Imperial Mining Updates on Phase I Metallurgical Test Results for the Crater Lake Scandium Project, Quebec

June 27, 2018 (Source) — Imperial Mining Group Ltd. ("Imperial") (TSX VENTURE:IPG) is pleased to provide an update on the results of the mineralogical study and Phase I scoping mineral processing programs recently completed at the SGS Metallurgical Test Lab in Lakefield, Ontario, Canada.

Mineralogical studies of a composite core sample collected from the property indicates that scandium is primarily hosted by two common iron silicate minerals (pyroxene and amphibole). The Phase I Mineral Processing scoping program completed on the core sample showed that a high-quality scandium mineral concentrate can be produced by using magnetic separation techniques.

"These early test results are encouraging in that they show that a clean, scandium-bearing mineral concentrate can be produced using inexpensive magnetic concentration techniques," said Peter Cashin, Imperial's President & Chief Executive Officer. "Our metallurgical team will now strive to achieve our ultimate objective of reducing potential mined material to be shipped to a processing facility by at least half while maintaining a high degree of scandium recovery. We continue to firmly believe that Crater Lake project represents an important alternative, primary scandium supply source to serve expanding western markets."

The property consists of 57 contiguous claims covering approximately 27.9 km^2 and is located approximately 200 km east northeast of Schefferville, Québec (*see* Figure 1 and *link* at Crater Lake Project Page). Property rights were transferred to Imperial from Peak Mining Corporation, a private company, in a rollover transaction completed in December 2017.

Crater Lake Project Location Map, Quebec

Scandium Markets and Uses

Scandium, is a silvery-white non-toxic transition metal, often associated with REE, together with yttrium, tantalum and niobium. Scandium is often found in trace amounts in other REE deposits and occurrences and has been mined as a by-product in a few uranium and REE mines in the world, for example in the

Zhovti Vody deposit, Ukraine and at Bayan Obo, China. Primary, hardrock scandium deposits of sufficient size and grade to be economically important are scarce and Crater Lake represents one of the few such opportunities in the world.

Scandium acts as a grain-refiner and hardener of aluminum alloys. Aluminum-scandium alloys combine high strength, ductility, weldability, improved corrosion resistance and a lower density. The combination of all these properties makes aluminum-scandium alloys well-suited for the aerospace, automotive and defense industries. Other applications of aluminum-scandium alloys include consumer products such as baseball bats, golf club heads and high-end bicycle wheel rims.

The presence of scandium also reduces the flammability of aluminum oxide and it is beginning to find wide acceptance in the 3-D printing of complex, high-tech parts, especially where aluminum is the target media. In Solid Oxide Fuel Cell ("SOFC") applications, scandium is important in the scandia stabilized electrolyte of the cell, which allows lower operating temperatures and a longer operating life of the cell. It has also found a growing market in Light Emitting Diode (LED) industry, especially those seeking "natural light", where, in certain applications, no substitute exists due to the unique properties of the metal.

The broader adoption of scandium in the aluminum alloys sector has been primarily constrained by the limited availability of scandium in western commercial markets, today estimated to be 10 to 15 metric tonnes per year. This has resulted in much higher prices for Sc compared to competing alloy materials, such as titanium, and has limited its broader use. The current price of the metal oxide published by USGS indicates that **scandium oxide trades at approximately US$3,700/kg for 99.99% purity for small lots (10s to 100s of kg) and US$2,500/kg for large lots (greater than one tonne)**.

Phase I Mineralogical and Metallurgical Test Results

QEMSCAN, Electron Microprobe and X-ray Diffraction (XRD) analyses were completed on a Master Composite sample and 11 Drill Core samples from Crater Lake. The mineralogical study showed that the sample consists primarily of pyroxene, olivine and amphibole. Most of the scandium is hosted by paramagnetic pyroxene and amphibole (Fe silicate minerals) which should be amenable to low cost magnetic separation technique in producing a mineral concentrate. The purpose of this work is to reject as much of the non-scandium mineralized component of the host ferrosyenite intrusive rock and reducing the volume of material to be shipped to a downstream scandium processing plant.

The Phase I mineral processing program completed at SGS, Lakefield evaluated a small number of pre-concentration techniques to produce a mineral concentrate. These included gravity separation, low-intensity magnetic separation and wet high-intensity magnetic separation. The non-optimized magnetic separation tests achieved 66% scandium recovery to 46% mass pull to mineral concentrate, shy of our targeted 50% rejection and 80-85% scandium recovery.

Mineralogical study of scandium mineralization is primarily comprised of pyroxene (37.2%) and olivine (26.3%) with moderate amounts of amphibole (12.6%), K-feldspar (9.9%) and minor proportions of plagioclase (3.6%), titanomagnetite (Ti-Mgt) (4.4%), britholite (1.9%), zircon (1.8%), and ilmenite (0.8%).

The Electron Microprobe Analysis (EMPA) and QEMSCAN deportment data revealed that scandium is hosted primarily by pyroxene and to a lesser extent the amphiboles in all the samples tested. The iron concentration between the various silicates and oxides was variable. The Fe-deportment illustrates that approximately 52.2% of it is contributed from the olivine, 29.3% from the pyroxene, 13.1% from the amphiboles, 4.2% from the titanomagnetite, and 2.7% from the ilmenite.

Phase II mineral processing tests were recently begun at SGS Lakefield. The program envisaged a combination of a low intensity magnetic separation (LIMS) and a wet high intensity magnetic separation (WHIMS) steps. This should improve scandium recovery while minimizing mass pull to concentrate (maximizing non-scandium rejection). It is anticipated that this work will be completed by mid-July.

The technical content in this press release was provided and certified by Dr. Yemi Oyediran, P. Eng, Imperial's Manager, Metallurgical Development, a Metallurgist and Qualified Person as defined by NI 43-101.

ABOUT IMPERIAL MINING GROUP LTD.

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