

MATERIALS
FOR AN
ENERGY
EFFICIENT
FUTURE



**GREENLAND
MINERALS LTD**

Annual General Meeting, May 31, 2019

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JORC Code (2012) Competent Person Statement – Mineral Resources and Ore Reserves

The information in this report that relates to Mineral Resources is based on information compiled by Mr Robin Simpson, a Competent Person who is a Member of the Australian Institute of Geoscientists. Mr Simpson is employed by SRK Consulting (UK) Ltd ("SRK"), and was engaged by Greenland Minerals and Energy Ltd on the basis of SRK's normal professional daily rates. SRK has no beneficial interest in the outcome of the technical assessment being capable of affecting its independence. Mr Simpson has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken 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'. Robin Simpson consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in the statement that relates to the Ore Reserves Estimate is based on work completed or accepted by Mr Damien Krebs of Greenland Minerals and Energy Ltd and Mr Scott McEwing of SRK Consulting (Australasia) Pty Ltd.

Damien Krebs is a Member of The Australasian Institute of Mining and Metallurgy and has sufficient experience that is relevant to the type of metallurgy and scale of project under consideration, and to the activity he is undertaking, to qualify as Competent Persons in terms of The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012 edition). The Competent Persons consent to the inclusion of such information in this report in the form and context in which it appears.

Scott McEwing is a Fellow and Chartered Professional of The Australasian Institute of Mining and Metallurgy and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration, and to the activity he is undertaking, to qualify as Competent Persons in terms of The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012 edition). The Competent Persons consent to the inclusion of such information in this report in the form and context in which it appears.

The mineral resource estimate for the Kvanefjeld Project was updated and released in a Company Announcement on February 12th, 2015. The ore reserves estimate was released in a Company Announcement on June 3rd, 2015. There have been no material changes to the mineral resource estimate, or ore reserves estimate since the release of these announcements.



Executive Summary



Globally Significant

Long term supplier of rare earth elements critical for clean, green technologies

Advanced Stage of Development

>10 years of sustained research and development. Permitting process advanced

Shenghe Resources

Largest shareholder providing technical input & fully integrated value chain connecting mine to end users

>1 Billion Tonne JORC Resource

Initial 37 year mine life enabling infrastructure development. Year round shipping access

Rare Earth Prices

Strong demand outlook and constrained supply given China led policy changes

Nd, Pr, Tb and Dy

Largest projected output of key rare earth elements from first major non-refractory orebody

Regulatory Framework

Implemented by Greenland & Danish Governments to manage project

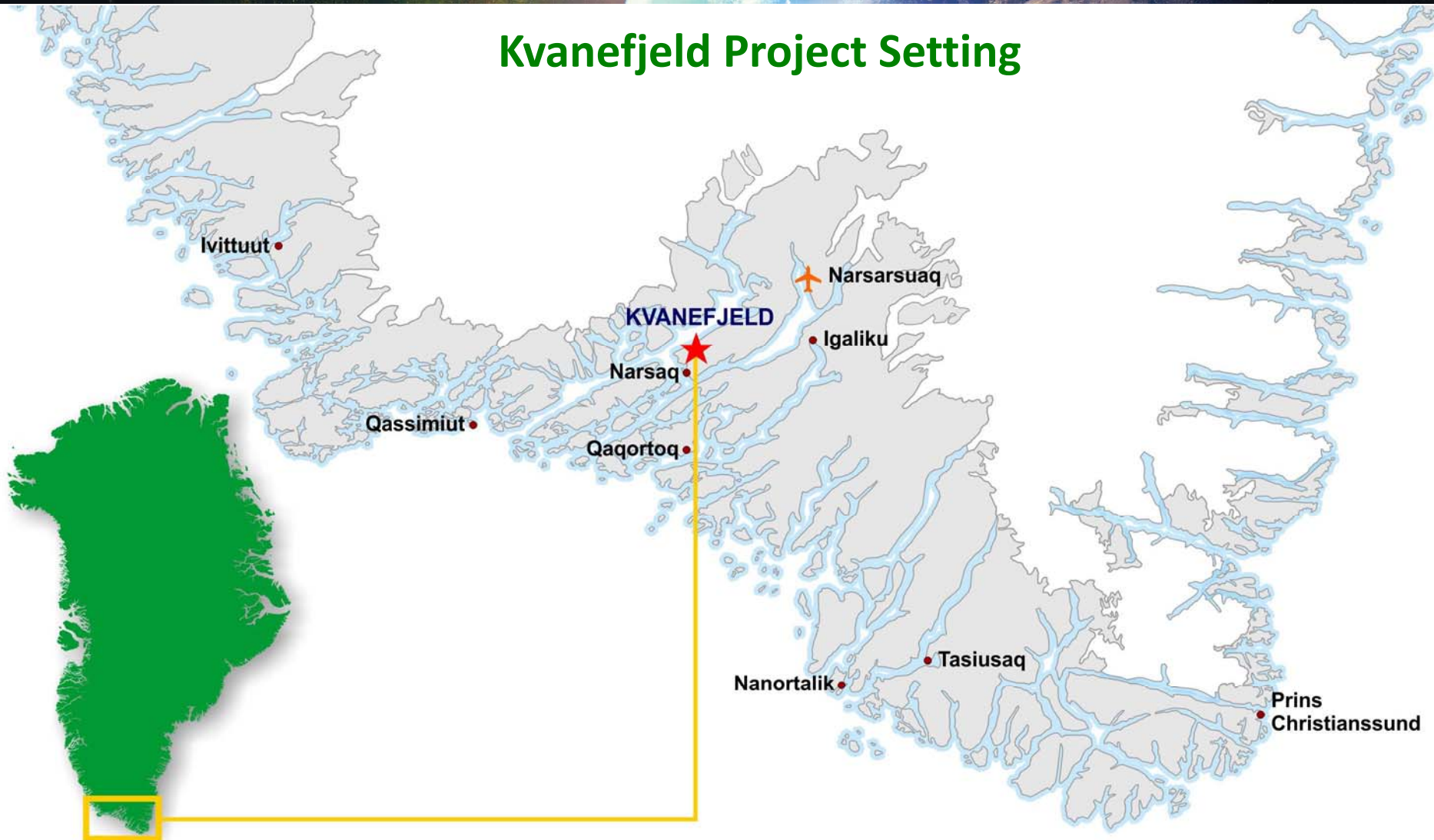
Environmental Outcomes

Greenland set to provide critical minerals to facilitate key global agendas



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Kvanefjeld Project Setting



Kvanefjeld is located near existing infrastructure in southern Greenland, with year-round direct shipping access, and a mild climate; an optimal location



