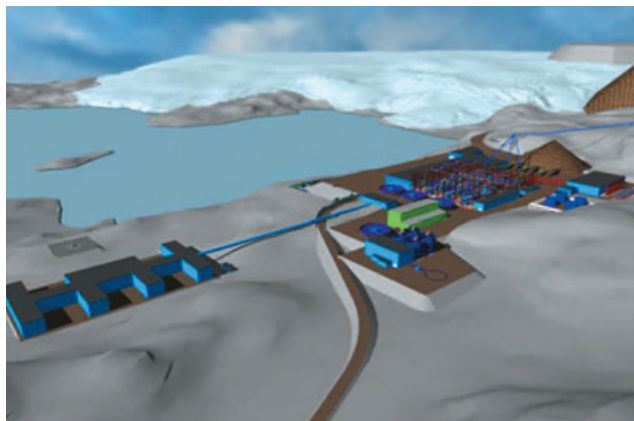


*The views, opinions and evaluations taken or quoted from external sources are not necessarily those of the publisher (GEUS/BMP)*

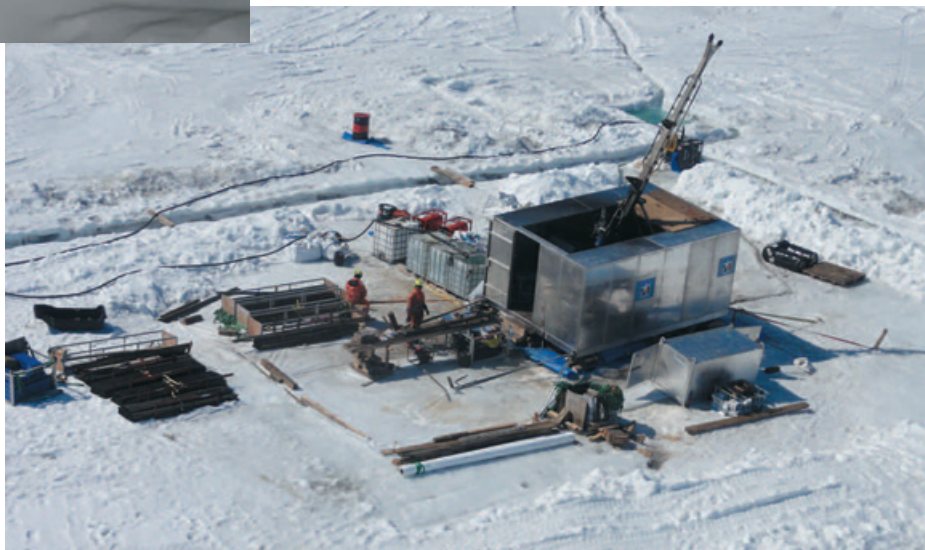
### **BMP visit to China demonstrates the Greenland mineral potential for base metals, REEs and iron ore**

The Greenland Bureau of Minerals and Petroleum (BMP) will be exhibiting at the China Mining Congress & Expo for the first time on the 6-8 November 2011 in Tianjin, China. At the BMP booth, visitors will have a unique opportunity to learn about the Greenland geology as well as the mineral potential for base metals, rare earth elements (REEs), iron alloys and 'how to apply for mining licences', which are among the main topics on display. On 7 November at 2-3.30 pm there will be a special Greenland session with participation by the Greenlandic Minister, senior officials from the Greenland Government, the Geological Survey of Denmark and Greenland and among others companies active in exploration for iron, copper and REEs in Greenland.



*3D-model of the process plant facility to be constructed in connection with the mining operation at Isua (London Mining).*

*Drilling at the Isua project in 2011. As the iron deposit dips beneath the Inland Ice the company need to drill through 100-160 m of ice before the deeper parts of the deposit can be tested (MT Højgaard).*



### **Several exploration companies are approaching the exploitation stage**

After a couple of years of dedicated exploration activities, a number of exploration companies are now getting close to the exploitation stage. The companies have demonstrated constant engagement in Greenland and a number of projects have been elaborated to such a degree that the logical next step; exploitation – is just around the corner.

