

Exploring the highly-prospective Ilimaussaq Intrusive Complex, favourably located near the southern tip of Greenland

457 Mt JORC compliant multi-element resource (REE, U, Zn, NaF) defined at Kvanefjeld plateau, with huge upside potential

Interim Report on Pre-Feasibility Study scheduled for February 2010

Greenland Minerals and Energy Ltd is an mineral exploration and development company positioning itself to become the worlds premier supplier of Rare Earth Elements. The company is listed on the Australian Securities Exchange.

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December 2009 Quarterly Report

Friday, 29th January, 2010

Highlights

- *New Greenland Mineral Resources Act effective as of 1st January 2010*
- *Interim Report on the Kvanefjeld Pre-Feasibility Study completed and under review prior to finalisation. Market summary anticipated on Monday February 1st*
- *Outline of works programs planned for 2010*



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Introduction

Greenland Minerals and Energy Ltd (“GMEL” or the “Company”) is a mineral exploration and development company actively exploring in southern Greenland. The Company is primarily focused on exploring its license area 2005/28 over the northern Ilimaussaq Intrusive Complex; a unique geological entity with extraordinary resource potential. A large JORC-compliant multi-element resource (rare earth elements, zinc, uranium and sodium fluoride) has been rapidly defined at Kvanefjeld plateau, which clearly highlights the world-class resource potential of the Ilimaussaq Complex. A pre-feasibility study is currently underway, and an Interim Report that outlines a base-case multi-element mining operation at Kvanefjeld will be released at the beginning of February.

The Company’s vision is one of the big picture; to be a significant producer of commodities of fundamental strategic importance and value to tomorrow’s world. Rare earth elements (REEs) are now recognised as being critical to the global manufacturing base of many emerging consumer items. However, China has successfully monopolised global REE supply, raising serious concerns to non-Chinese consumers over the long-term stability of REE supply and pricing. Electricity from nuclear power continues to gain acceptance internationally as the clean base-load energy supply of the future; owing to rapidly increasing power demands coupled with concerns over carbon-based energy sources, greenhouse gas emissions and global warming. As the nuclear renaissance continues to gain momentum, the strategic importance of uranium resources will continue to emerge.

The northern Ilimaussaq Complex offers the potential for multi-element resources of unparalleled scale; resources that could restore balance to the global supply of rare earth elements, and contribute to the energy security of Europe for many decades.

December Quarter Activities

During the December quarter, GMEL has been focussed on compiling an Interim Report on the Kvanefjeld Pre-Feasibility study. This study has been the Company’s main activity throughout 2009 and aims to demonstrate the viability of a multi-element mining operation at Kvanefjeld. The resource statement released in June 2009 confirmed Kvanefjeld as one of the largest multi-element resources of rare earth elements and uranium in the world. However, owing to the unique nature of the Kvanefjeld ore, it has been an important development to demonstrate that REEs and uranium can be extracted in an economically viable and environmentally responsible way.

The work commissioned by GMEL to date has been carried out by international consulting firms covering a wide range of disciplines, and in particular:

- Resource definition and mine plans
Coffey Mining, Hellman and Schofield
- Metallurgy and process development
AMEC Minproc, ANSTO, SGS Lakefield Oretest, CSIRO, Battery Limits
- Environmental baseline and Environmental Impact Assessment
Coffey Environments, Orbicon (Denmark)
- Plant engineering design, infrastructure, capital development
AMEC Minproc, NIRAS (Denmark)
- Marketing
BCC Research, IMCOA, World Nuclear Association, MGMT Group

In 2009 GMEL, in conjunction with AMEC Minproc and ANSTO, developed a process flow sheet to extract REEs and uranium, and generate a RE carbonate product and uranium oxide. This flow sheet was released in the September Quarterly Activities report. Engineering and mining studies have been conducted to evaluate the viability of the process flow sheet, and these studies have been collectively integrated to form a base-case mining scenario. The interim report brings together the current state of knowledge on the project, and presents a detailed synopsis of the base-case mining operation. The Company is confident it will provide a clear indication that Kvanefjeld could be developed as an economically robust, large-scale mining operation. Through work programs conducted to date, the Company has identified several areas in which the process flow sheet could be enhanced. In 2010, further metallurgical test work will evaluate these opportunities, before finalisation of the process flow sheet that will be taken into a Definitive Feasibility Study.

New Greenland Minerals Resources Act

A new Mineral Resources Act that was approved by the Greenland Government on 27th November 2009 came into effect on 1st January 2010. The Company views this step as a key milestone for Greenland on its path to self rule. The complete handover of mineral and hydrocarbon rights from Denmark to Greenland is expected to be completed in the near future. The handover will give Greenland full control of its mineral and hydrocarbon resources that have formerly been shared with Denmark.

2010 Work Programs

The interim report on the pre-feasibility will focus upcoming 2010 work programs to best add-value to the Kvanefjeld project. The outcomes of these programs could see significant enhancements to the projects economics. The work programs are in line with the Company's

aims to develop Kvanefjeld as a low cost, long term, large scale producer of RE concentrates and uranium.

Work programs will include:

Commence Social and Environmental Impact Studies: The success of any large-scale mining operation is contingent on the project meeting all social and environmental impact requirements. GMEL aims to be working closely with the Greenlandic authorities to plan the scope of these studies.

Beneficiation Studies: As the Company has developed a more in-depth understanding of the geology of the Kvanefjeld resource, new opportunities have been identified that could remove waste minerals prior to the CPL circuit thereby concentrating ore minerals to increase both RE and uranium head grades.

