



**Quest Rare Minerals Ltd.**

## **QUEST REVIEWS RARE EARTH ELEMENT MINERALOGY AND METALLURGY OF THE B-ZONE DEPOSIT, STRANGE LAKE, QUÉBEC**

**Toronto, May 25, 2011 – Quest Rare Minerals Ltd. (TSX-V; NYSE Amex: QRM)** is pleased to provide a summary of the rare earth element (REE) mineralogy and metallurgy of its Strange Lake B-Zone deposit. In general, indications from the test work currently being undertaken by Hazen Research, Inc., of Golden, Colorado, are that the deposit is metallurgically simple in terms of the means by which the rare earths are to be extracted from the Strange Lake Peralkaline Granite host rock. Quest believes that the observed characteristics may ultimately contribute to lower operating costs for the notional mine operation set out in a recent Preliminary Economic Assessment (PEA) of the deposit (*see* Press Release : September 9, 2010). Hazen Research is currently working on Phase 2 solubility and precipitation experiments of the B-Zone mineralization in order to complete the final flow-sheet for use in the Pre-Feasibility Study currently being undertaken for the deposit (*see* Press Release : April 21, 2011). This final flow-sheet will also be used in a Pilot Mill studies expected to commence later in 2011.

“The metallurgical test results from the Strange Lake B-Zone have thus far been unequivocal in indicating that excellent recoveries to solution of rare earths from the deposit’s mineralization can be obtained using conventional crushing, milling and acid digestion techniques,” said Peter J. Cashin, Quest’s President & CEO. “The simplified flowsheet is expected to contribute to the lowering of the plant operating costs for our envisioned operation. In addition, elimination of the requirement of a pressure oxidation circuit, or autoclave, in our mill circuit will also contribute to significantly lowering the capital cost requirements of building the mine infrastructure.”

### **Recovery to Solution Results of the Acid Bake – Leach Experiments ; High-grade Ore and Concentrate**

One-hour sulphuric acid (H<sub>2</sub>SO<sub>4</sub>) baking experiments of very finely ground (80% of 22 micron (µm)) high-grade ore at 220°C to decompose silicate minerals, followed by 2-hour H<sub>2</sub>SO<sub>4</sub> leaching at 80°C to dissolve the metals **yielded yttrium+heavy rare earth elements (Y+HREE) extractions up to 88%** (excluding one diagnostic experiment at very high acid dosage to determine the limits of extraction). Total acid additions to the baking step ranged from 150 to 500 kg/t. For the best result, **88% Y+HREE extraction**, the total acid addition was 600 kg/t, comprising 500 kg/t in the bake and 100 kg/t in the leach. Extraction of rare earth elements (REE) depended on acid addition to the acid bake step. Zirconium (Zr) extractions ranged from 37 to 63%. Experiments to assess metal recoveries with the coarsening of the grind size of the mineralization, and thus further reduce operating costs, are on-going.

### **Recovery to Solution Results of the Acid Bake – Leach Experiments ; Low-grade and Altered Ores and Concentrates**

A single acid bake–leach experiment was conducted on the low-grade ore and a similar one was conducted using the altered ore. The results were **72% Y+HREE extraction and 92% light rare earth element (LREE) extraction** for the low-grade ore and **75% Y+HREE extraction and 88% LREE extraction** for the altered ore. Higher acid dosages might give higher Y+HREE extractions. Acid dosages

in the baking step were 360 kg/t for the low-grade and 416 kg/t for the altered ore. Both ores were finely ground (80% of 20–26 µm).

Acid baking and leaching of magnetic concentrates produced from the **low-grade and altered ore samples produced 83% and 89% Y+HREE extraction and 93% and 97% LREE extraction on a concentrate basis** with 360 kg/t acid added to the baking step. On a whole-ore basis, these numbers are **68 and 78% Y+HREE extraction and 86 and 93% LREE extraction** for the low-grade and altered ore concentrates, respectively. Acid dosages to the acid bake steps were 170 and 180 kg/t on an ore-basis.

Although only a single experiment was conducted for each material, the results show that the low-grade and altered ore concentrates behaved similarly to the high-grade ore and concentrate in the acid bake–leach process. This result will allow Quest to apply a single, simplified mill flowsheet to the effective and efficient recovery of the rare earth elements (REE) from the B-Zone deposit mineralization.

