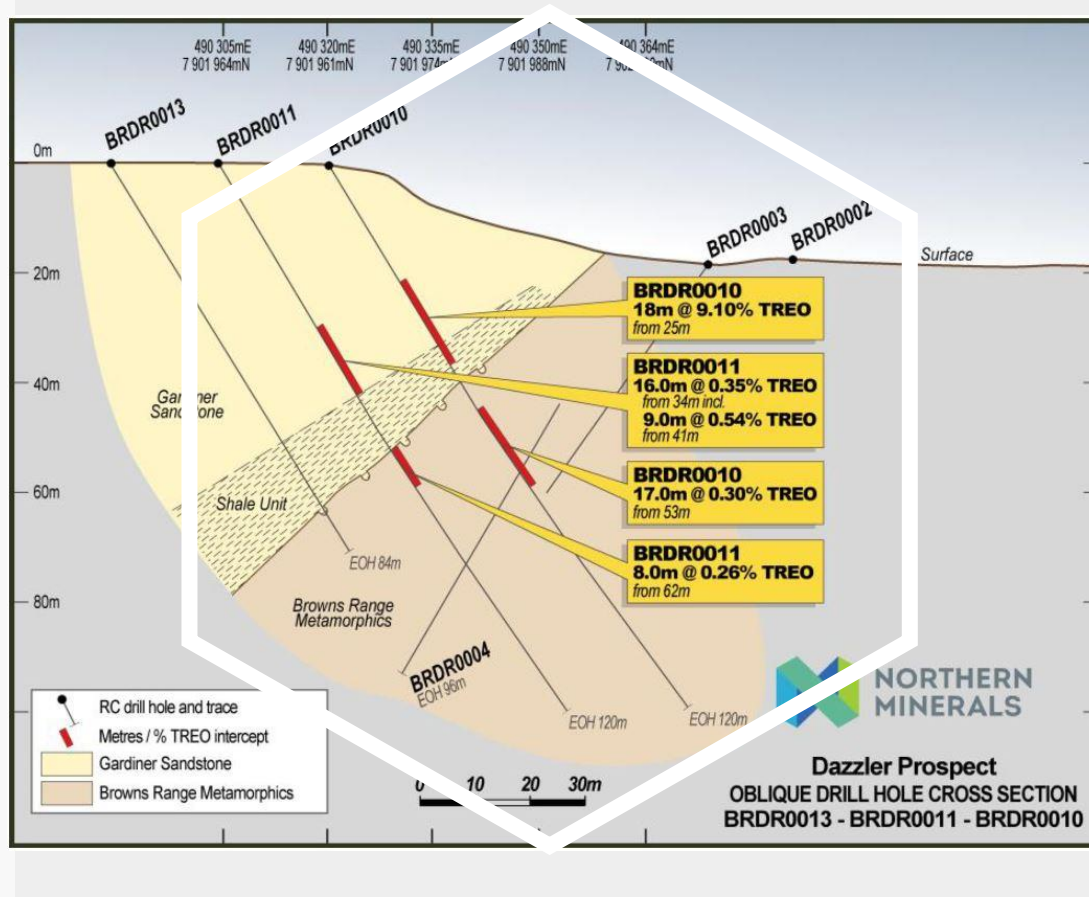
High-grade discoveries made in 2018 at Dazzler and Iceman show excellent potential



20+ year life target

Focus on growing mine life from 11 years to +20





Dazzler discovery

Hole ID	Width (m)*	From (m)	To (m)	TREO %	Estimated pXRF grade
BRDR0008	3	33	36	0.34	0.5%
BRDR0008	3	41	44	0.20	
BRDR0009	3	107	110	0.22	
BRDR0009	4	112	116	0.33	
BRDR0010	18	25	43	9.10	8%
BRDR0010	17	53	70	0.30	
BRDR0011	16	34	50	0.35	0.8%
Incl	9	41	50	0.54	
BRDR0011	8	62	70	0.26	
BRDR0012	2	26	28	0.29	
BRDR0012	13	33	46	0.33	0.4%
BRDR0012	2	64	66	0.27	
BRDR0013	No significant results				
BRDR0014	21	24	45	2.15	2%
BRDR0014	7	48	55	0.29	
BRDR0014	7	59	66	0.42	0.6%
BRDR0015	2	35	37	0.20	
BRDR0015	13	42	55	0.38	0.6%
BRDR0016	4	26	30	0.14	
BRDR0016	32	33	65	0.48	