Improve Rare Earth Recoveries: While the current nominal production estimates would see Kvanefjeld rival Bayan Ebo as the largest RE producing mine in the world, there is scope to increase RE recoveries through the removal of acid consuming gangue minerals, as well as optimising the leachability of RE-bearing minerals.

Investigate Zinc Recovery: There is potential to generate a sphalerite (ZnS) concentrate with flotation that not only would see another product generated, but also has potential downstream benefits to both the CPL and RE circuits.

Improve Mine Schedule: Further detailed mine studies may result in less dilution in the mine schedule that could see an increase in the average RE and uranium head grades over the life-of-mine.

Convert *Inferred* to *Indicated* Resources: At present, the mine schedule is based on indicated resources. Conversion of inferred resources to indicated through increasing the drill hole density, will extend the mine life.

Define New Multi-Element Resources: There is genuine scope to define new multi-element resources within the Company's licence area that are of the same ore-type to that at Kvanefjeld.

Tenure, Permitting and Project Location

Tenure

Greenland Minerals and Energy Ltd (ABN 85 118 463 004) is a company listed on the Australian Securities Exchange. The Company is conducting exploration of EL2005/28 in accordance with a joint venture agreement. The Company currently controls 61% of the license (with options to move to 100%). The Company, through its subsidiary, is also the operator of the project.

The tenement is classified as being for the exploration of minerals. The project hosts significant multi-element mineralisation within the Ilimaussaq Intrusive Complex.

Historically the Kvanefjeld deposit, which comprises just a small portion of the Ilimaussaq Complex, was investigated by the Danish Authorities. The project has received significant past exploration in the form of drilling, geophysics, geochemistry, an exploratory adit and numerous and varying metallurgical test work and technical papers.

Permitting

Currently there is a zero-tolerance toward uranium mining of any kind in Greenland. However Greenland Minerals and Energy have been fully permitted in all their exploration activities at Kvanefjeld to date by the Bureau of Minerals and Petroleum. The Company is exploring for, and evaluating, specialty metal resources in the northern Ilimaussaq Intrusive Complex. Mineral resources that have been identified by the Company to date are multi-element, or polymetallic, in nature and are inclusive of uranium-bearing minerals.

The Company conducts its work programs with the understanding that under the current regulations multi-element deposits such as those defined at Kvanefjeld to date cannot be exploited. The Company is working closely with the relevant authorities to define acceptable development scenarios.

Location

The exploration lease covers an area of 80km² in Nakkaalaaq North on the southwest coast of Greenland. The project is located around 46° 00'W and 60 55'N.

The town of Narsaq is located approximately 7 kilometres to the south west of the license area. Narsaq is connected to Narsarsuaq International Airport by commercial helicopter flights operated by Air Greenland. Local transport between settlements is either by boat or by helicopter.

The Company has office facilities in Narsaq where storage, maintenance, core processing, and exploration activities are managed. This office supports the operational camp located on the Kvanefjeld Plateau above the town where the operational staff are housed.

Access to the Kvanefjeld plateau (at approximately 600m asl) where exploration activities are focussed is generally gained by helicopter assistance from the operations base located on the edge of the town of Narsaq. It is possible to access the base of the plateau by vehicle and then up to the plateau by a track.

Capital Structure 14/1/2010

Total Ordinary shares:	229,568,555
<i>Quoted</i> options exercisable 20c:	141,160,047
Unquoted options exercisable 10c:	750,000
Unquoted options exercisable 20c:	28,800,000
Unquoted options exercisable 50c:	5,750,000
Unquoted options exercisable 1.00:	6,250,000
Unquoted options exercisable 1.50:	2,388,840

Please visit the company's website at www.ggg.gl where recent news articles, commentary, and company reports can be viewed.

Yours faithfully,



Roderick McIlree

Managing Director
Greenland Minerals and Energy Ltd

ABOUT GREENLAND MINERALS AND ENERGY LTD.

Greenland Minerals and Energy (ASX – GGG) is an exploration and development company focused on unlocking the mineral riches of southern Greenland. The Company’s flagship project is the Kvanefjeld multi-element deposit (Rare Earth Elements, Zinc, Uranium), that is rapidly emerging as the world’s premier specialty metals project. Kvanefjeld has now entered the pre-feasibility phase that will ultimately map out a path to development and timeline to production. For further information on Greenland Minerals and Energy visit <http://www.ggg.gl> or contact:

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Greenland Minerals and Energy Ltd is aware of and respects the Greenlandic government stance on uranium exploration and development in Greenland – which is currently a zero tolerance approach to the exploration and exploitation of uranium. Any potential change toward the current stance of zero tolerance is not expected until after the public consultation and review process is concluded in the coming months.

The company is currently advancing the Kvanefjeld Project, recognised as the world’s largest undeveloped JORC compliant resource of rare earth oxides (REO), in a multi-element deposit that is inclusive of uranium and zinc.

Greenland Minerals will continue to advance this world class project in a manner that is in accord with both Greenlandic Government and local community expectations, and looks forward to being part of the community discussion on the social and economic benefits associated with the development of the Kvanefjeld Project.

The information in this report that relates to Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by Jeremy Whybrow, who is a Member or Fellow of The Australasian Institute of Mining and Metallurgy or the Australian Institute of Geoscientists or a ‘Recognised Overseas Professional Organisation’ (‘ROPO’) included in a list promulgated by the ASX from time to time.

Jeremy Whybrow is a director of the company.

Jeremy Whybrow 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 2004 Edition of the ‘Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves’. Jeremy Whybrow consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.