### **Strange Lake B-Zone Mineralogy**

As part of its metallurgical testing program, Quest contracted Hazen Research to conduct a quantitative mineralogical characterization of the rare earth occurrences in samples taken from the northern portion of the B-Zone deposit. Three samples, weighing a total of approximately 1,000 kg, were made available for mineralogical and chemical characterization. One of the samples was of high-grade material representing the pegmatite-hosted mineralization while the two other samples were representative of lower-grade granite-hosted mineralization. Examples of the mineralogical composition and overall appearance of the pegmatite-hosted and granite-hosted mineralization are presented in Figure 2.

According to the report prepared by Hazen Research, the mineralogical investigation consisted of detailed QEMSCAN analyses of separate screen-size fractions between 1.7 mm and 20 mm to characterize the REE mineralization and associated gangue constituents. Rather than establishing the exact identity of each REE mineral in the classical sense, emphasis was placed on metallurgically-oriented issues such as grain size, intergrowth textures, and other features providing guidance for selection of physical upgrading options of the REE values.

Yttrium and REE are contained in a host of silicates and minor oxides (pyrochlore ( $(\text{Na,Ca})_2\text{Nb}_2\text{O}_6(\text{OH,F})$ ), phosphates (monazite), and carbonates (bastnäsite and possibly parisite ( $\text{Ca}(\text{Ce,L a}_2(\text{CO}_3)_3\text{F}_2)$ ). The main REE silicates are yttrium–calcium bearing. This group contains minerals such as gadolinite ( $(\text{REE,Y})_2\text{Fe}^{2+}\text{Be}_2\text{Si}_2\text{O}_{10}$ ), gerenite ( $(\text{Ca,Na})_2(\text{Y,REE})_3\text{Si}_6\text{O}_{18}\cdot 2\text{H}_2\text{O}$ ), kainosite ( $\text{Ca}_2(\text{Y,Ce})_2\text{Si}_4\text{O}_{12}(\text{CO}_3)\cdot\text{H}_2\text{O}$ ), and other as yet-undefined calcium–yttrium–REE-bearing silicates. Other yttrium- and REE-bearing minerals are zircon (probably partially hydrated), gittinsite ( $\text{CaZrSi}_2\text{O}_7$ ), thorite ( $(\text{Th,U})\text{SiO}_4$ ) and epidote (probably allanite ( $\text{Ca}(\text{Y,L a,Y})\text{Fe}^{2+}\text{Al}_2(\text{Si}_2\text{O}_7)(\text{SiO}_4)\text{O}(\text{OH})$ ). A summary of the rare earth-bearing minerals that have been observed is presented in Table 1.

The main gangue minerals are quartz and feldspar (K-feldspar and albite). They make up between 63% and 70% of the ores. Other silicates are amphiboles and pyroxenes, mica, chlorite, titanite and milarite ( $\text{K}_2\text{Ca}_4\text{Al}_2\text{Be}_4\text{Si}_2\text{O}_4\text{O}_{60}\cdot(\text{H}_2\text{O})$ ).

