Midland's new rare-earth element (REE) discoveries at Ytterby 2 and 3 near the Québec-Labrador border

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Midland Exploration Inc., in partnership with Japan Oil, Gas and Metals National Corporation (JOGMEC) has explored for Rare Earth Element (REE) deposits only since Fall 2009. Direct field work began in late July, and continued up until the end of August, 2010. Midland took a large land position in Labrador and Québec based on compilation of Provincial and Federal Government lake sediment geochemistry, geological maps, mineral occurrences and airborne geophysical surveys.

Midland's new properties are marked by extensive strong unsourced yttrium, uranium, lanthanum and beryllium lake bottom sediment anomalies combined with uranium (eU) and thorium (eTh) airborne radiometric anomalies. The project consists of 2690 claims covering a surface area of about 910 km^2. The Ytterby project comprises 4 distinct claim blocks located between 200 to 230 km east and northeast of Schefferville, Québec. Reconnaissance mapping and prospecting, following up a detailed airborne radiometric survey commissioned by Midland, led to the discovery of two new REE-enriched alkaline granitic systems on its Ytterby 2 and Ytterby 3 properties located respectively 65 km and 100 km south of the Strange Lake – B-Zone REE project area.

On Ytterby 2, 29 new mineralized areas were discovered with total REE oxides plus yttrium oxide (TREO + Y_2O_3) values varying from 0.3% to 18.0%. The heavy REE oxides plus yttrium (HREO + Y_2O_3) content represent 1.43% to 83.7% of the (TREO + Y_2O_3). Four styles of REE-bearing mineral assemblages have been recognized, and all appear magmatic in nature. One consists of light-REE-enriched (LREE) quartz + K-feldspar pegmatite with large skeletal amphibole; one consists of LREE-enriched biotite-rich mixtures of alkaline pegmatites and gneissic rocks interpreted as roof pendants; one consists of amphibole + quartz + K-feldspar, and an unidentified heavy-REE-bearing mineral; and the last is characterized by iron oxides, carbonate, amphibole, chlorite and k-feldspar. These complex mineral assemblages observed in pegmatite-aplite dykes on Ytterby 2 may witness a possible zoning of a common magmatic chamber.

On Ytterby 3, 63 new mineralized areas were found with TREO + Y_2O_3 values varying from 1.03% to 7.94% with an average TREO + Y_2O_3 value of 2.72%. The heavy-REE oxides plus yttrium (HREO + Y_2O_3) content represents 2.4% to 15.4% of the (TREO + Y_2O_3). Two styles of magmatic mineralization are recognized. One consists of disseminations of iron oxide +

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amphibole + monazite + fluorite, and the second shows iron oxide + amphibole + monazite enrichment in pegmatite-aplite dykes and in plurimetric iron-oxide-enriched pods hosted in alkaline granite.

This presentation examines the petrographic, mineralogical, geophysical and geochemical characteristics of the Ytterby 2 and Ytterby 3 alkaline complexes. Processes that may have been involved in the transportation, concentration and deposition of the REE are investigated and compared to other similar deposits elsewhere in the world.