Corporate overview



Major shareholders

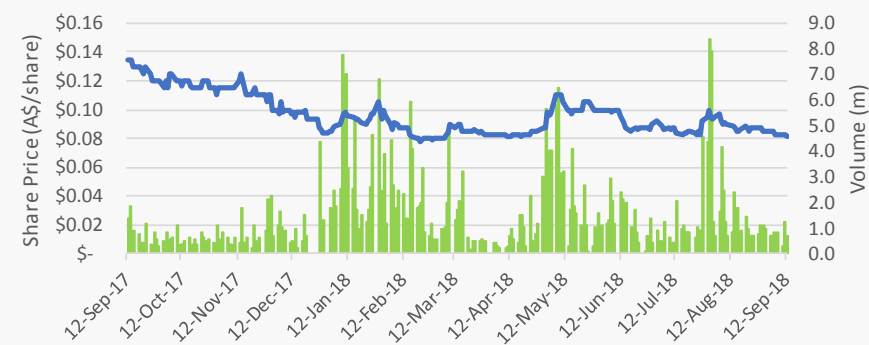
ACIIG
Huatai Mining
Citicorp Nominees
Board & Management
Remaining Top 20
Other

31 August 2018

17.1%
14.8%
3.9%
2.3%
19.4%
42.5%

Ordinary Shares	1,161M
Options and Performance Rights	96.2M
Market Capitalisation	\$94M
Cash (30 June 2018)	\$10.4M
Debt (as at 12 September 2018):	
Brevet 2017/18	\$19.5M
Brevet 2018/19	\$3.0M
Lind	\$6.9M
Sinosteel	\$5.8M
R&D tax receivable 2017/18	\$19.5M
Plant book value	\$55M
12 month low - high	\$0.078 - \$0.14
Average daily volume (12 month avg)	1,412,000

Northern Minerals (NTU) Share Price



In conclusion

R&D testing/commissioning commenced in June 2018

Three year project to demonstrate and assess economic and technical feasibility of full scale operation

Process commenced on ore sorting and separation

Potential for additional production and new offtake agreements

Browns Range on track to be a globally significant supplier of dysprosium

Quality management and operations team focussed on delivery

An essential part of the EV evolution

Thank you

Contact

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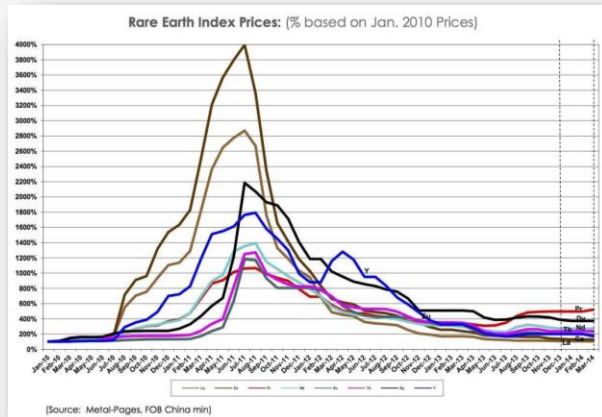
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APPENDICES

Strategically and politically critical

"Saudi Arabia has oil, but China has rare earths"

Chinese Premier, Deng Xiaoping



1992

2011

China cuts rare earths exports on South China Sea issues, prices skyrocket

"This executive order will prioritize reducing the nation's vulnerability to disruptions in our supply of critical minerals safely and responsibly for the benefit of the American people,"