**Figure 1. Drill Core Photos of Pegmatite and Granite, Strange Lake B-Zone Deposit, Québec**

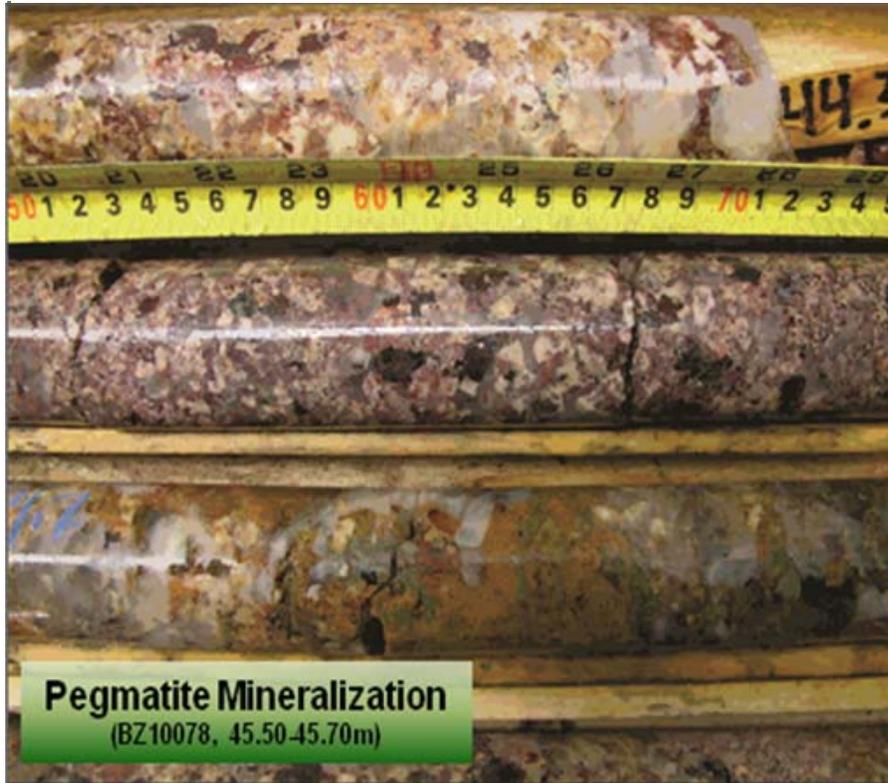


Table 1 - Summary of REE-bearing Minerals Observed in B-Zone Samples

<b>Mineral</b>	<b>Formula</b>
Gerenite	$(Ca,Na)_2(Y,REE)_3Si_6O_{18}$
Kainosite	$(Ca, Na)_2(Y, REE)_3Si_6O_{18} \cdot (H_2O)$
Gadolinite	$(Ce,La,Nd,Y)_2Fe^{++}Be_2Si_2O_{10}$
Zircon	$ZrSiO_4$
Gittinsite	$CaZrSi_2O_7$
Pyrochlore	$(Ce, Na, Ca)_2(Nb)_2O_6(OH,F)$
Bastnäesite	$Ce_2(CO_3)F$
Monazite	$(Ce, La, Nd)PO_4$
Allanite	$Ca(REE,Ca)Al_2Fe_2(SiO_4)(Si_2O_7)O(OH)$
Keiviite	$(Y)Y_{1.55}Gd_{0.15}Dy_{0.15}Si_2O_7$
Parisite	$Ca(Nd, Ce, La)_2(CO_3)_3F_2$
Y-LREE Silicate	To be determined
Ca-LREE-Silicate	To be determined
Fe-Ca-Ti-Zr-Silicate	To be determined
Ca-Yb-Lu-Silicate	To be determined
Y-Yb-Silicate	To be determined
Fe-Nb-Ta-Pb-Ti-Oxide	To be determined

### **Metallurgical Test Procedure**

Quest also contracted Hazen Research to carry out physical beneficiation and preliminary leaching tests in 2010 on the one-tonne sample obtained from core-drilling of the surface exposure of the B-Zone REE deposit discovered by Quest. The results of these tests were summarized in Quest's news release dated August 12, 2010 and are excerpted as follow:

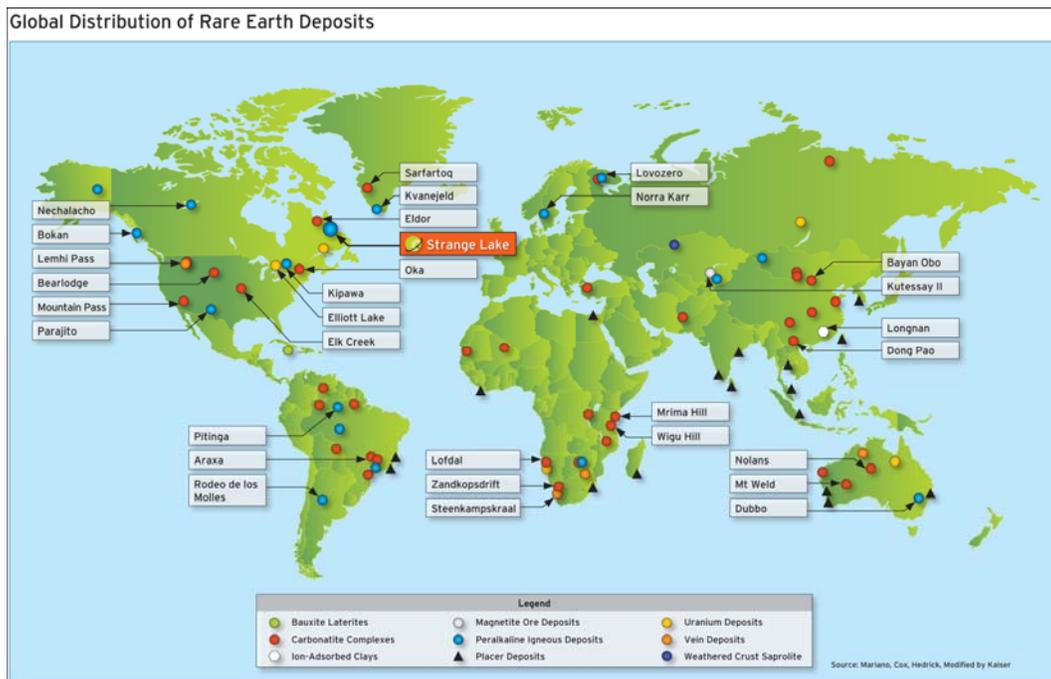
“The sample was separated into three mineralization types, designated high-grade, low-grade (mid-grade) and altered (low grade) and treated separately by Hazen. Following crushing and grinding, the high-grade sample was subjected to several beneficiation (pre-concentration) methods. The sample was evaluated using gravity (heavy-liquid) separation, froth floatation, shaking table, centrifugal separation and magnetic separation. The magnetic separation method was the only procedure that eliminated mass (45%) with minimal rare earth losses (4-6%). The REE losses for the remaining pre-concentration methods outlined above were deemed unacceptable. An additional series of experiments on the high grade mineralization revealed that the REE could be effectively liberated by acid leaching of the whole-ore without the need of pre-concentration. In addition, the discovery that the REE recoveries could be further improved by applying an acid-bake step to the leach experiments was subsequently made. The acid-bake procedure is explained below.