### **London Mining moving towards exploitation of its Isua iron ore project**

In March 2010 London Mining reported a JORC resource estimate, completed by Snowden Mining Industry Consultants, of 951 Mt at 36% Fe.

In 2011, London Mining mandated the Canadian engineering company, SNC-Lavalin Inc. to carry out the Bankable Feasibility Study (BFS) for its Isua Iron Ore Mine Project in Greenland. The BFS is for the design of a 15 Mtpa project capacity for the production of high quality concentrate at 70.2% Fe, and with a mine life of 15 years. The BFS is scheduled for completion by December 2011.

The Isua project will include the following major components: A deep water port facility to allow for year round shipping of the concentrate product; an access road of some 100 km to link the port facility to the process plant area; a slurry pipeline along the access road to deliver the concentrate from the process plant down to the

port facility, where it will be dewatered for shipping; the mine, and other essential infrastructures such as power plants, accommodation facilities, equipment maintenance facilities, fuel storage and airstrip.

After three successful seasons of exploration drilling in 2008, 2009 and 2010, London Mining pursued resources drilling from May to October 2011 with a drilling program of 7,000 to 8,000 meters in order to further convert inferred resources into indicated resources. In 2011, London Mining also carried out an extensive geotechnical and geo-mechanical drilling program at the Isua project site in support of mine design and infrastructure design as part of the engineering work for the BFS. All this field work was conducted and managed from the London Mining Isua camp and Nuuk office in Greenland.

The Environmental Impact Assessment (EIA) and the Social Impact Assessment (SIA) Study for the Isua project are also scheduled for completion by the end of 2011. Both the EIA and SIA were executed in compliance with the guidelines and directives of the Greenland authorities. The permitting process will start in January 2012 with submittal to BMP of the complete draft of the EIA and SIA, along with London Mining's application for the exploitation licence for the Isua project. Construction of the Isua project is scheduled to start in September 2012 and to continue until the end of 2014. Isua is planned to come into operation and production during the 1st quarter of 2015.

## Aappaluttoq ruby and pink sapphire project preparing for mining permit

Rubies and pink sapphires (red and pink varieties of the mineral corundum) were first identified in Greenland in 1966. True North Gems (TNG), a Canadian company, has been actively exploring for corundum in the Aappaluttoq area since 2004. TNG is now planning to develop a mine at Aappaluttoq to extract the corundum for sale around the world.

The corundum showings at Aappaluttoq typically include occurrences of co-existing red ruby and pink sapphire. Exploration work has consisted of drilling, mapping, and bulk sample collection. Since 2007, 65 holes have been drilled totalling 6,457 m of drilling data. Bulk samples were collected by standard techniques and recovery procedures includ-



Close-up of ruby crystal from the Aappaluttoq deposit.

True North Gems camp site at Aappaluttoq.



ing cutting with chain saws, chisels, and use of low intensity blasting.

To date TNG has invested DKK 87.5 million (about 16.5 million Canadian dollars) in ruby exploration. TNG is currently preparing a bankable feasibility study, including a social and environmental impact assessment to be submitted together with an application for exploitation to the BMP. The current plans will involve the development of a mine and process facility at Aappaluttoq along with associated infrastructure and the construction of a corporate office and corundum sort house in the Greenland capital of Nuuk. The ore at Aappaluttoq will be extracted using open pit mining methods.

## TANBREEZ prepares a definitive feasibility study on its Zr-REE project

Current work on the TANBREEZ deposit (also known by its Danish name 'Kringlerne') indicates a resource of no less than 1,000 Mt grading 2% ZrO<sub>2</sub>, 0.25% Nb<sub>2</sub>O<sub>5</sub>, 0.5% REO, 0.1% Y<sub>2</sub>O<sub>3</sub> and 0.025% Ta<sub>2</sub>O<sub>5</sub>. The distribution of light and heavy REEs in eudialyte is reported to be 88% and 12% respectively.

