

# Critical Elements Reports Positive Optimization Metallurgical Test Results With Lithium Recoveries of Up to 91.9% at Grades of Up to 6.43% Li<sub>2</sub>O

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MONTREAL, QUEBEC--(Marketwired - Sep 5, 2013) - **Critical Elements Corporation** (TSX VENTURE:CRE)(OTCQX:CRECF) (FRANKFURT:F12) is pleased to report the latest results of the optimization metallurgical program underway at SGS Canada Inc. (Lakefield) for its Rose deposit in James Bay, Quebec.

The program has resulted in the successful optimization of recovery rates and grades of Li<sub>2</sub>O in the concentrate, with an average recovery of 90.88% at 6.20% Li<sub>2</sub>O in batch flotation tests (see table below), but most importantly, the flow sheet has been simplified significantly. Moreover, the reagents used in the optimization program are significantly cheaper. This should dramatically reduce the mill construction costs (CAPEX) and the operating costs (OPEX) to produce the Li<sub>2</sub>O concentrate.

The results of the optimization metallurgical testing program for the processing of the ore from the Rose deposit were generated by SGS Canada Inc. in Lakefield. The tests were carried out on a composite sample from the Rose mineralized zone, located on surface.

Test No.	Assay %	Distribution %
	Li <sub>2</sub> O	Li
F11	6.06	90.1
F12	6.12	90.7
F13	6.43	91.9
AVERAGE	6.20	90.88

In addition to recovery and grade testing, the iron content of spodumene grains and the flotation concentrate as a whole have been determined. Analytical results indicated that the average spodumene grain contains 0.13% Fe<sub>2</sub>O<sub>3</sub> as solid solution in its crystal structure. To the best of our knowledge, this is the lowest spodumene iron substitution that has been seen in Quebec and Ontario lithium deposits. As a result, the flotation concentrate contained <0.3% Fe<sub>2</sub>O<sub>3</sub> as a whole. Due to the low iron content of spodumene as solid solution, the lithium concentrate may also be appropriate for use in the ceramics industry. The roasted concentrate is white as opposed to the light reddish color normally seen with spodumene concentrates containing high iron. Pictures are available on our website at: [www.cec corp.ca](http://www.cec corp.ca).

A small batch of flotation concentrate has been collected and roasted and submitted for hydrometallurgical testing to start the carbonation optimization program. Multiple tests have been conducted for tantalite recovery; the final results are expected in the coming days and will be released immediately.

Picture of laboratory testing are available on our website at: [www.cec corp.ca](http://www.cec corp.ca).

The objective of the program was to optimize the flowsheet for producing a spodumene concentrate with a minimum grade of 6% Li<sub>2</sub>O at a recovery of about 90% for hydrometallurgical lithium extraction. The next step is the Phase 2 program aimed at optimizing the purity of the lithium carbonate produced by bi-carbonation to create a final flow sheet. Another objective is to improve the recovery of tantalum as a by-product, currently at about 60%. The final flow sheet will be used to advance the pilot plant for the feasibility study.

"We are very pleased with these results that confirm our previous results and should significantly simplified

the flowsheet. Again, this confirms the high quality and purity of our Rose deposit." said Jean-Sébastien Lavallée, President and Chief Executive Officer of [Critical Elements Corp.](#)

The Critical Elements team is also pursuing its discussions with a number of potential lithium carbonate and tantalite end-users. The Company is currently negotiating the terms of long-term sales and risk distribution agreements with potential buyers.

Jean-Sebastien Lavallée (OGQ #773), geologist, shareholder and President and Chief Executive Officer of the Company and a Qualified Person under NI 43-101, has reviewed and approved the technical content of this release.

### About Critical Elements Corporation

Critical Elements is actively developing its 100%-owned Rose lithium-tantalum flagship project located in Quebec.

**A recent financial analysis of the Rose Project based on price forecasts of US\$260/kg (\$118/lb) for Ta<sub>2</sub>O<sub>5</sub> contained in a tantalite concentrate and US\$6,000/t for lithium carbonate (Li<sub>2</sub>CO<sub>3</sub>) show an after-tax Internal Rate of Return (IRR) of an estimated 25% for the Rose Project, with an estimated Net Present Value (NPV) of CA\$279 million at an 8% discount rate. The payback period is estimated at 4.1 years. The pre-tax IRR is estimated at 33% and the NPV at \$488 million at a discount rate of 8%. (Mineral resources that are not mineral reserves do not have demonstrated economic viability). See press release dated November 21, 2011).**

The project hosts a current NI 43-101-compliant **Indicated resource of 26.5 million tonnes of 1.30% Li<sub>2</sub>O Eq. or 0.98% Li<sub>2</sub>O and 163 ppm Ta<sub>2</sub>O<sub>5</sub> and an Inferred resource of 10.7 million tonnes of 1.14% Li<sub>2</sub>O Eq. or 0.86% Li<sub>2</sub>O and 145 ppm Ta<sub>2</sub>O<sub>5</sub>.**

The Company is presently at the feasibility study stage on the Rose project.

Critical Elements' portfolio also includes rare-earth and tantalum-niobium projects in the Rocky Mountains of British Columbia and in Quebec, as well as a 50% interest in the Croinor project, which is located in Quebec and hosts a current NI 43-101-compliant measured and indicated resource of 506,700 tonnes at 10.66 g/t Au, for 173,700 ounces of gold at a 5 g/t cut-off.

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### Contact

Jean-Sebastien Lavallee, P.Geo.  
President and Chief Executive Officer  
819-354-5146  
[president@cecorp.ca](mailto:president@cecorp.ca)  
[www.cecorp.ca](http://www.cecorp.ca)  
Investor Relations:  
Paradox Public Relations  
514-341-0408

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