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Centred on a Multi-Billion Tonne Outcropping Ore Seam



The only known bulk occurrence of steenstrupine globally – a unique, non-refractory rare earth mineral, that is conducive to simple, low-cost processing

Kvanefjeld Project Overview



- >1 billion tonne multi-element resource, largest REO inventory under JORC code
- Initial 37 year mine life, scope for significant extension
- Close to existing infrastructure with year round shipping access
- Major infrastructure (excluding port) will not be visible from nearby Narsaq Town
- Project capable of supporting decades of operation
- Project footprint to site over host geology, and existing environmental baseline
- EIA demonstrates no risks to environment, workers, communities

Advanced Project Status



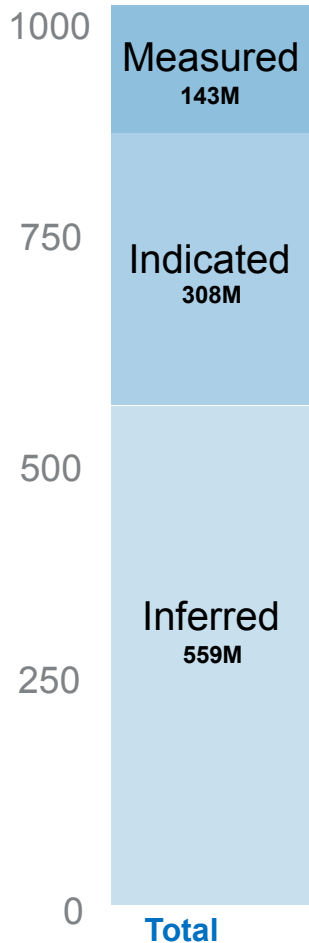
- 2012 Prefeasibility Study
- 2015 Feasibility Study – Updated in 2016
- 2017-18 Metallurgical optimisation guided by Shenghe
- 2018 Engineering optimisation to minimise civil costs
- 2019 Update operating and capital costs for optimised project form



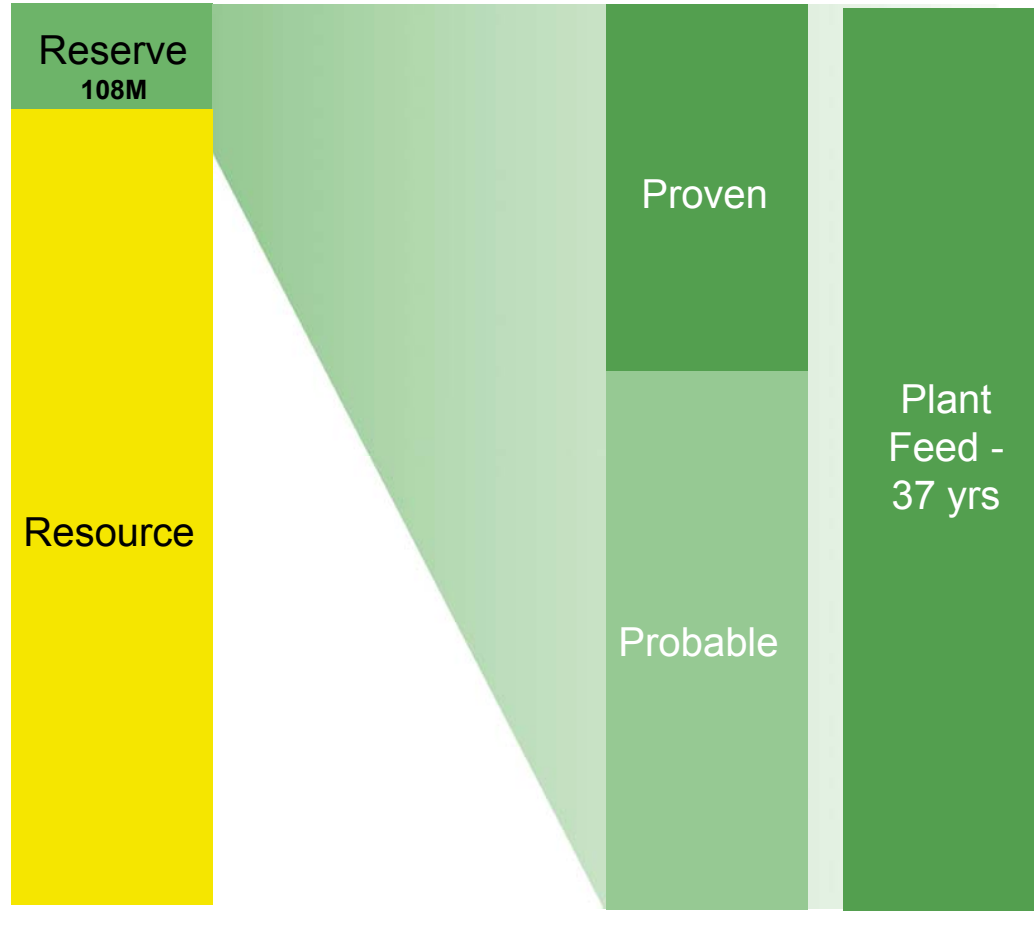
Vast Mineral Inventory

Tonnes [M]