On the 22 September 2011, TANBREEZ Mining Greenland released the following note on the latest development of the TANBREEZ deposit:

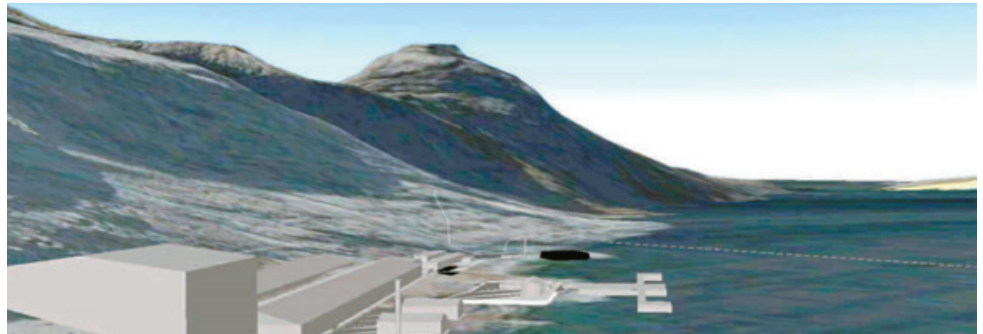
Extensive metallurgical testwork has been undertaken on samples of ore taken from the TANBREEZ deposit. In 2009 and in 2011 the company directed an Australian metallurgical test laboratory (Ammtec) to conduct detailed metallurgical testing to establish the parameters required for the design of a physical processing circuit for the ore. The results of the testwork are to be included in the design criteria to enable the completion of a feasibility study.

Key processing characteristics of the ore include:

- The TANBREEZ deposit contains three main mineral species; arfvedsonite, eudialyte and feldspar.
- The eudialyte contains all the valuable metals of interest in the ore. The valuable elements have been shown to occur in constant proportion to the zirconium content. This has enabled testwork and design to progress based on Zr assays.
- The eudialyte is liberated at the relatively coarse grain size of 330 µm.
- The eudialyte can be physically upgraded by a factor of three by magnetic separation.

The three primary minerals within the ore-body have been shown to have specific magnetic properties. The arfvedsonite is highly magnetic and the feldspar is non-magnetic, while the eudialyte exhibits magnetic behaviour

3D-model of the process plant and shipping facility to be constructed in connection with the mining operation at Kringlerne (TANBREEZ Mining Greenland).



Aerial view of the Kringlerne deposit and TANBREEZ camp site (marked with red circle) (TANBREEZ Mining Greenland).



in a strongly magnetic field. These properties have been utilised in formatting a testwork programme at Ammtec with the results from that campaign taken into the feasibility study.

The following programs of testing are currently being conducted at Ammtec.

- Bench scale magnetic separation tests to refine specific process criteria.
- Bulk high pressure grinding rolls and semi-commercial scale magnetic separation testing to produce sufficient eudialyte and feldspar samples for downstream processing by others.
- Tailings settling studies and waste rock testwork to provide input to the environmental aspects of the feasibility study.

