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Rare Element Resources Produces Rare Earth Powder from Bear Lodge Project that is 99.999% Pure and Thorium Free from Patent-Pending Technology

Proprietary Recovery Process Enhancement Removes Cerium and Thorium in Single Step

Initial Separation Achieved into Heavy and Light Rare Earth Products

November 4, 2014 – Lakewood, Colorado – Rare Element Resources Ltd. (NYSE MKT: REE and TSX: RES), a mineral resources company advancing development of the Bear Lodge Critical Rare Earth Project, announced today that it has successfully completed bench-scale testing on enhancements to its existing patent-pending thorium extraction technology that now allows for the selective precipitation of 100% of the thorium while also removing 85% of the cerium, the lowest value rare earth element. This advancement significantly reduces the concentrate mass of material subject to further separation, thereby reducing costs, and results in an upgraded product that is nearly 40% by weight critical rare earths (CREE)¹ and 99.999% pure rare earth oxide (REO). In the second stage, a two-contact solvent extraction (SX) process is used to separate the contained rare earths into heavy rare earths (HREE) and light rare earths (LREE) to simplify the separation process and further reduce costs.

Testing was undertaken using concentrates generated from the large-scale pilot plant work performed on the Company's proprietary recovery process and conducted by SGS Lakefield, Canada, and Hazen Research, Colorado, under the direction of Dr. Henry Kasaini, Rare Element Resources' Director of Science & Technology.

"Process advancements on our proprietary recovery process have significantly improved our product and technology breakthroughs have brought us successfully through the first step of elemental separation," stated Jaye Pickarts, Chief Operating Officer. "Our decision to capture additional value for our shareholders by investigating elemental separation has led to a significant improvement in our thorium removal process that now allows us to also remove the majority of the cerium in a single-contact SX step. By removing this lower value rare earth, we can reduce the mass that goes through separation, significantly reducing costs. We then use SX to achieve high separation factors for heavy and light rare earths. This represents a significant first step and will give us a great amount of flexibility, as we continue to investigate the next steps of separation and how to capture more value by generating the products that our customers' need."

Selective Separation by Precipitation and Solvent Extraction Technology

On November 3, 2014, the Company filed an application for a Provisional U.S. Patent on technology that combines selective precipitation and SX process technology to extract cerium and thorium from the rare earth oxide mix concentrate and thereby doubling the grade of CREE to about 40% by weight. Subsequently, the upgraded rare earth product is separated into HREE and LREE groups.

¹ Identified by the U.S. Department of Energy (Critical Materials Strategy Report, 2011) as those rare earths most essential to the "clean energy" economy and at highest risk of supply disruption. Includes neodymium, dysprosium, europium, terbium and yttrium. Rare Element includes praseodymium because of its use with neodymium in didymium, a raw material in high-strength permanent magnets.

The total rare earth (TREO) concentrate product that results from the Company's proprietary rare earth recovery process is initially dissolved in nitric acid and then complexed with an alkaline solution to make the cerium and thorium amenable to selective precipitation. Over 85% by weight of the less valuable cerium and 100% of the thorium is removed in this process, resulting in a product rich in didymium (37 wt.%). This reduces the feedstock to SX and hence requires a smaller processing facility, reducing both capital and processing costs. Depending on the price of cerium, the cerium/thorium stream can be stockpiled or further treated through a separate SX circuit to remove cerium for potential sale.

In addition, the patent application describes a new SX method for sequestering cerium and thorium, either together or separately, from a mixed rare earth solution in a single-contact SX process. This process is now available to remove cerium or thorium from any rare earth product, including the cerium/thorium stream mentioned above. This represents a significant achievement in the SX flowsheet development program due to its ability to reduce the number of steps in subsequent separation processing and improve management of radioactive materials.

After cerium removal, the CREE-enriched product is treated in a single-contact SX step, in which the LREE are separated from the HREE. It is possible to produce an almost cerium-free LREE fraction containing 93 -98% lanthanum, praseodymium and neodymium, which would allow the Company to produce pure lanthanum and didymium products. The HREE fraction include 97% of all elements from dysprosium to lutetium, including 88% terbium. These separation factors will make further rare earth separation steps cost effective.