US President Donald Trump

2018



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

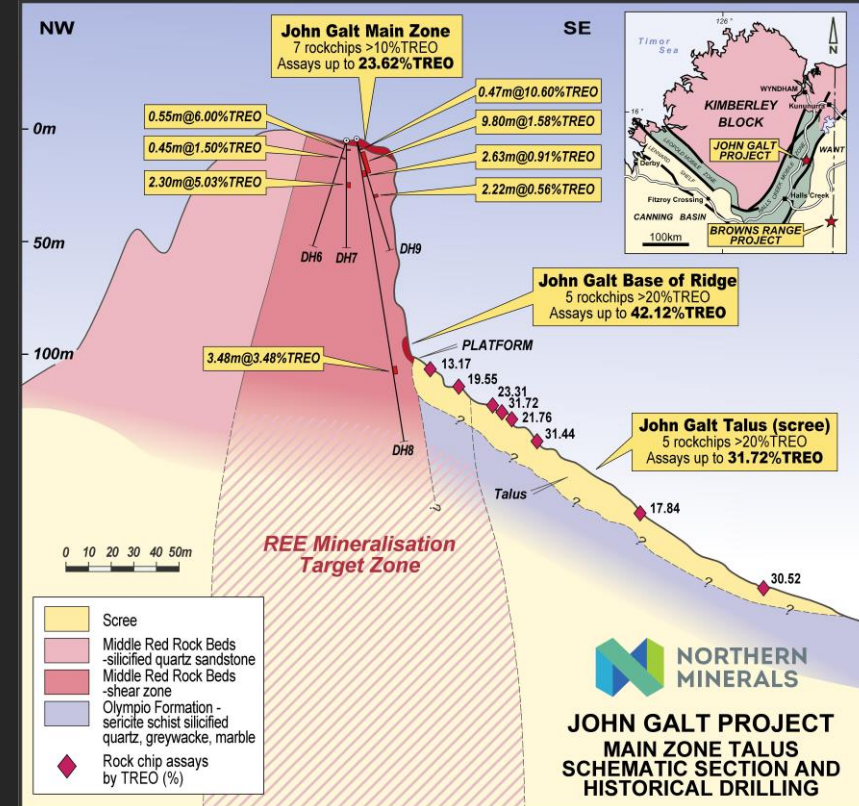
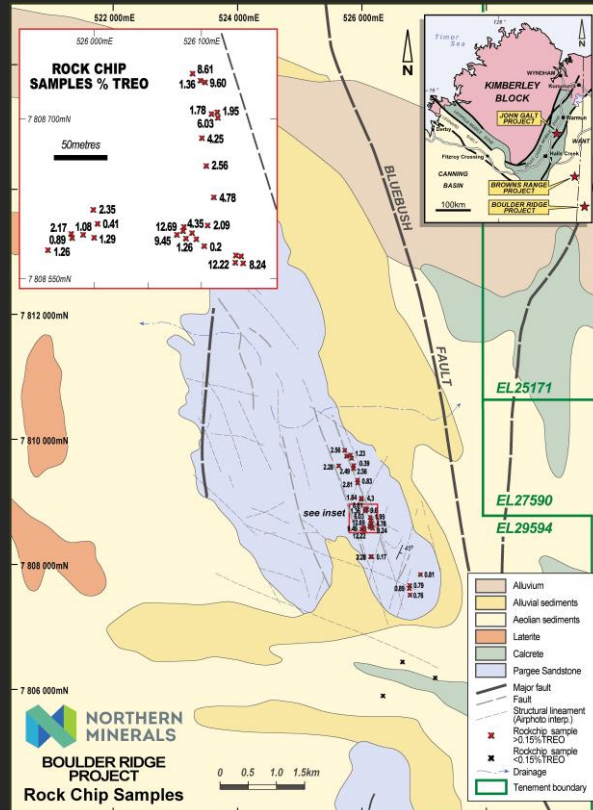