## Kvanefjeld mineralisation more widespread than expected

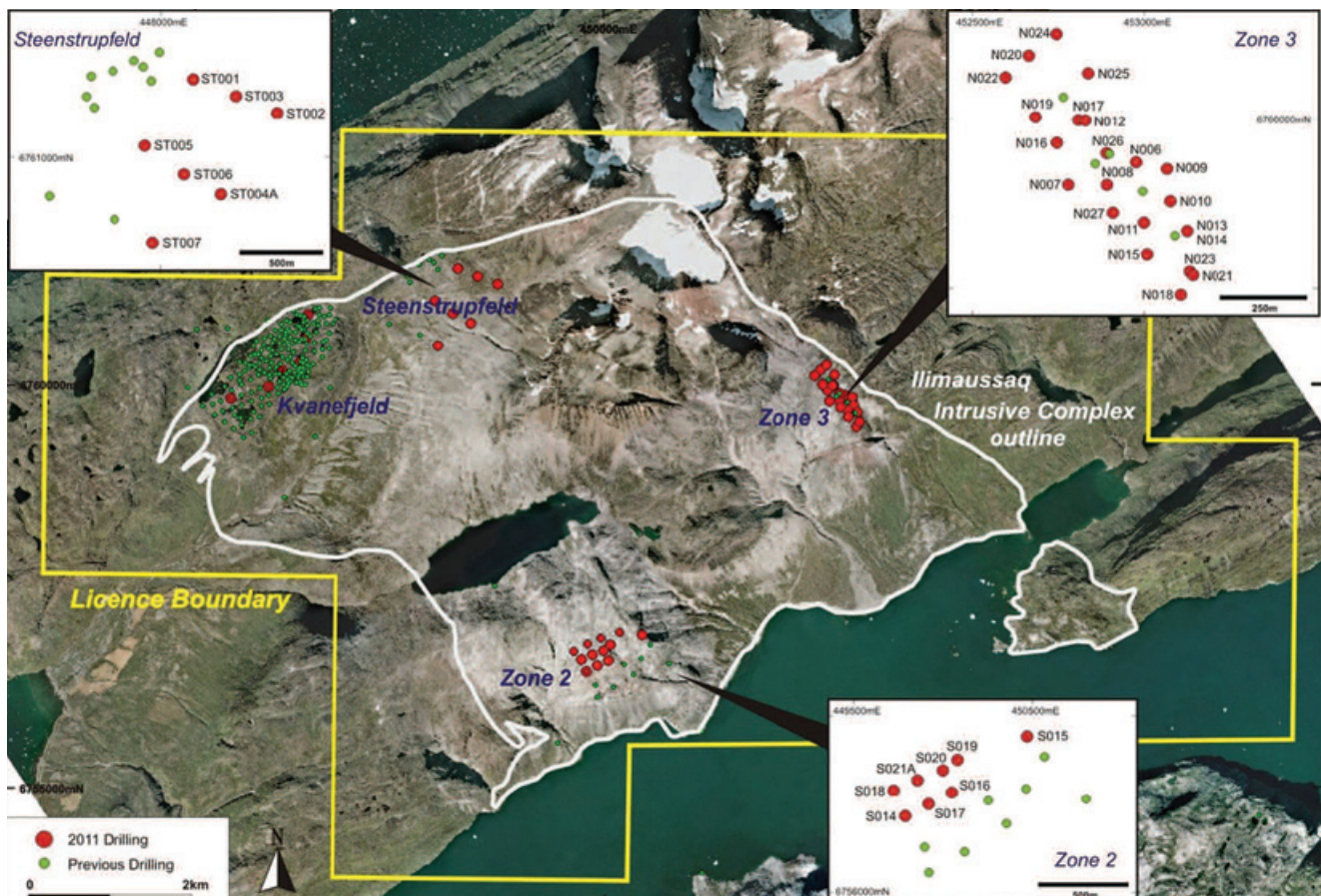
On 24 August Roderick McIlree, Managing Director of Greenland Minerals and Energy Limited (GMEL) reported that the company had issued an update on the 2011 drill programme that is currently underway on the Kvanefjeld multi-element project (REEs, U, Zn) in Greenland. Major focus for the program is on generating sufficient data to establish initial resource estimates on Zones 2 and 3, both located within the broader northern Ilímaussaq project area. These zones both represent satellite deposits to

Kvanefjeld, where a 619 Mt JORC-code compliant resource has been defined that contains 6.6 Mt total rare earth oxides (TREO), 350 Mlbs  $U_3O_8$ , and 1.4 Mt Zn.