In an acid bake process, pulverized feed material (ore or concentrate) is mixed usually at room temperature with concentrated sulfuric acid. The mixing must be prompt and intimate so that all of the solid particles are wetted by the sulfuric acid. The resulting mass has the appearance of a moist cake or it can be a paste. The test flow-sheet requires that a 25-50 g sample of material be finely ground (minus 13, 74 and 149 microns), then prepared and sent to a Teflon leach flask containing 350 kg of H<sub>2</sub>SO<sub>4</sub> per tonne of mineralization equivalent and heated to 80°C. Once in solution, the leached material is exposed to an acid-bake procedure in an open vessel at high acid concentrations and heated to 225°C for one hour. This step was immediately followed by a two-hour leach at 80 degrees C and 5% H<sub>2</sub>SO<sub>4</sub>. The leach liquor is sent for analyses of rare earths as well as zirconium (Zr), hafnium (Hf), niobium (Nb), thorium (Th) and beryllium (Be). In addition, once cooled, the leach residues are exposed to mild H<sub>2</sub>SO<sub>4</sub> at 10% solids at 80°C and then dried. The residue solids are then recorded for mass and sent for chemical analyses.”

### Basic Geology of Rare Earth Elements

According to information presented by the United States Geological Survey (USGS), the principal concentrations of rare earth elements (REE) are associated with uncommon varieties of igneous rocks, namely alkaline rocks and carbonatites. Potentially useful concentrations of REE-bearing minerals are also found in placer deposits, residual deposits formed from deep weathering of igneous rocks, pegmatites, iron-oxide copper-gold deposits, and marine phosphates (*see* Figure 2).

**Figure 2 - Global Distribution of Rare Earth Element Deposits**



Source: Kaiser Research Rare Earth Resource Centre, March 14, 2011

Alkaline igneous rocks form from cooling of magmas derived by small degrees of partial melting of rocks in the Earth’s mantle. The formation of alkaline rocks is complex and not fully understood but can be thought of as a geologic process that extracts and concentrates those elements that do not fit into the structure of the common rock-forming minerals. The resulting alkaline magmas are rare and unusually

enriched in elements such as zirconium, niobium, strontium, barium, lithium and the rare earth elements. When these magmas ascend into the Earth's crust, their chemical composition undergoes further changes in response to variations in pressure, temperature and composition of surrounding rocks. The result is an astonishing diversity of rock types that are variably enriched in economic elements, including the rare earth elements (source: USGS Scientific Investigations Report 2010-5220).

Carbonatite deposits are intrusive or extrusive igneous rocks defined by mineralogic composition consisting of greater than 50 percent carbonate minerals (minerals containing carbonate (CO<sub>3</sub>) such as calcite and dolomite). Nearly all carbonatite occurrences are intrusives or subvolcanic intrusives. This is because carbonatite lava flows are unstable and react quickly in the atmosphere. Carbonatite lavas may not be as uncommon as thought, but have been poorly preserved throughout Earth's history. Carbonatites may contain economic or anomalous concentrations of rare earth elements, phosphorus, niobium - tantalum, uranium, thorium, copper, iron, titanium, vanadium, barium, fluorine, zirconium, and other rare or incompatible elements. Apatite, barite and vermiculite are among the industrially-important minerals associated with some carbonatites. Vein deposits of thorium, fluorite, or rare earth elements may be associated with carbonatites, and may be hosted internal to or within the alteration aureole of a carbonatite (source: Wikipedia). Examples of carbonatite-hosted rare earth element deposits are Mountain Pass (California), Mount Weld (Australia), Nolans (Australia), Oka (Québec) and Araxa (Brazil).