Bench-scale tests are ongoing to use either the HREE or LREE feedstocks to separate individual rare earth elements. The Company continues its work with potential customers to identify the most attractive and salable end products for the market.

Low-Temperature Counter-Current Leach Circuit

The Company filed a Provisional U.S. Patent application in October 2014 to modify its planned process recovery flowsheet to incorporate the selective digestion of rare earths over some base metals in a low-temperature, counter-current leach configuration. The benefits of this process include lower reagent use, including hydrochloric and oxalic acids, decreased energy consumption, reduced cost for neutralization of effluent, lower capital costs and higher quality of the REO bulk concentrate powder. A number of these benefits were reflected in the Bear Lodge Preliminary Feasibility Study (PFS) results, published on August 26, 2014. Work continues on refining the parameters of the process.

Rare Element Resources Ltd. is a publicly traded mineral resource company focused on exploration and development of rare-earth element deposits, specifically those with significant distribution of critical rare earths. The Company is advancing development of the Bear Lodge Project, located in northeast Wyoming. Bear Lodge is a significant mineralized district containing many of the less common, more valuable critical rare earths that are essential for electronics, fiber optics, laser systems for health and defense, as well as many evolving green technologies, like hybrid cars, solar panels and wind turbines. Permitting and feasibility work on the Project continue to advance. The Company is a member of the U.S. Department of Energy's Critical Materials Institute, a combined government and private sector organization committed to eliminating supply chain issues for rare earths and other critical elements. Please see CMI's website at <https://cmi.ameslab.gov/> for additional details on its mission and members.

For additional information, please visit the Company's website at www.rareelementresources.com or contact Robbin Lee at 720-278-2462 or rlee@rareelementresources.com.

Forward Looking Statements

This news release contains forward-looking statements within the meaning of securities legislation in the United States and Canada. Except for statements of historical fact, certain information contained herein constitutes forward-looking statements. Forward-looking statements are usually identified by our use of certain terminology, including "will", "believes", "may", "expects", "should", "seeks", "anticipates", "plans", "has potential to", or "intends" (including negative or grammatical variations thereof) or by discussions of strategy or intentions. Such forward-looking statements include statements regarding: patent-pending processing test work and expected results; the estimated Project economics and parameters as reflected in the Company's PFS, including capital costs, NPV, IRR, after tax returns, mine and Project life, mining plan, payback period, anticipated production rates and costs, rare earth prices, recovery rates and the impact of the Company's proprietary technology on production, matters regarding the rare earths industry, including demand growth, rare earth prices and the impact of rare earths on technological advancements; mineral resource and reserve estimates; the timing and expected results of a definitive Feasibility Study including the potential for upside as a result of the incorporation of Project opportunities into the definitive Feasibility Study; permitting process and progress; the expected commissioning of the Project and Project development plans for the future. Such forward-looking statements involve known and unknown risks, uncertainties and other factors which may cause our actual results or achievements to be materially different from any future results or achievements expressed or implied by such forward-looking statements.

Factors that could cause actual results to differ materially include, but are not limited to, the progress of our Bear Lodge Project; fluctuations in demand for, and price of, rare earth products; success of process technology under testing or development; results from geological evaluations and programs; timing of and unexpected events at the Bear Lodge property; delay or failure to receive government approvals and permits; our ability to obtain financing for the Project on acceptable terms or at all; changes in U.S. and Canadian securities markets; and general economic conditions. There can be no assurance that future developments affecting the Company will be those anticipated by management. Please refer to the discussion of these and other factors in our Annual Report on Form 10-K for the year ended December 31, 2013. We expect that the above estimates as to development plans, technology and other processes, time frames and financial needs will change as new information is received and that actual results will vary from these estimates, possibly by material amounts. While we may elect to update these estimates at any time, we do not undertake to update any estimate at any particular time or in response to any particular event. Investors and others should not assume that any forecasts in this news release represent management's estimate as of any date other than the date of this news release.