Zones 2 and 3, demonstrate that mineralisation is far more widespread than previously recognised. Geological evidence suggests that Zones 2 and 3 represent outcropping, or near-surface expressions of a mineralised system that extends over several kilometres from Kvanefjeld, and is interconnected at depth. The 2011 drilling programme aimed at generating an initial resource estimate for both Zones 2 and 3.

The 2011 drilling at Zone 2 is now complete, with 10 holes drilled to depths of approximately 550 m. All drill holes intersected mineralised lujavrite (host rock to REE-U-Zn), which remains open to the east, north and west. The results adds to the geometry of the main mineralised zone that was established from holes drilled in 2010.

These initial holes identified an upper high-grade lens (e.g. 185 m at 1.2% TREO, 442ppm  $U_3O_8$ , 0.34% Zn), overlying a broad lower-grade lens. The drill hole array at Zone 2 now covers an area of 800 m by 500 m, and extends to depths of up to 550 m. A JORC-code compliant 619 Mt resource has been defined at Kvanefjeld. The primary objective of the 2011 drill program is to establish initial resource estimates at Zones 2 and 3. There are also plans to produce a resource estimate at Steenstrupfjeld were further holes have been drilled. A metallurgical core has also been drilled at Kvanefjeld. The initial JORC-code compliant resource estimates on Zones 2 and 3 are anti-



Overview map of GMEL's multi-element project with location of zones 2 & 3 (Greenland Minerals and Energy).



Drilling at the Kvanefeld multi-element deposit in 2011 (Greenland Minerals and Energy).

pated to be finalised in Q1 2012. There is also potential for generating an initial resource estimate at Steenstrupfeld, where seven additional holes have been drilled.

## Hudson drills highest grade intervals to date at its Greenland REE project

“Hudson Resources is pleased to announce the 2011 Phase One drill results for the Sarfartoq rare earth element project in Greenland. Phase One drilling of the 2011 program included 4,891 m of infill and step out drilling at the ST1 Zone, where the company has outlined an NI 43-101 compliant inferred resource of 14.1 Mt of 1.5% TREO. The ST1 Zone contains over 40 million kilograms of neodymium oxide, which is the key component in permanent magnets and the fastest growth sector of the rare earths industry. An additional 3,328 m of exploratory drilling was also completed regionally to the north-east of ST1.” This announcement was released on 9 September 2011 by the Hudson President, James Tuer.

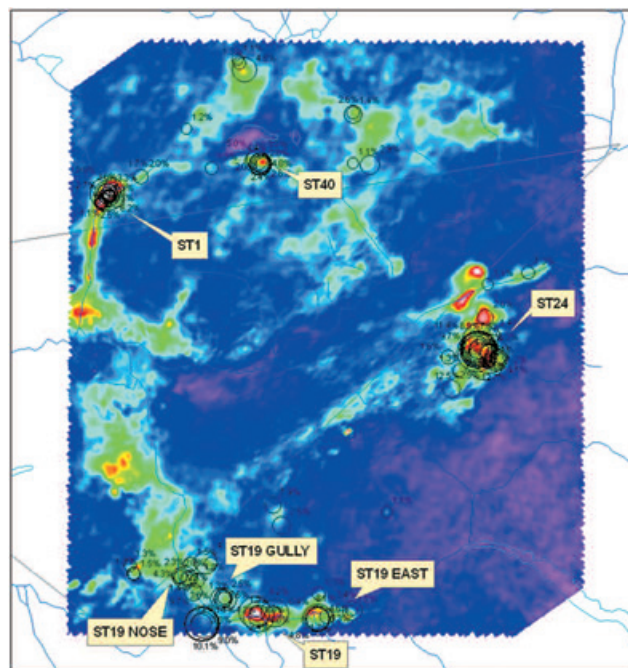
Phase Two drilling of an additional 8,338 m is now complete, with results pending. In total 16,557 m over 71 holes were drilled this year. All 2011 Phase Two holes have been split and bagged for shipment to ALS Chemex in Vancouver for assaying. The Company has also extracted a four-tonne metallurgical bulk sample from the surface of the ST1 Zone for use in additional metallurgical test work over the winter.