2025

Demand from EVs and mandated end of ICE vehicles is the difference

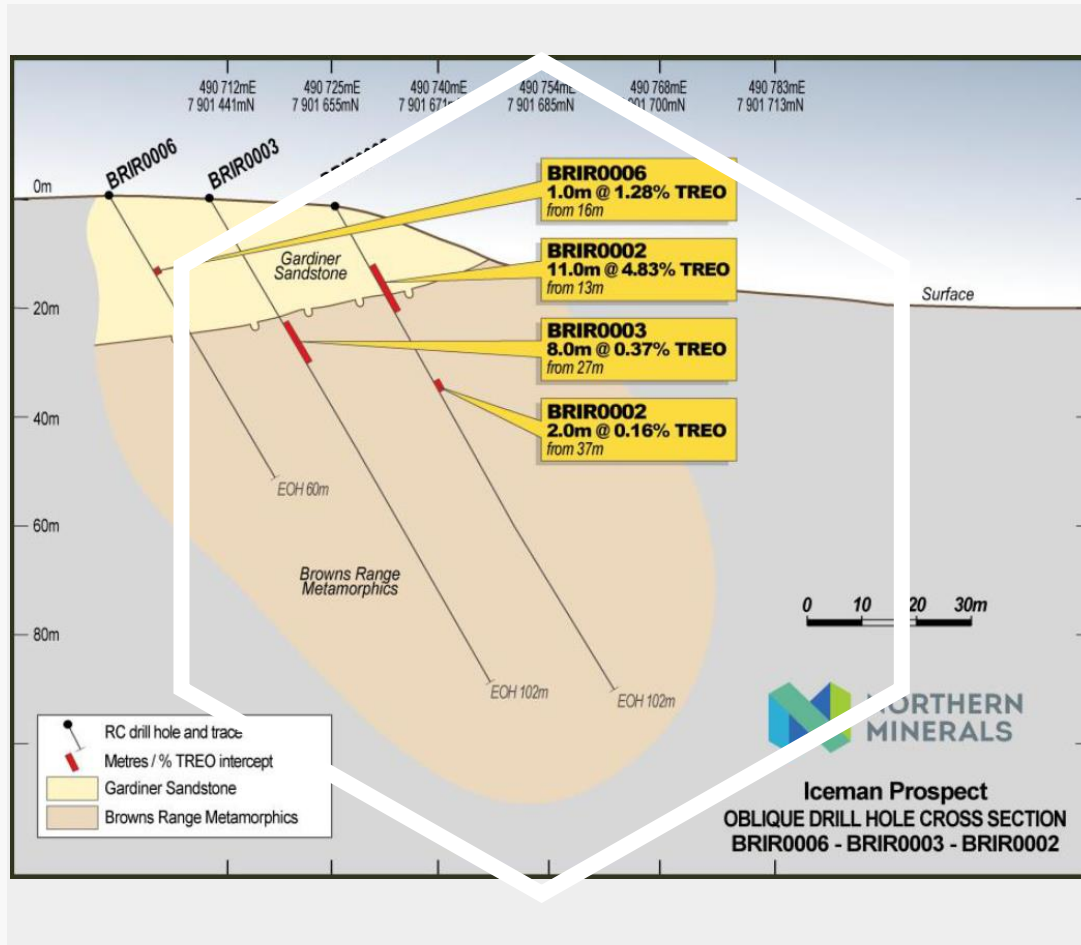
Beyond Browns Range

- 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.