Resources



Clear scope to expand capacity and extend mine life



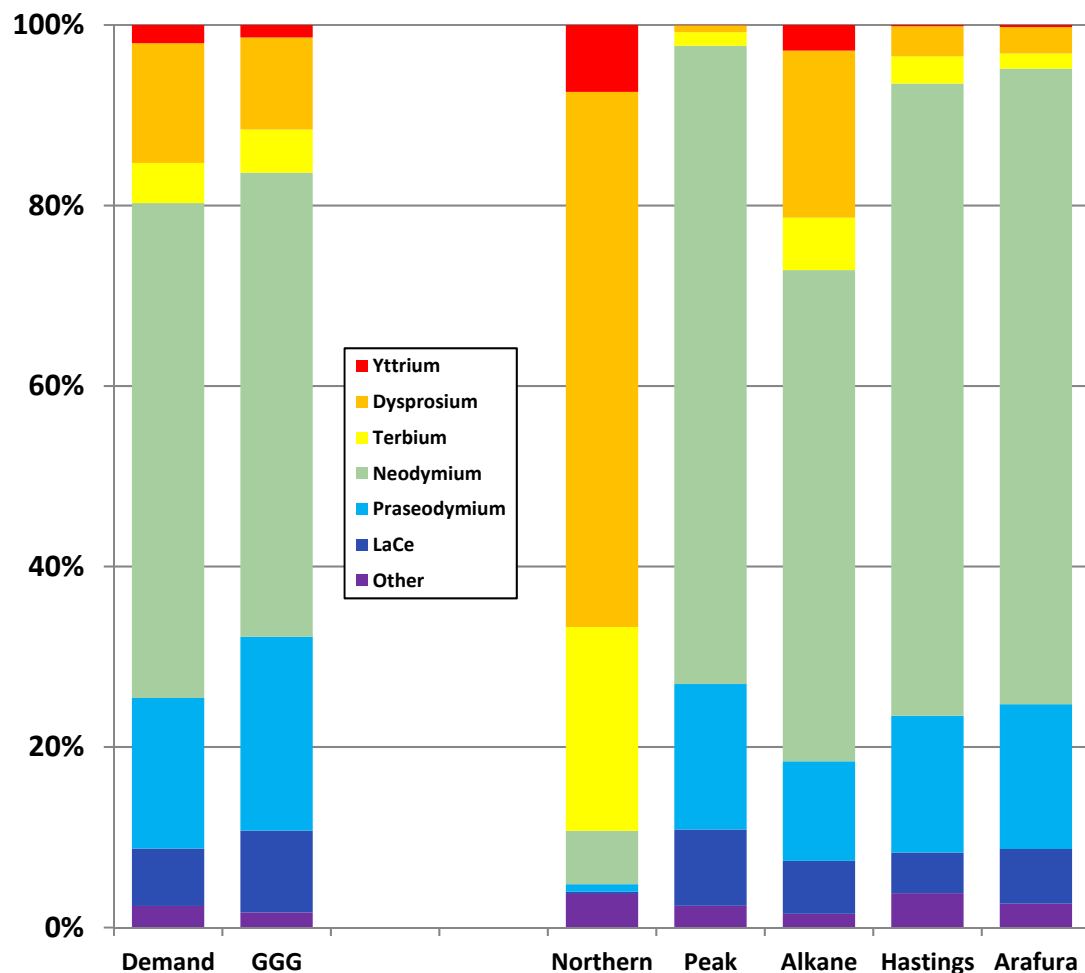
Tonnes [M]

Reserves

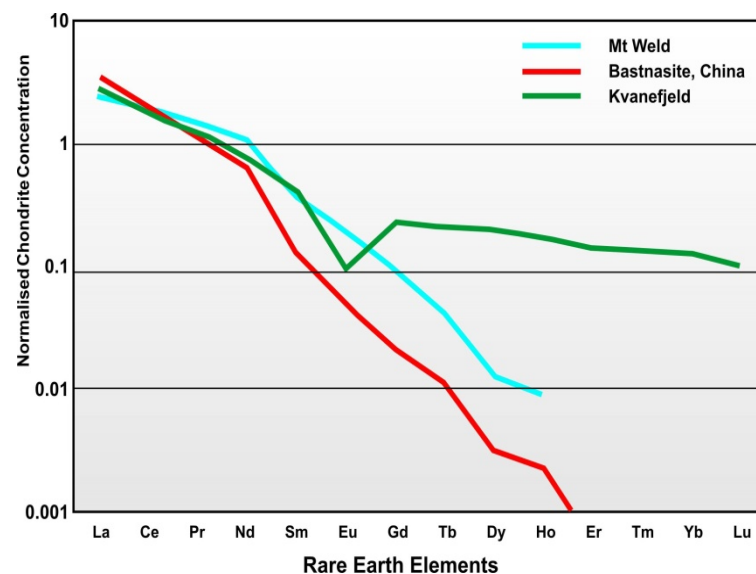


Mineral Resource Estimates and Ore Reserve Estimates are independently established by SRK Consulting

Kvanefjeld – A Complete Rare Earth Project – Nd Pr Dy Tb



Demand approximates the current rare earth market by value (volume x current price).
Projected output value distribution of select ASX-listed companies



Rare earth plot highlighting the enrichment across the rare earth spectrum. Kvanefjeld is compared to Mt Weld, and typical bastnasite (source: ANSTO).

Kvanefjeld's enrichment across the RE spectrum creates a strong alignment with RE market, through exposure to Nd, Pr, Dy and Tb: a complete RE project



Process Flowsheet

(Based on 2016 Feasibility Study)
Pre-optimisation



37 Year Mine Reserves at Kvanefjeld Deposit (~10% of resource base)

Classification (JORC 2012)	Inventory (Mt)	REO (ppm)	U ₃ O ₈ (ppm)	Zn (ppm)
Proven	43	14,700	352	2,700
Probable	64	14,000	368	2,500
Total	108	14,300	362	2,600

**JORC 2012: 1.01Billion tonnes through 3 deposits
contains 11.13 Mt REO, 593 Mlbs U₃O₈, 2.42 Mt zinc**

Ore

Residues

Flotation Tailings
(>90% vol)

Refinery Tailings
(<10% vol)

