Ucore Updates on RapidSX(TM) REE Demo Plant and Louisiana SMC Engineering Processes

written by Raj Shah | October 5, 2023
October 5, 2023 (Source) – **Ucore lays out:**

- **The detailed engineering, commissioning, testing and demonstration steps underway at the Kingston, Ontario, Canada, RapidSX™ Demonstration Plant ("Demo Plant")**
- **The ongoing technical transition steps to the full-scale 7,500 tonnes per annum (ex-cerium and ex-yttrium) rare earth element ("REE") separation plant – the Louisiana Strategic Metals Complex ("SMC") developing in Alexandria, Louisiana**

Ucore Rare Metals Inc. (TSXV: UCU) (OTCQX: UURAF) ("Ucore" or the **"Company")** is pleased to provide a technical update on its RapidSX™ Demonstration Plant ("**Demo Plant**") for the separation of heavy and light rare earth elements ("**REEs**"). The Demo Plant is located within Ucore's 5,000 square foot RapidSX™ Commercialization and Demonstration Facility ("**CDF**") in Kingston, Ontario, and is operated by its commercialization partner, **Kingston Process Metallurgy Inc.** ("**KPM**").

The Ucore team's work at the CDF over the past three-plus years has demonstrated a range of significant gains and process benefits of RapidSX™ for separating and purifying REEs. Ucore has qualified these RapidSX™ benefits through an independent 3rd party evaluation, filing a robust intellectual property ("**IP**") patent to protect the Company's clear process advantages,

and embarking on a Demo Plant commercialization, scale-up and technology transfer program for its developing 7,500 tonnes per annum (ex-cerium and ex-yttrium) REE separation plant – the Louisiana Strategic Metals Complex ("**LA-SMC**") in Alexandria, Louisiana.

To ensure best in class processing metrics at its LA-SMC the Company is working to precisely quantify these RapidSX™ benefits through a rigorously engineered demonstration program for the US Department of Defense. Ucore is preparing for the commercial processing of a broad array of both heavy and light mixed rare earth chemical concentrates originating from a wide variety of mineralization sources. To date, three different feedstock sources[i] have been included in the work at the CDF. **Noted below are the detailed engineering, commissioning, testing and/or demonstration focus/optimization areas currently underway for each CDF and LA-SMC feedstock[ii]:**

- Cerium Depletion
- Yttrium Depletion
- Leaching to Produce Pregnant Leach Solution ("**PLS**")
- **Processing through a Conventional Solvent Extraction ("CSX") Mixer Settler Pilot Plant of a Similar[iii] 52-Stage System to Establish Baseline SX Performance**
- **Processing through the 52-Stage RapidSX™ Demo Plant (heavies and/or lights – yielding PrNd, Pr, Nd, Tb, Dy and Y)**

To ensure optimum design and engineering of the LA-SMC, work at the RapidSX™ Commercial Demonstration Plant, includes the following specific testing, engineering and integration activities:

- Chloride Precipitate Production
- Component Degradation Testing
- Component Non-Destructive & Destructive Testing
- Dynamic Analytical Integration with Control System – *on-site TXRF & ICP-MS*
- Hydrochloric Acid Recovery & Recycling
- Oxalate Precipitate Production– *small batch*
- Oxide Production – *small batch*
- Programmable Logic Controller (“**PLC**”) System – *feedstock-specific programming for chemistry delivery and feedback from over 600 system sensors*
- Radioactive Monitoring and Tracing – *potential trace amounts in every product and waste stream*
- Scale-Up Demonstration – *for LA-SMC commercial plant*
- Techno-Economic Engineering – *including digital twin modeling*
- Ventilation & Fume Scrubbing System
- Waste Water Treatment System

Figure 1 – 52-Stage CSX Pilot Plant

To view an enhanced version of this graphic, please visit: https://images.newsfilecorp.com/files/1119/183030_fcea616ab457cb5a_001full.jpg

Figure 2 – 52-Stage RapidSX™ Demo Plant
To view an enhanced version of this graphic, please visit: https://images.newsfilecorp.com/files/1119/183030_fcea616ab457cb5a_003full.jpg

“Over the first two years in Kingston, we proved the technical superiority of our now patent-pending RapidSX™ technology platform to mix and separate the chemistry of solvent extraction,” stated **Mike Schrider, Ucore Vice President and Chief Operating Officer**. “We have since taken those optimization and fine-tuning efforts and engaged in a robust engineering, construction, commissioning, testing and demonstration effort to truly optimize the chemistry delivery and feedback systems to and from the RapidSX™ platform within the Demo Plant and across all of the related systems within the CDF.