- 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

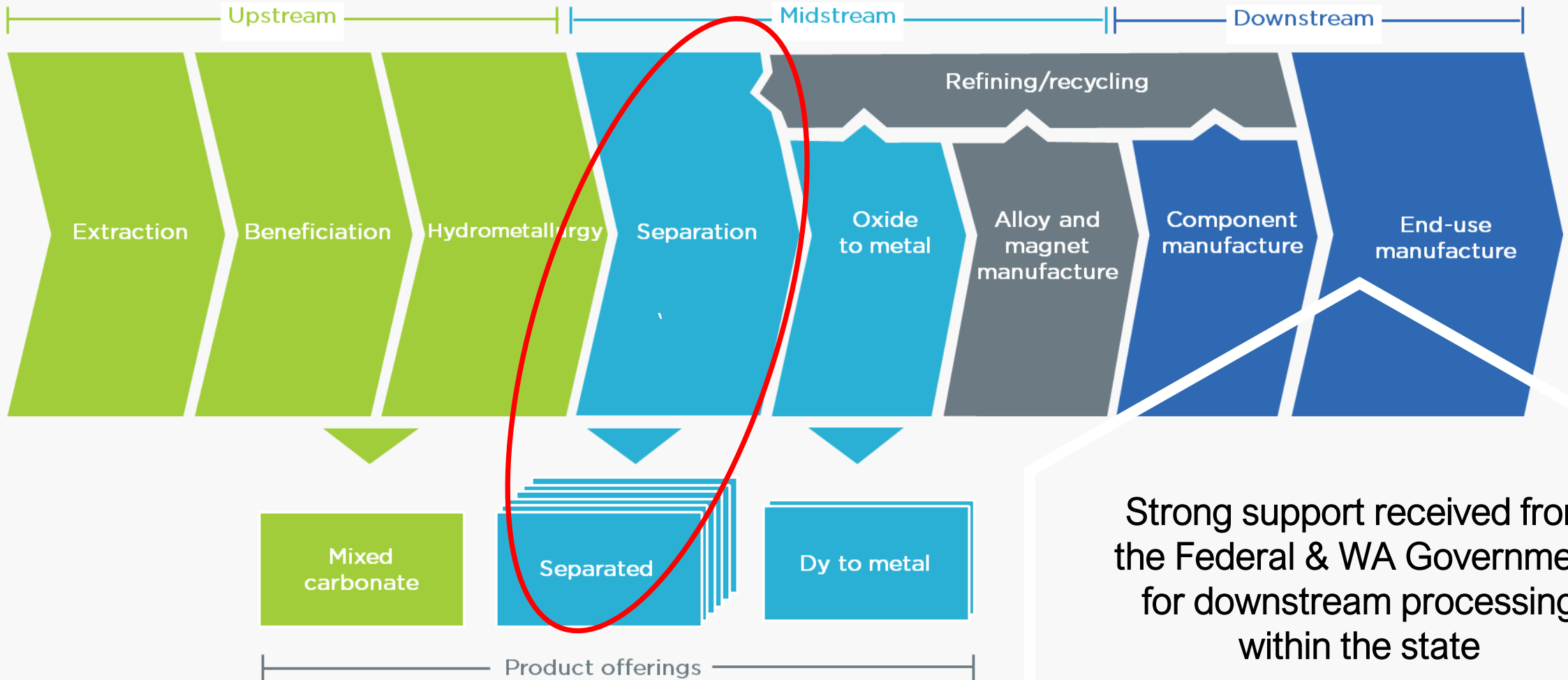
JOHN GALT



Iceman discovery

Hole ID	Width (m)*	From (m)	To (m)	% TREO	Estimated pXRF grade
BRIR0001				No significant results	
BRIR0002	11	13	24	4.83	4%
BRIR0002	2	37	39	0.16	
BRIR0003	8	27	35	0.37	0.6%
BRIR0004	7	26	33	1.20	3%
BRIR0005				No significant results	
BRIR0006	1	16	17	1.28	
BRIR0007	7	42	49	1.73	1%
BRIR0008				No significant results	
BRIR0009				No significant results	