Products

Zinc Concentrate 6000 tpa

Fluorspar 16,000 tpa

Uranium Concentrate 1 Mlb's

**Rare Earth Intermediate
concentrate**

Greenland

Ex-Greenland

REO Intermediate Product

Nd-	3860 tpa
Pr-	1224 tpa
Eu-	30 tpa
Tb-	40 tpa
Dy-	237 tpa

**Both flotation and refinery
circuits undergoing optimisation
to improve efficiency and simplify**

**Mine and
Concentrator**

Leach Circuit

**Rare Earth
Separation**

Kvanefjeld Project – Engineering Optimisation



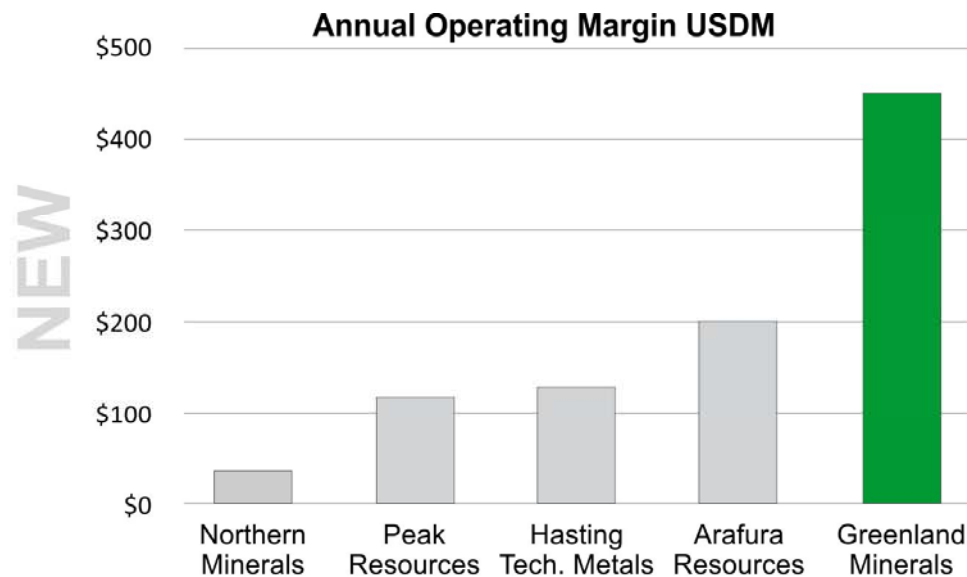
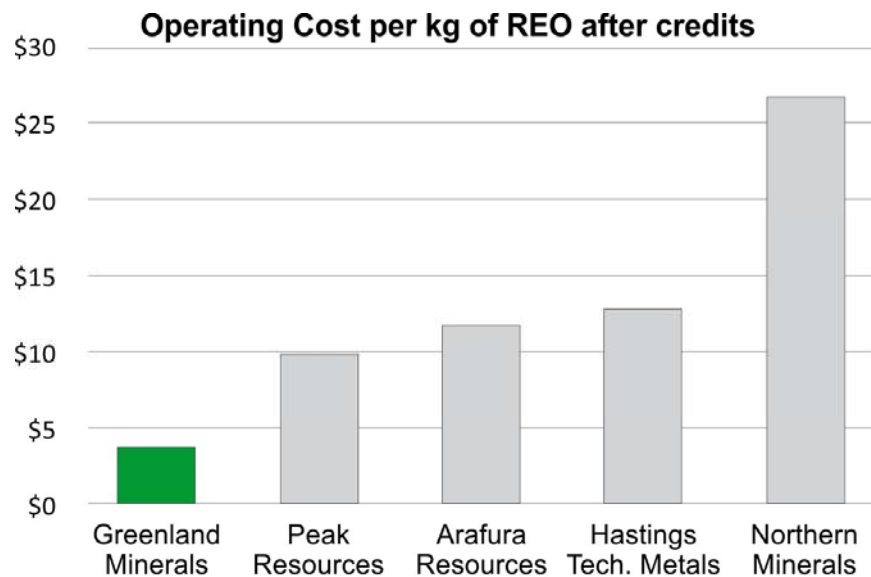
- A team of leading international engineering firms visited Kvanefjeld in August 2018 for collaborative onsite surveys/studies
 - **Nuna Logistics, Tetra Tech, PDN Engineers, China-CCC**
- Follow-up studies have resulted in a **44% reduction** in civil construction costs to US \$175M – including indirect costs and contingencies
- Optimised project capital costs expected in the coming weeks – drawing on outputs of both engineering and metallurgical optimisation

Kvanefjeld Project – Metallurgical Optimisation



- Guided by Shenghe, draws on world-leading rare earth processing technology
- Test work programs conducted in both China and Australia
- Major improvements developed to both flotation and refinery circuits
- Flotation improvements generate a higher-grade, low-volume RE mineral concentrate
- Single stage atmospheric leach circuit (refinery circuit)
- Results: **Improved recoveries, 40% reduction in annual operating costs**
Unit costs of <US\$4/kg of REO, net of by-product credits
(lowest of undeveloped REE projects in ASX-listed companies)

Kvanefjeld Project – Low Unit Cost, High Margin, Large Output



* Consistent price forecasts used for all projects

- Project optimisation has improved the already competitive operating costs and margins
- Low unit cost delivered by simple metallurgical flowsheet, and by-product credits*
- Capital cost estimate and economic metrics soon to be updated

Kvanefjeld Project – Permitting Strategy and Status

Kvanefjeld plateau



Project Permitting - Underway Since 2015

- 2016 – detailed reviews of impact assessments
- 2017 – address recommendations and guidance from government and advisory groups
- 2018 – Finalise additional data, updated reports, public consultation, establish clear project timeline
- Q1 2019 – SIA approved for public consultation, translations complete, EIA near completion

Thorough and rigorous approach to impact assessments:

- **Environmental Impact Assessment** – GHD (International), Orbicon (Denmark/Greenland), Arcadis, Danish Hydraulic Institute, Environmental Resource Management, DTU, Blue Water Shipping, Wood Group,
- **Social Impact Assessment** – Shared Resources (International), NIRAS (Denmark)

Kvanefjeld Project – Community



- Kvanefjeld Project is located in Kommune Kujalleq (Southern Greenland Municipality), behind the town of Narsaq
- Over 10 years of stakeholder engagement in the local community, including important input into project 'Terms of Reference', approved in 2015
- In March 2019 MoU entered with municipality and local business council to negotiate a participation agreement to cover community involvement and capacity development
- Stakeholder meetings with specialist consultants and company representatives planned for June, to progress dialogue

Rare Earth Value Chain Integration – Path to Market

- Working with major shareholder to integrate Kvanefjeld with rare separation capacity and international customer network
- Shenghe is one of the largest, and fastest growing rare earth companies globally
- Major supplier to international end-user industries – high purity metals and oxides
- Commercial agreement entered into in 2018 addressing off-take, development strategy
- Aiming to jointly develop Kvanefjeld as a new cornerstone to international rare earth supply



Shenghe founder Mr Wang Quangen, and John Mair,
October 2017 Shenghe HQ, Chengdu



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Rare Earth Demand is Linked To Important Global Agendas

"China to establish timeline to phase out combustion engine vehicles"

***The electrification movement is underway.
Rare earth permanent magnets create
electric motors with greater torque,
efficiency and range***

*"UK, France to ban
petrol and diesel
vehicles by 2040..."*

"Volvo to go electric..."