The Strange Lake B-Zone rare earth element deposit is hosted by the Strange Lake Alkalic Complex (SLAC), which is a set of alkaline igneous rocks that are of granitic composition and are particularly enriched in sodium, potassium and heavy rare earths. These sodium- and potassium-rich granitic rocks are classified as peralkaline granites because there are more molecules of sodium and potassium oxide (Na<sub>2</sub>O + K<sub>2</sub>O) than of aluminum oxide (Al<sub>2</sub>O<sub>3</sub>). As such, the chemistry of the host rocks, the mineralogy of the deposit and the assemblage of rare earth element minerals are different than the more common carbonatite-hosted rare earth element deposits and extremely rare in their development.

### **Qualified Person and Quality Control**

Mr. Peter Cashin, P. Geo., President, Chief Executive Officer and a director of Quest Rare Minerals Ltd., is the "qualified person" on the Strange Lake Project under National Instrument 43-101 and is responsible for the preparation of this news release. The metallurgical results presented were developed from detailed, bench-scale testing by Hazen Research, Inc., of Golden, Colorado of a one-tonne bulk sample collected from drill core from the B-Zone deposit in 2009 and a subsequent 18-tonne bulk sample collected from a blast trench on the outcrop exposure of the deposit in 2010. Samples were carefully classified by mineralization type, individually numbered and placed into poly sample bags. These were then transferred to polyweave bulk bags containing from 400 and 500 kg of sample material for ease of transportation. All sample material was shipped from the project site to Sept-Iles, Québec and prepared for shipment to Colorado.

### **About Quest Rare Minerals**

*Quest Rare Minerals Ltd. is a Canadian-based exploration company focused on the identification and discovery of new and significant Rare Earth deposit opportunities. Quest is publicly listed on the TSX Venture Exchange and NYSE Amex as "QRM" and is led by a highly-respected management and technical team with a proven mine finding track record. Quest is currently advancing several high-potential projects in Canada's premier exploration areas: the Strange Lake and Misery Lake areas of northeastern Québec and the Plaster Rock area of northwestern New Brunswick. Quest's 2009 exploration led to the discovery of a significant new Rare Earth metal deposit, the B-Zone, on its Strange Lake property in northeastern Québec. Quest recently filed a 43-101 Indicated and Inferred Resource Estimate on the B-Zone deposit and has completed a Preliminary Economic Assessment (PEA) for the deposit. In addition, Quest announced the discovery of an important new area of REE mineralization on its Misery Lake project, approximately 120 km south of Strange Lake project. Quest continues to pursue high-value project*

opportunities throughout North America. As a result of a recently-completed marketed equity financing, Quest has a strong working capital position of \$50.0 million. This will be sufficient to advance Quest's plans of completing pre-feasibility and Bankable feasibility studies of the B-Zone REE deposit by 2012 and to continue exploration on its other rare earth property interests.

#### **Forward-Looking Statements**

*This news release contains statements that may constitute "forward-looking information" or "forward-looking statements" within the meaning of applicable Canadian and U.S. securities legislation. Forward-looking information and statements may include, among others, statements regarding the future plans, costs, objectives or performance of Quest Rare Minerals Ltd. ("Quest"), or the assumptions underlying any of the foregoing. In this news release, words such as "may", "would", "could", "will", "likely", "believe", "expect", "anticipate", "intend", "plan", "estimate" and similar words and the negative form thereof are used to identify forward-looking statements. Forward-looking statements should not be read as guarantees of future performance or results, and will not necessarily be accurate indications of whether, or the times at or by which, such future performance will be achieved. No assurance can be given that any events anticipated by the forward-looking information will transpire or occur, or if any of them do so, what benefits that Quest will derive. Forward-looking statements and information are based on information available at the time and/or management's good-faith belief with respect to future events and are subject to known or unknown risks, uncertainties, assumptions and other unpredictable factors, many of which are beyond Quest's control. These risks, uncertainties and assumptions include, but are not limited to, those described under "Risk Factors" in Quest's annual information form dated March 2, 2011, and under the heading "Risk Factors" in Quest's Management's Discussion and Analysis for the quarter ended January 31, 2011, both of which are available on SEDAR at [www.sedar.com](http://www.sedar.com) and on EDGAR at [www.sec.gov](http://www.sec.gov), and could cause actual events or results to differ materially from those projected in any forward-looking statements. Quest does not intend, nor does Quest undertake any obligation, to update or revise any forward-looking information or statements contained in this news release to reflect subsequent information, events or circumstances or otherwise, except if required by applicable laws.*

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