Product separation

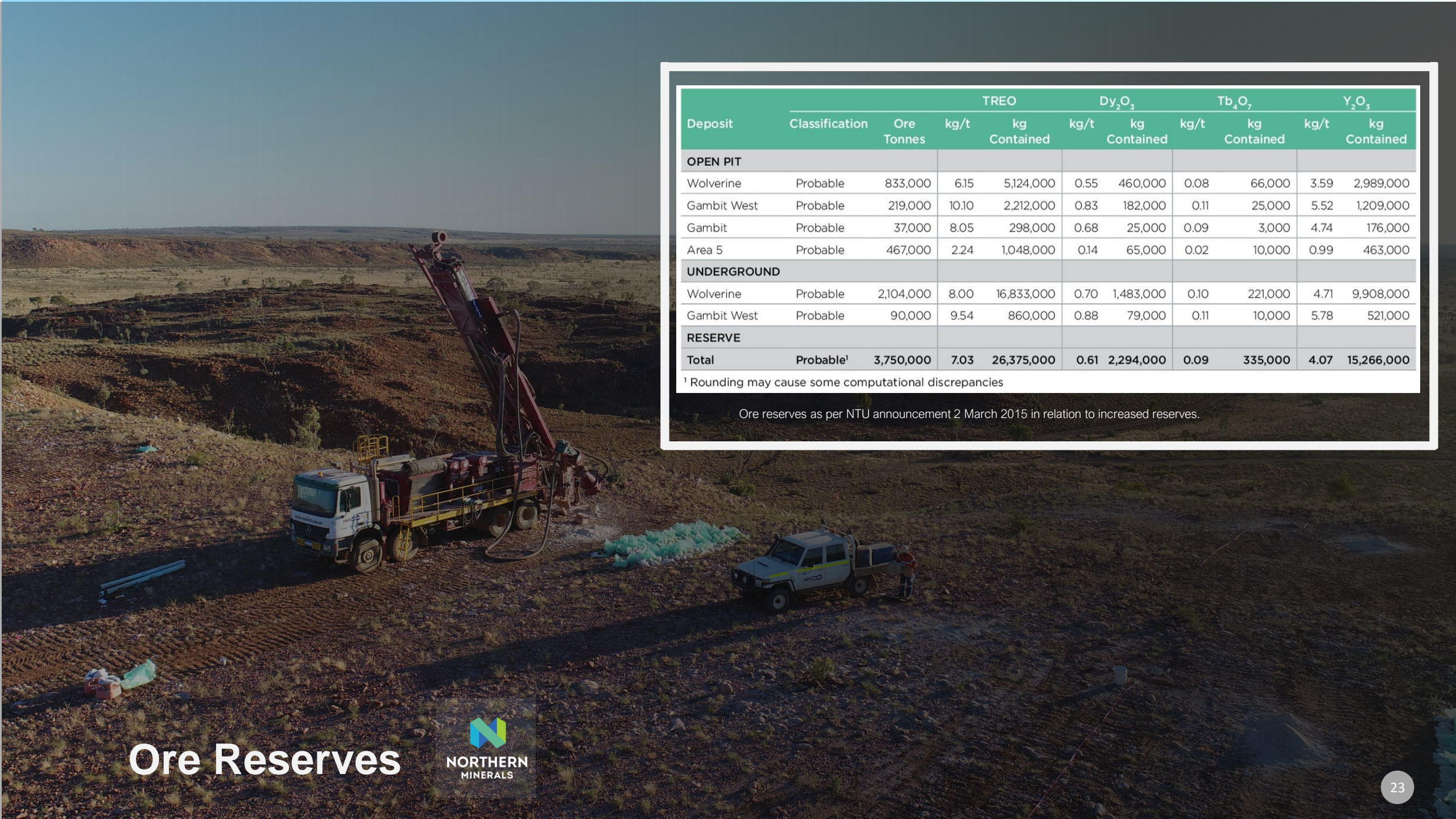


Mineral Resources

Deposit	Category	Mt	TREO	Dy ₂ O ₃	Y ₂ O ₃	Tb ₄ O ₇	HREO	TREO
			%	Kg/t	Kg/t	Kg/t	%	Kg
Wolverine	Indicated	2.99	0.83	0.73	4.86	0.11	89	24,952,000
	Inferred	1.97	0.89	0.76	5.13	0.11	88	17,609,000
	Total ¹	4.97	0.86	0.74	4.97	0.11	89	42,560,000
Gambit West	Indicated	0.27	1.26	1.07	7.06	0.14	90	3,424,000
	Inferred	0.12	0.64	0.54	3.67	0.07	85	753,000
	Total ¹	0.39	1.07	0.91	6.04	0.12	89	4,177,000
Gambit	Indicated	0.05	1.06	0.92	6.62	0.12	97	533,000
	Inferred	0.06	1.2	1.01	6.8	0.15	95	671,000
	Total ¹	0.11	1.13	0.97	6.72	0.13	96	1,204,000
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
Total ¹	Indicated	4.69	0.70	0.59	3.95	0.09	87	32,862,000
	Inferred	4.28	0.56	0.46	3.15	0.07	87	23,802,000
	Total ¹	8.98	0.63	0.53	3.56	0.08	87	56,663,000

¹ – Rounding may cause some computational discrepancies (TREO (metal) tonnes estimated from Mt x TREO%)