*"Every Jaguar Land Rover model
line will be electrified from 2020"*

*"New electric London
taxi launches..."*

*"Volkswagen plans to leapfrog
Tesla in electric car race..."*

"India aiming for all-electric car fleet by 2030..."



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Clean Energy Initiatives Driving Major RE Demand Growth

Wind turbines use between 400 and 500kgs of Permanent Magnets per MW

"In 2016, the UK generated more electricity from wind than coal..."

"Europe's Growth in Offshore Wind Must Triple to Achieve Paris Goals..."

"China to Add GigaWatt-Level Offshore Wind Capacity Annually Starting In 2018..."

"~200kg of Rare Earth Oxide (150kg Nd, 35kg Pr, 15kg Dy) per MW of Installed Capacity..."

- Successful development of Kvanefjeld will see Greenland become a major contributor to global rare earth supply
- Rare earths are critical to the global agenda of slowing climate change through the roll out of electric cars, renewable energy and energy efficient technologies
- An opportunity for Greenland to participate through the provision of critical materials, with jobs, growth and economic benefit to Greenland society





Regulatory Framework & Permitting Process

IAEA Director General
visits Kvanefjeld – May 2017



Jakob Rohmann Hard (Chief of Protocol, Foreign Department, Greenland), Liselotte Plesner (Danish Ambassador, Vienna), Nuka Møller (Greenland Business), Jørn Skov Nielsen (Deputy Minister, Industry Trade and Labour, Greenland), Kim Kielsen (Greenland Premier), John Mair (MD, GMEL), Yukiya Amano (Director General, IAEA)

- The Governments of Greenland and Denmark have worked to establish a regulatory framework to manage the production and export of uranium from Greenland
- Enabling legislation passed by both respective parliaments to implement safeguards and export controls in accordance with IAEA and EURATOM
- In September 2016, Greenland formalised status as signatory to IAEA conventions
- Routine site inspection conducted by IAEA in August 2018, with all in good order



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Corporate Snapshot



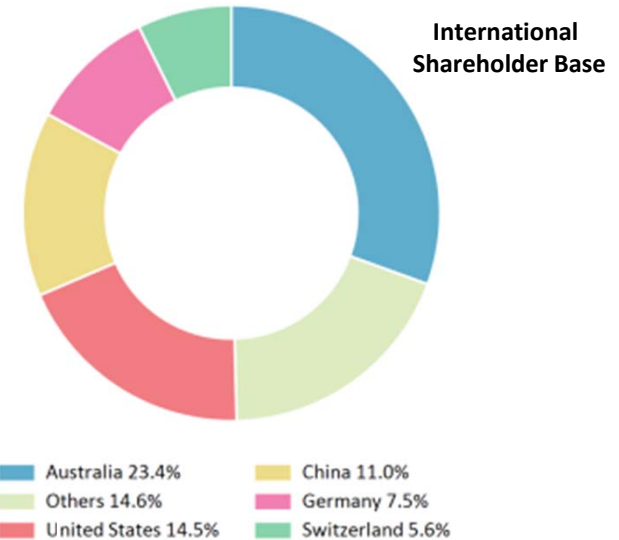
Board

Non-Executive Chairman	Tony Ho
Managing Director	Dr John Mair
Non-Executive Director	Simon Cato
Non-Executive Director	Xiaolei Guo

Top Shareholders

Shenghe Resources Holdings	125M shares
Tracor Limited	53M shares

CURRENT INVESTOR LOCATION



Capital Structure

Shares outstanding	1133M
Market capitalization	A\$136M (@12 cents)