### 2011 Highlights:

Drilling continues to confirm high-grade zones at the ST1 body including 10 intercepts of 10 meters or more grading from 2.5% to 4.3% TREO (averaging 3.3% TREO over 13m)

- 2011 Phase One assays have extended the ST1 body by at least 200 m to the north-east.
- Wide zones of mineralisation include 128 m of 1.7% and 142 m of 1.4% TREO.
- Drilling at ST40 continues to intersect a very high ratio of neodymium oxide to TREO at 46%
- Preliminary Economic Assessment (PEA) on track for completion in 4-6 weeks
- Metallurgical test programs ongoing at two facilities

James Tuer stated, “We are very pleased with drilling results of our 2011 Phase One programme. The results continue to define the ST1 Zone and confirm our belief that there are



Overview map of the thorium radiation and project localities of the Sarfartoq REE project (Hudson Resources).



Well exposed outcrop at Hudsons ST1 zone.

distinct high-grade zones of rare earths, which will be an important contributor to the project value going forward. We are continuing to expand the mineralisation to the north and have intersected significant widths of carbonatite some 200 m north-east of the previously drilled intersections. The deposit remains open to the north, south and at depth. We have left two rigs on site for a quick start in the spring of 2012”.

### Ironbark finalising feasibility study on its Citronen Fjord base metal project

Ironbark is currently finalising a feasibility study on the wholly owned Citronen Base Metal Project. The study include plans for on-site processing, concentrate storage and shipping facilities. Ironbark is targeting a production between 100,000 and 150,000 tpa zinc metal and c. 10,000 tpa lead metal over a mine life of at least 16 years. The Citronen project is one of the world’s largest unde-

veloped zinc projects and is being evaluated to mine at a rate of 3 million tonnes per annum and produce zinc and lead concentrates for delivery around the world. Ironbark announced an upgraded resource in December 2010. Key points of this resource upgrade were;

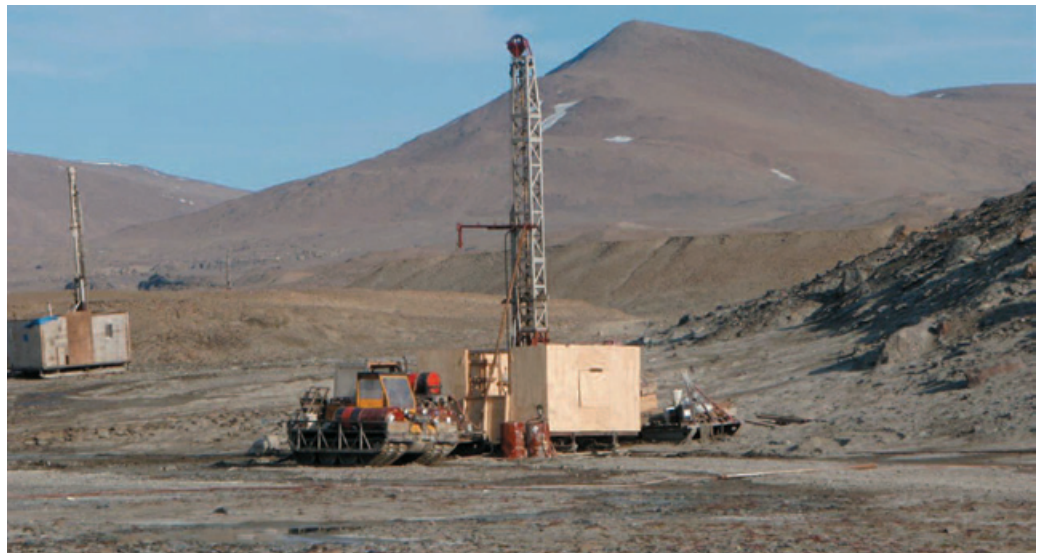
- Large resource category upgrade, with majority of mineralisation now upgraded to the Measured and Indicated category after having previously been mostly classified under the Inferred category.
- Increase in contained metal at equivalent grade in global resource with a 13% increase in zinc and lead content at +4% zinc (Zn) + lead (Pb) grade to now 11.8 billion pounds (lb) of Zn+Pb using 2% Zn cutoff.
- Esrum and Beach mineralisation joined with open-ended mineralisation within Level 3 sulphide horizon extending continuously in excess of 3,500 metres based on current drilling.