Mineral resources as per NTU announcement 2 March 2015 in relation to increased reserves.



Deposit	Classification	Ore Tonnes	TREO		Dy ₂ O ₃		Tb ₄ O ₇		Y ₂ O ₃	
			kg/t	kg Contained	kg/t	kg Contained	kg/t	kg Contained	kg/t	kg Contained
OPEN PIT										
Wolverine	Probable	833,000	6.15	5,124,000	0.55	460,000	0.08	66,000	3.59	2,989,000
Gambit West	Probable	219,000	10.10	2,212,000	0.83	182,000	0.11	25,000	5.52	1,209,000
Gambit	Probable	37,000	8.05	298,000	0.68	25,000	0.09	3,000	4.74	176,000
Area 5	Probable	467,000	2.24	1,048,000	0.14	65,000	0.02	10,000	0.99	463,000
UNDERGROUND										
Wolverine	Probable	2,104,000	8.00	16,833,000	0.70	1,483,000	0.10	221,000	4.71	9,908,000
Gambit West	Probable	90,000	9.54	860,000	0.88	79,000	0.11	10,000	5.78	521,000
RESERVE										
Total	Probable ¹	3,750,000	7.03	26,375,000	0.61	2,294,000	0.09	335,000	4.07	15,266,000

¹ Rounding may cause some computational discrepancies

Ore reserves as per NTU announcement 2 March 2015 in relation to increased reserves.