Kvanefjeld Project Ownership - 100%

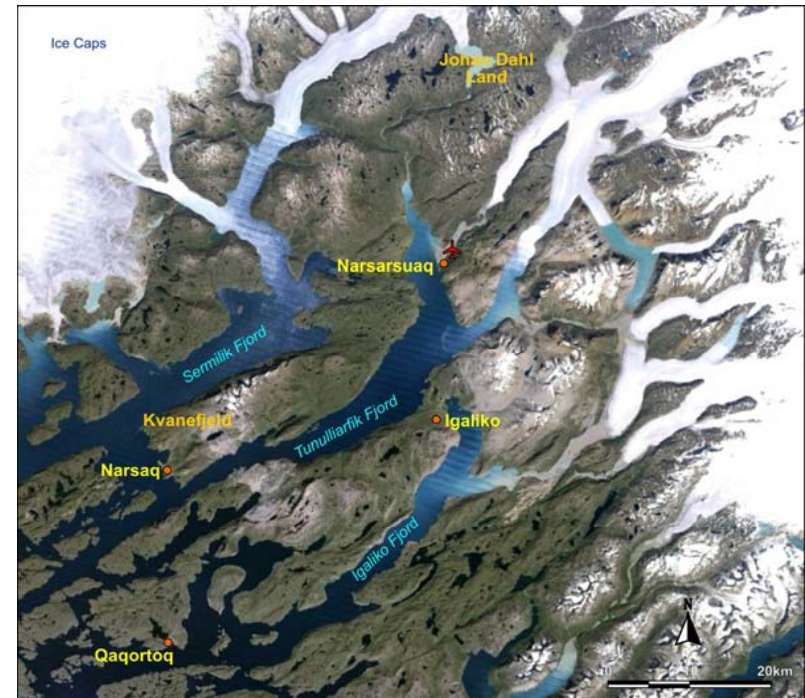
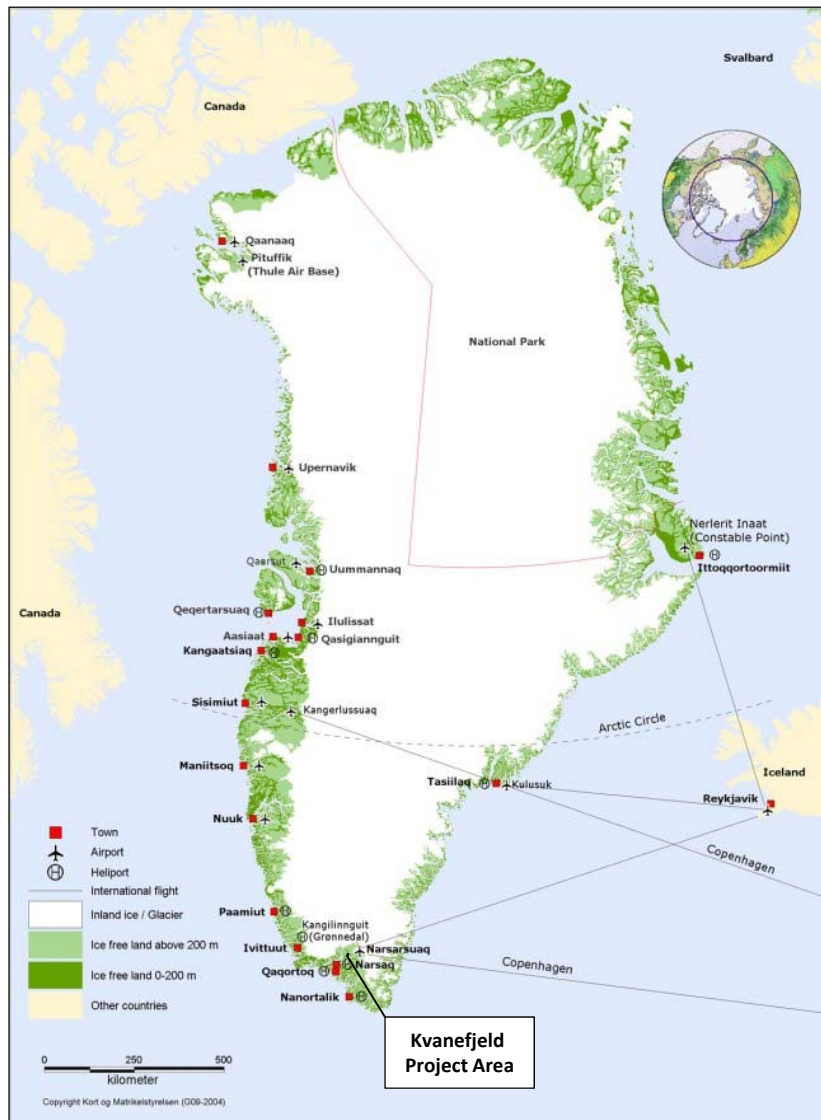


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Appendix



Kvanefjeld Project – Location and Access



- The Kvanefjeld Project area is favourably located in southern Greenland
- Narsarsuaq international airport is located 35km away, 4h 50m flight from Copenhagen
- Project area features year-round direct shipping access, via deep water fjords that lead directly to the North Atlantic Ocean
- Climatically – mildest part of Greenland with average temperature ranging from -2 to +10°C
- Narsaq town, located approximately 8-10km from project area



Narsaq Peninsula – Southern Greenland



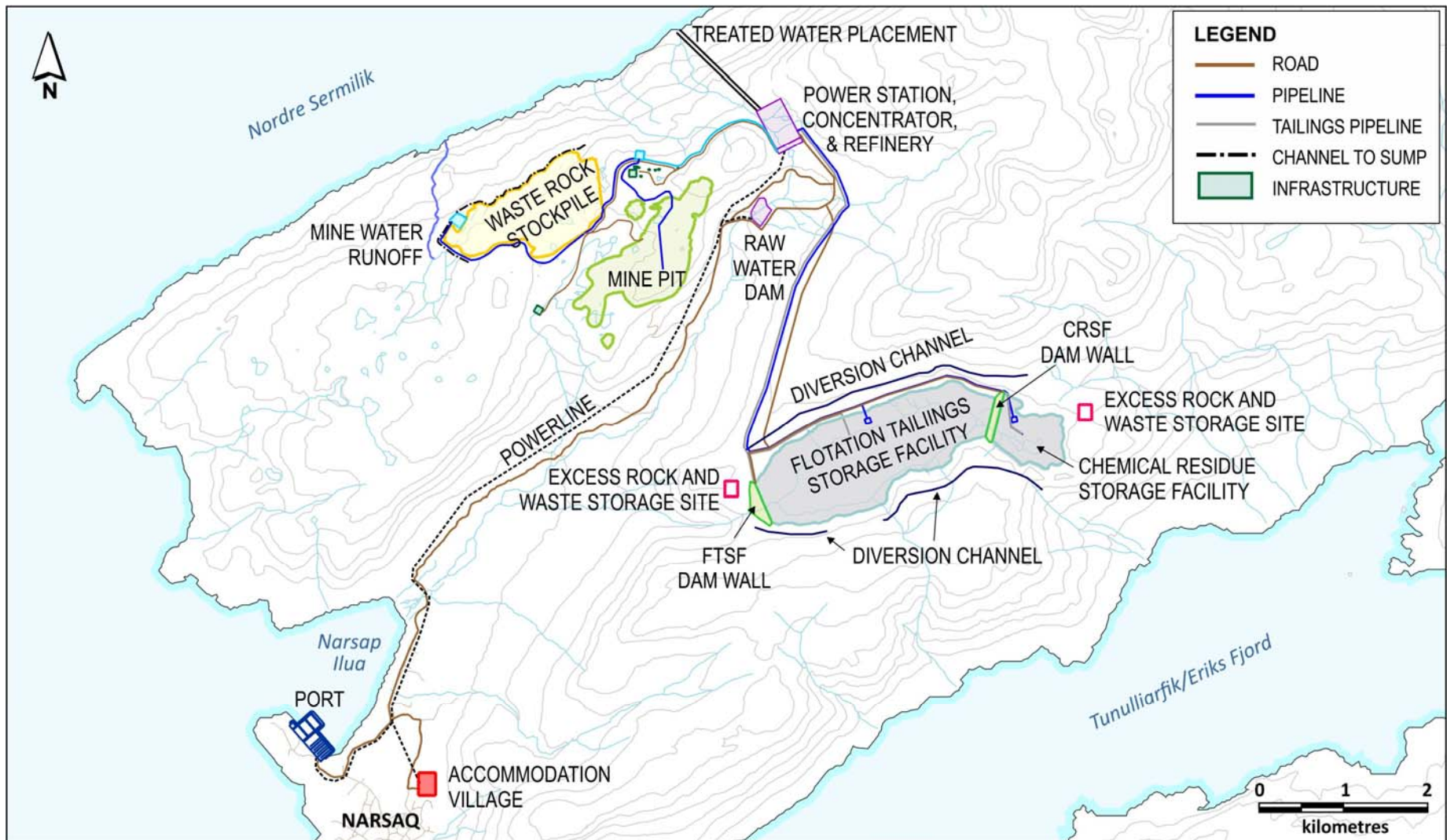
- The footprint of proposed operations is largely restricted to the Kvanefjeld plateau, Narsaq valley, and Taseq basin.
- Rocks of the Ilimaussaq Complex are strongly enriched in rare elements and have been actively dispersed into the surrounding environment by erosional processes, thereby strongly influencing the natural (baseline) chemistry.
- Taseq Basin is underlain by impermeable crystalline rocks (naujaite), and owing to the influence of the unusual rock chemistry, contained water is naturally enriched in a range of elements, is non-potable, and is devoid of life.