“This arduous yet thorough process will soon enable us to discreetly quantify the previous qualitative attributes of the RapidSX™ technology platform and the resulting rare earth element products as we incorporate every facet of our engineering and production learning curve from our project

execution in Kingston into our underway LA-SMC commercial and technical activities."

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About Ucore Rare Metals Inc.

Ucore is focused on rare- and critical-metal resources, extraction, beneficiation, and separation technologies with the potential for production, growth, and scalability. Ucore's vision and plan is to become a leading advanced technology company, providing best-in-class metal separation products and services to the mining and mineral extraction industry.

Through strategic partnerships, this plan includes disrupting the People's Republic of China's control of the North American REE supply chain through the near-term development of a heavy and light rare-earth processing facility in the U.S. State of Louisiana, subsequent Strategic Metal Complexes in Canada and Alaska and the longer-term development of Ucore's 100% controlled Bokan-Dotson Ridge Rare Heavy REE Project on Prince of Wales Island in Southeast Alaska, USA.

Ucore is listed on the TSXV under the trading symbol "UCU" and in the United States on the OTC Markets' OTCQX® Best Market under the ticker symbol "UURAF."

For further information, please visit www.ucore.com/corporateupdate.

Forward-Looking Statements

This press release includes certain statements that may be deemed "forward-looking statements." All statements in this release (other than statements of historical facts) that address future business development, technological development and/or acquisition activities (including any related required

financings), timelines, events, or developments that the Company is pursuing are forward-looking statements. Although the Company believes the expectations expressed in such forward-looking statements are based on reasonable assumptions, such statements are not guarantees of future performance or results, and actual results or developments may differ materially from those in forward-looking statements.

Regarding any disclosure in the press release above about the IBAS Program and the expected successful progress of this project and the resulting milestone payments from the DoD, the Company has assumed that the project (including each of its milestones) will be completed satisfactorily and by June 2025. For additional risks and uncertainties regarding the Company, the CDF, the Demo Plant and the Project (generally), see the risk disclosure in the Company's MD&A for Q2 2023 (filed on SEDAR on August 28, 2023) (www.SEDAR.com) as well as the risks described below.

Regarding the disclosure above in the "About Ucore Rare Metals Inc." section, the Company has assumed that it will be able to procure or retain additional partners and/or suppliers, in addition to Innovation Metals Corp. ("IMC"), as suppliers for Ucore's expected future Strategic Metals Complexes ("SMCs"). Ucore has also assumed that sufficient external funding will be found to complete the Demo Plant commissioning and demonstration schedule and also later prepare a new National Instrument 43-101 ("NI 43-101") technical report that demonstrates that the Bokan Mountain Rare Earth Element project ("Bokan") is feasible and economically viable for the production of both REE and co-product metals and the then prevailing market prices based upon assumed customer offtake agreements. Ucore has also assumed that sufficient external funding will be secured to continue the development of the specific engineering plans for the SMCs and their construction. Factors that could cause actual results to

differ materially from those in forward-looking statements include, without limitation: IMC failing to protect its intellectual property rights in RapidSX™; RapidSX™ failing to demonstrate commercial viability in large commercial-scale applications; Ucore not being able to procure additional key partners or suppliers for the SMCs; Ucore not being able to raise sufficient funds to fund the specific design and construction of the SMCs and/or the continued development of RapidSX™; adverse capital-market conditions; unexpected due-diligence findings; the emergence of alternative superior metallurgy and metal-separation technologies; the inability of Ucore and/or IMC to retain its key staff members; a change in the legislation in Louisiana or Alaska and/or in the support expressed by the Alaska Industrial Development and Export Authority ("AIDEA") regarding the development of Bokan; the availability and procurement of any required interim and/or long-term financing that may be required; and general economic, market or business conditions.

Neither the TSXV nor its Regulation Services Provider (as that term is defined by the TSXV) accept responsibility for the adequacy or accuracy of this release.

CONTACTS

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[i] Mixed REE chemical concentrates from a synthetic monazite, and US-friendly bastnasite and ionic clay sources.

[ii] As applicable.

[iii] Same stages, chemistry and feedstock as the Demo Plant but 1/30th of the volumetric flow rate.