Ore Reserves



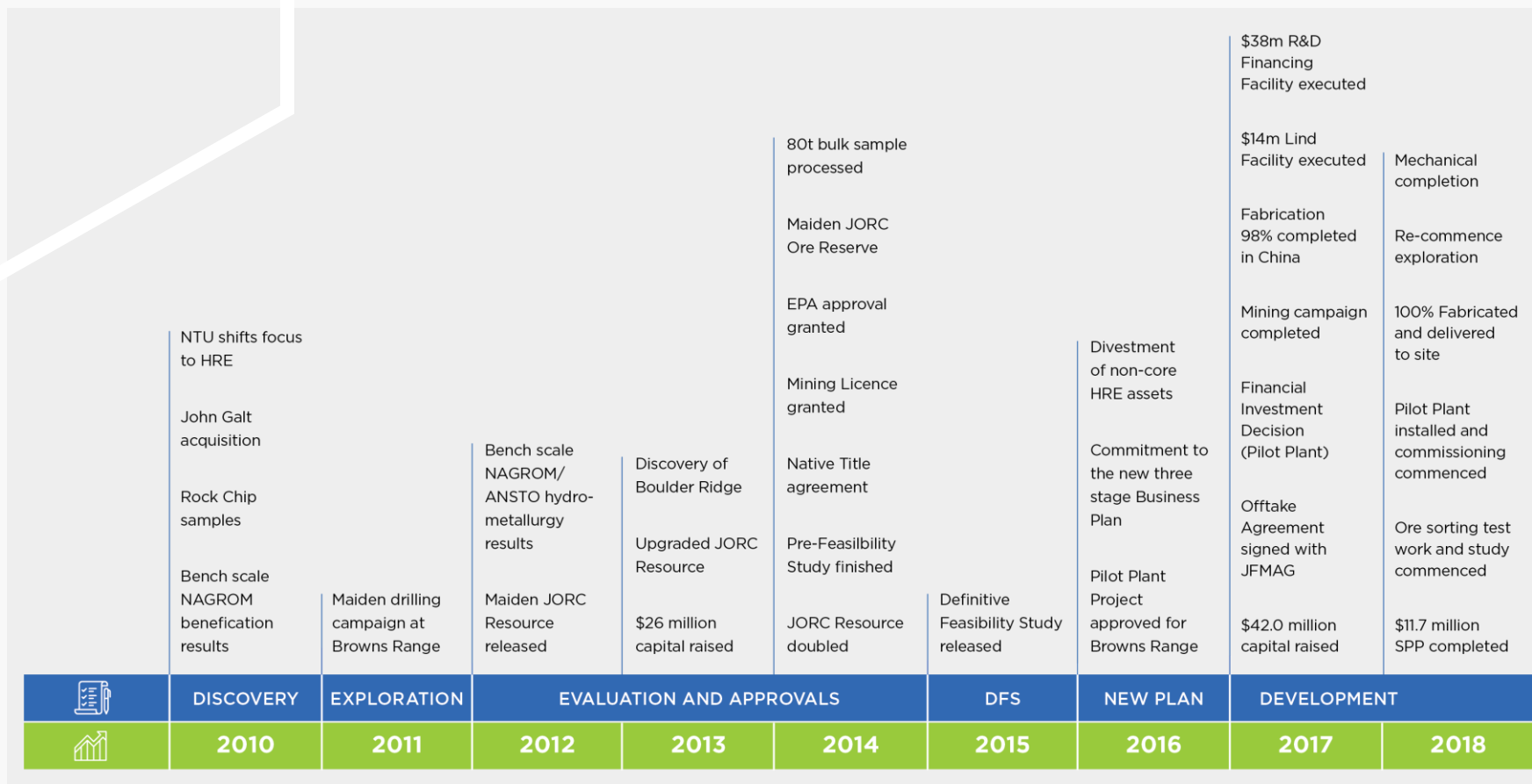
- Product specification available for REC
- REC samples validated by several downstream separators
- REC suitable for solvent extraction separation
- Low thorium and uranium levels
- First shipment planned for September quarter

REO contained in mixed RE carbonate	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 Dy₂O₃, La₂O₃, CeO₂, Pr₆O₁₁, Nd₂O₃, Sm₂O₃, Eu₂O₃, Gd₂O₃, Tb₄O₇, Ho₂O₃, Er₂O₃, Tm₂O₃, Yb₂O₃, Lu₂O₃, Y₂O₃

Production table from NTU announcements dated 4 February 2016 in relation to new business plan for Browns Range and presentation of the business plan

An eight year \$190m journey



NTU Board



Nan
Yang

Colin
McCavana

Adrian
Griffin

George
Bauk

Bin
Cai

01

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.

02

George Bauk - Managing Director / CEO (appointed 2010)

George is an experienced executive, with over 25 years' experience in the resources industry. Prior to Northern Minerals, Mr Bauk is Vice President of the Chamber of Minerals and Energy, WA and Chairman of Lithium Australia.

03

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.

04

Nan Yang - Non-executive Director (appointed 2017)

Mr Yang is an Australian mining engineer with more than 10 years' experience in mine planning, design, and mergers and acquisitions.

05

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

Ms Wang acts as a strategic investor for a number of Chinese based companies. Ms Wang is Vice Chairman of Conglin Baoyuan International Investment Group and also a Director of Huachen.

06

Bin Cai - Non-executive Director (alternate) (appointed 2013)

Bin is the MD of Conglin International Investment Group Pty Ltd based in Brisbane. He has a record of successful strategic investments in emerging Australian resources companies.



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