Kvanefjeld Project – Geology - Geography

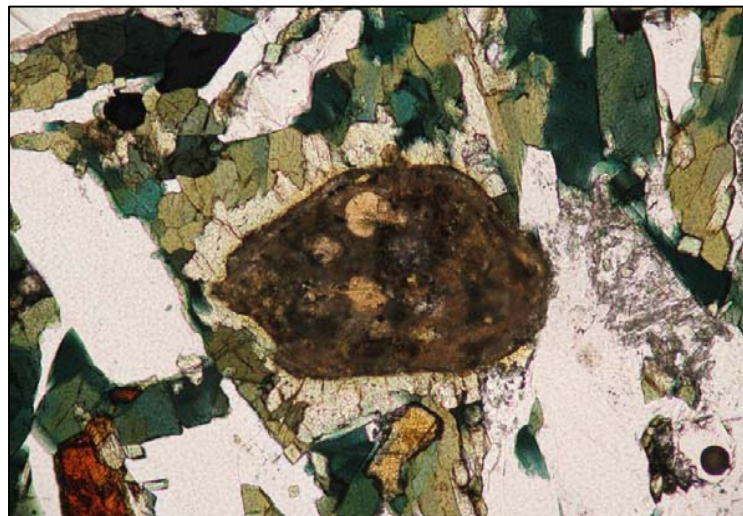


Kvanefjeld Project – Key Infrastructure



Process Advantage – the Seismic Shift

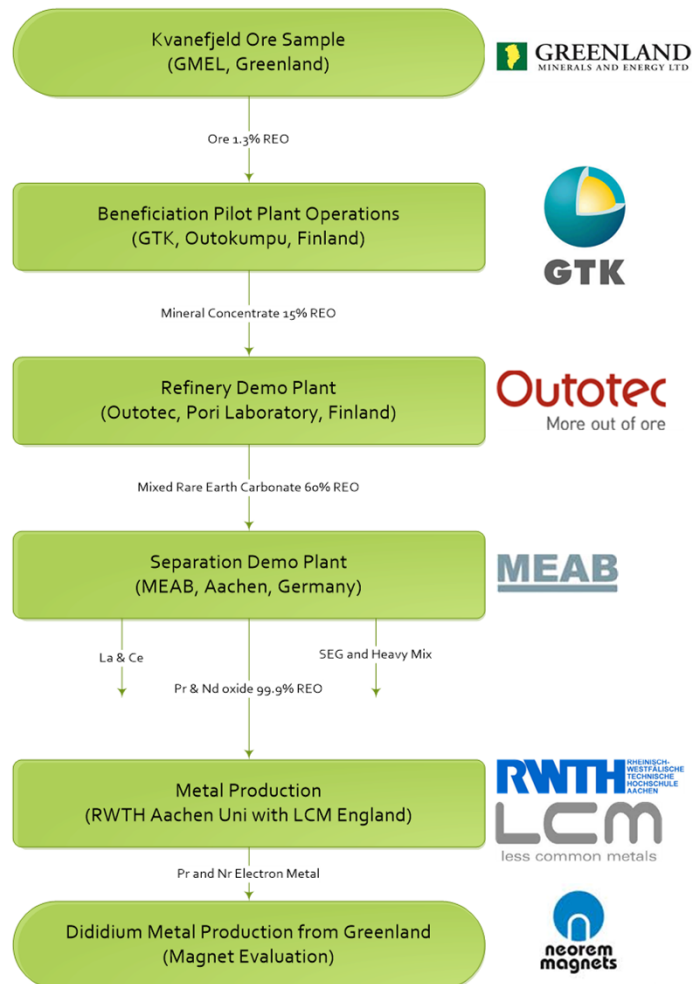
- Viability of a rare earth project is more dependant on metallurgical performance than grade
- REE's occur locked within minerals
- The RE minerals in most deposits are *highly refractory* (vault like), and difficult to crack
- In contrast, the unique minerals at Kvanefjeld are *non-refractory*
- This allows simpler processing, leading to lower production costs
- Steenstrupine is the main RE mineral at Kvanefjeld, and contains ~25% REO
- It is enriched across all key rare earths including Nd, Pr, Dy, Tb
- Can be effectively concentrated with conventional froth flotation (multiple successful pilot plant operations)
- Both REE's and U can be readily leached in acidic solutions under atmospheric conditions (pilot plant proven)
- Detailed mineralogical studies conducted through MDRU, University of British Columbia