3D-model of the shipment, storage and process plant facilities to be constructed in connection with a mining operation at Citronen Fjord (Ironbark Zinc Limited).



*Zn-concentrate flotation test of high grade zinc ore from the Citronen deposit (Ironbark Zinc Limited).*



*Drilling at the Citronen deposit (Ironbark Zinc Limited).*

- Spectacular intercepts reported within 2010 exploration drilling at Valley and XX-Zone, not included in resource figures yet, as the drilling density is not sufficient to be classified under JORC but the intercepts represent high priority drilling targets for 2011.

The metal content reported at Citronen for the global resource (2% Zn cutoff) increased by 13% to 11.8 billion pounds of zinc and lead (Zn+Pb). This is primarily due to increases in the tonnage of material which forms the Level 3 sulphide horizons subsequent to increased geological information allowing Beach and Esrum Zones to be joined. Drilling was also successful in defining spectacular structurally controlled, high-grade mineralization at the XX Zone, which returned 35m at 9.6% Zn+Pb including 21 m at 14.4% Zn+Pb and interpreted continuations of the Discovery mineralisation in the Valley Zone.

## Greenland uranium policy remains unchanged

On 9 September 2010 the Greenland Government (Naalakkersuisut) approved a clarifying addition to the rules which regulate exploration for mineral resources.

This clarification means that companies which have found and demarcated mineral resources containing radioactive elements can apply for a licence to prepare assessments of the environmental impact and social sustainability.

In making this addition to the Standard Terms, Naalakkersuisut hopes to bring about more knowledge on the health and safety issues relating to radioactive elements in occurrences where the actual goal is other metals than the radioactive ones. This addition is in line with Naalakkersuisut's ambition to secure more knowledge about the consequences of exploration and exploitation of radioactive elements.

The addition to the rules does not give right to a licence to exploit radioactive elements.

Therefore Greenland's uranium policy remains unchanged and the zero tolerance for exploitation of radioactive elements continues intact.

## New issue of the series 'Geology & Ore' with themes on Greenland exploration

2011, Geology & Ore No.20: The rare earth element potential in Greenland, 12 pp.



## Announcing 'Greenland Day' Down Under, in Perth 7 December 2011

The Bureau of Minerals and Petroleum in Greenland will be hosting Greenland Day in Perth on Wednesday 7 December 2011 at the Parmelia Hilton. This conference, which in its third year, will see senior officials from the Greenland Government give an overview of the Greenland economy and showcase a range of focused investment opportunities in the country. In addition, a range of Australian and international resource companies with projects in Greenland will also present their investments.

The conference program will cover a range of topics from operating conditions in Greenland and how to apply for mining licenses, right through to a review of the geo-



logical environment and the potential for mineral deposits with focus on rare earth elements and base metals.

- The REE potential are demonstrated in talks on the Sarfartoq REE deposit, the Qaqarsuk and Tikiusaq deposits, the Kvanefjeld REE deposit, the Kringlerne Zr and REE deposit and the Motzfeldt Sø Ta-Nb-REE deposit.
- Base metals are highlighted especially from North and East Greenland including the Citronen Fjord zinc Sedex deposit.

For further information please contact Henrik Stendal: [hdal@nanoq.gl](mailto:hdal@nanoq.gl)

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