Rare Element Resources Ltd. (NYSE MKT: REE and TSX: RES), a publicly traded, strategic materials company focused on delivering rare earth products for technology and defense applications by advancing the Bear Lodge Critical Rare Earth Project located in northeast Wyoming, announced preliminary results from the successful pilot plant campaign of its patent-pending, zero-discharge solvent extraction (SX) separation technology. The campaign validated the Company’s ability to extract, at scale, 100% of the recoverable cerium (Ce) oxide (85% of the total Ce oxide) with a single solvent extraction (SX) mixer/settler. Two additional mixer/settlers then successfully removed thorium (Th) to below detection levels.

The separated Ce and Th were then successfully stripped from the metal-bearing organic solution outside of SX with no additional mixer/settlers and with the barren organic and the stripping agent being recycled – a significant improvement on traditional SX. In a subsequent step, the recovered Ce/Th product was successfully separated and resulted in a greater than 99.7% pure, commercially attractive Ce oxide powder.

The raffinate, or rare earth bearing stream, was then treated by precipitation, resulting in a greater than 99.9% pure, Ce-reduced, Th-free rare earth concentrate, with approximately 40% less mass. No losses occurred in any of the rare earth elements other than Ce. The reduced mass of mixed rare earth concentrate and the innovative stripping process are expected to positively impact costs as they will reduce the scope and complexity of the required facilities, reduce initial capital, and lower operating expenses associated with downstream advanced separation, most specifically relating to energy and reagent use.

“The single-step, early removal of the recoverable cerium and the efficient elimination of thorium from our rare earth concentrate, when coupled with the ability to strip the metal-bearing organic outside of SX with no discharge, are the essence of what makes our patent-pending technology so attractive compared to traditional SX,” said Randall J. Scott, President and Chief Executive Officer. “During pilot plant testing, we were able to upgrade our rare earth concentrate to greater than 99.9% pure and do it with a minimum number of SX steps. Equally important was our success at recovering the elements directly from the organic solution outside of SX once they had been isolated. We did this without creating any waste effluents and by recycling both the organic and the stripping agent. We expect the efficiency of this separation process as well as the reduced mass to result in a significantly smaller advanced separation plant, hence lower costs, and a much more environmentally friendly process than traditional separation technology. We are excited, as our success not only has significance for our Bear Lodge Project but potentially to the broader rare earth industry, including rare earth recycling.”

The Pilot Plant Test Process

The pilot plant campaign was focused on the first phase of the Company’s patent-pending separation technology – extracting the recoverable Ce, removing Th to a level at or better than industry standards and upgrading the purity of our rare earth concentrate. The feed to the pilot plant was the 98% total rare earth oxide bulk concentrate produced from Bear Lodge ore during the Company’s successful previous pilot plant test work. The testing was done at a rate of 6 kilograms per day and undertaken over 10 consecutive days. The work was performed by SGS-Lakefield, Canada, under the direction of Dr. Henry Kasaini, Rare Element Resources’ Director of Science and Technology. Initial results reflect on-site sampling and could be subject to some variability from final independent assay results. A final report is expected from SGS-Lakefield in 30 to 45 days.

The first step in the process used one mixer/settler along with a blend of common organic reagents to recover 100% of the cerium IV, the recoverable portion of Ce oxide in the feedstock which was 85% of the total Ce oxide. The Ce-depleted feedstock was then passed through two additional mixer/settlers that removed Th to below detectable levels. The Th and Ce-bearing organic solution was then fed to a precipitation tank and contacted with a stripping agent. This produced Th/Ce combined crystals once they were filtered out of solution. At this point, the barren organic, which is free from Th/Ce, and the stripping agent were recycled resulting in no waste effluents being created at the stripping step.

The Th/Ce crystals were subsequently transformed to form a mixed Th/Ce hydroxide that was digested in nitric acid and introduced to a second SX circuit to extract Th selectively and precipitate Ce from the raffinate. The result was a greater than 99.7% pure, commercially attractive Ce hydroxide and separated Th crystals. The Th is expected to be sent to a licensed disposal facility.

The remaining rare earth stream, now absent all the Th and 85% of the total Ce, was treated in additional precipitation steps to remove traces of base metals, resulting in a greater than 99.9% pure, Th-free, Ce-reduced rare earth hydroxide stream and an ammonium nitrate coproduct. The mass of this stream, which will be sent to advanced separation, was reduced by 40% on average from its original mass after the reduction of Ce and removal of Th. Because of this reduction in mass, the treatment facility required for advanced separation into individual rare earth products will be significantly smaller than traditional separation technology.

The next phase of testing will focus on advanced separation of the greater than 99.9% pure, Th-free, Ce-reduced rare earth concentrate into product baskets including neodymium and praseodymium (NdPr); a pure lanthanum oxide; and SEG, a combination of samarium, europium and gadolinium oxide. The removal of these elements will result in a remaining mixed, heavy REE oxide product that includes terbium through lutetium and yttrium. This separation test work, pending final review of the initial phase pilot plant results and Board of Directors’ approval, is expected to begin later this year.

Rare Element Resources Ltd. is a publicly traded, strategic materials company focused on delivering rare earth products for

technology and defense applications by advancing the Bear Lodge Critical Rare Earth Project 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 continues to advance. The Company is an affiliate 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 contact Robbin Lee at 720-278-2462, or rlee@rareelementresources.com, for additional information.

Jaye T. Pickarts, P.E. and Chief Operating Officer of Rare Element Resources, is a qualified person under Canadian NI 43-101 and supervised the preparation of the technical information in this press release.

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" or by discussions of strategy or intentions. Such forward-looking statements include statements regarding current and expected future results of pilot plant test work and its economics, the potential for conducting further test work, timing of such test work and the results, if conducted, anticipated timing and outcome of our federal, state and local permitting efforts, and overall progress of the Bear Lodge Project. 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; timing of and unexpected events at the Bear Lodge property; delay or failure to receive government approvals and permits; changes in U.S. and Canadian securities markets; our ability to obtain financing 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 risk factors as set out in our filings made from time-to-time with the U.S. Securities and Exchange Commission and the Canadian securities regulators, including without limitation, the Company’s most recent reports on Form 10-K and Form 10-Q. We do not undertake to update any statements or estimates at any particular time or in response to any particular event, other than in accordance with applicable law. Investors and other should not assume that any forecasts in this news release represent management’s estimates as of any date other than the date of this news release.

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