Photomicrograph – steenstrupine grain surrounded by amphibole and feldspar in lujavrite ore

Significant Pilot Plant Work With Tier 1 Technical Consultants

Material Flow During EURARE Demonstration Work Package for Kvanefjeld Ore



Key EIA, SIA Consultants



Statement of Identified Mineral Resources – (JORC-Code 2012 Compliant)

Cut-off (U ₃ O ₈ ppm) ¹	Multi-Element Resources Classification, Tonnage and Grade									Contained Metal				
	Classification	M tonnes Mt	TREO ² ppm	U ₃ O ₈ ppm	LREO ppm	HREO ppm	REO ppm	Y ₂ O ₃ ppm	Zn ppm	TREO Mt	HREO Mt	Y ₂ O ₃ Mt	U ₃ O ₈ M lbs	Zn Mt
<i>Kvanefjeld - February 2015</i>														
150	Measured	143	12,100	303	10,700	432	11,100	978	2,370	1.72	0.06	0.14	95	0.34
150	Indicated	308	11,100	253	9,800	411	10,200	899	2,290	3.42	0.13	0.28	172	0.71
150	Inferred	222	10,000	205	8,800	365	9,200	793	2,180	2.22	0.08	0.18	100	0.48
150	Grand Total	673	10,900	248	9,600	400	10,000	881	2,270	7.34	0.27	0.59	368	1.53
200	Measured	111	12,900	341	11,400	454	11,800	1,048	2,460	1.43	0.05	0.12	83	0.27
200	Indicated	172	12,300	318	10,900	416	11,300	970	2,510	2.11	0.07	0.17	120	0.43
200	Inferred	86	10,900	256	9,700	339	10,000	804	2,500	0.94	0.03	0.07	49	0.22
200	Grand Total	368	12,100	310	10,700	409	11,200	955	2,490	4.46	0.15	0.35	252	0.92
250	Measured	93	13,300	363	11,800	474	12,200	1,105	2,480	1.24	0.04	0.10	75	0.23
250	Indicated	134	12,800	345	11,300	437	11,700	1,027	2,520	1.72	0.06	0.14	102	0.34
250	Inferred	34	12,000	306	10,800	356	11,100	869	2,650	0.41	0.01	0.03	23	0.09
250	Grand Total	261	12,900	346	11,400	440	11,800	1,034	2,520	3.37	0.11	0.27	199	0.66
300	Measured	78	13,700	379	12,000	493	12,500	1,153	2,500	1.07	0.04	0.09	65	0.20
300	Indicated	100	13,300	368	11,700	465	12,200	1,095	2,540	1.34	0.05	0.11	82	0.26
300	Inferred	15	13,200	353	11,800	391	12,200	955	2,620	0.20	0.01	0.01	12	0.04
300	Grand Total	194	13,400	371	11,900	471	12,300	1,107	2,530	2.60	0.09	0.21	159	0.49
350	Measured	54	14,100	403	12,400	518	12,900	1,219	2,550	0.76	0.03	0.07	48	0.14
350	Indicated	63	13,900	394	12,200	505	12,700	1,191	2,580	0.87	0.03	0.07	54	0.16
350	Inferred	6	13,900	392	12,500	424	12,900	1,037	2,650	0.09	0.00	0.01	6	0.02
350	Grand Total	122	14,000	398	12,300	506	12,800	1,195	2,570	1.71	0.06	0.15	107	0.31

Statement of Identified Mineral Resources – (JORC-Code 2012 Compliant)

Cut-off (U ₃ O ₈ ppm) ¹	Multi-Element Resources Classification, Tonnage and Grade									Contained Metal				
	Classification	M tonnes Mt	TREO ² ppm	U ₃ O ₈ ppm	LREO ppm	HREO ppm	REO ppm	Y ₂ O ₃ ppm	Zn ppm	TREO Mt	HREO Mt	Y ₂ O ₃ Mt	U ₃ O ₈ M lbs	Zn Mt
Sørensen - March 2012														
150	Inferred	242	11,000	304	9,700	398	10,100	895	2,602	2.67	0.10	0.22	162	0.63
200	Inferred	186	11,600	344	10,200	399	10,600	932	2,802	2.15	0.07	0.17	141	0.52
250	Inferred	148	11,800	375	10,500	407	10,900	961	2,932	1.75	0.06	0.14	123	0.43
300	Inferred	119	12,100	400	10,700	414	11,100	983	3,023	1.44	0.05	0.12	105	0.36
350	Inferred	92	12,400	422	11,000	422	11,400	1,004	3,080	1.14	0.04	0.09	85	0.28
Zone 3 - May 2012														
150	Inferred	95	11,600	300	10,200	396	10,600	971	2,768	1.11	0.04	0.09	63	0.26
200	Inferred	89	11,700	310	10,300	400	10,700	989	2,806	1.03	0.04	0.09	60	0.25
250	Inferred	71	11,900	330	10,500	410	10,900	1,026	2,902	0.84	0.03	0.07	51	0.20
300	Inferred	47	12,400	358	10,900	433	11,300	1,087	3,008	0.58	0.02	0.05	37	0.14
350	Inferred	24	13,000	392	11,400	471	11,900	1,184	3,043	0.31	0.01	0.03	21	0.07
Project Total														
150	Measured	143	12,100	303	10,700	432	11,100	978	2,370	1.72	0.06	0.14	95	0.34
150	Indicated	308	11,100	253	9,800	411	10,200	899	2,290	3.42	0.13	0.28	172	0.71
150	Inferred	559	10,700	264	9,400	384	9,800	867	2,463	6.00	0.22	0.49	326	1.38
150	Grand Total	1010	11,000	266	9,700	399	10,100	893	2,397	11.14	0.40	0.90	593	2.42

¹There is greater coverage of assays for uranium than other elements owing to historic spectral assays. U₃O₈ has therefore been used to define the cutoff grades to maximise the confidence in the resource calculations.

²Total Rare Earth Oxide (TREO) refers to the rare earth elements in the lanthanide series plus yttrium.

Note: Figures quoted may not sum due to rounding.