# Defense Metals Acid-Bake Process Yields Improved Rare Earth Element Recoveries At Wicheeda

31.05.2022 | CNW

VANCOUVER, May 31, 2022 - Defense Metals Corp. ("Defense Metals" or the "Company") (TSX V : DEFN) (OTCQB: DFMTF) (FSE: 35D) is pleased to announce the initial results of alternative Acid Bake process testwork underway at SGS Lakefield on Wicheeda Rare Earth Element (REE) Project mineralized feed. The initial testwork shows that adoption of the Acid Bake process results in improved REE extraction, and potentially improvements in capital and operating costs.

The previous hydrometallurgical flowsheet that was included in the PEA (preliminary economic assessment[1]) was based on a more costly and complex gangue-leach - caustic-crack process. Upon joining the team, Defense Metals' lead metallurgical consultant, John Goode, P.Eng., recommended investigation of the acid-bake process for the Wicheeda ore, and the preliminary results show that the acid-bake process is more efficient, yielding >95% recovery of neodymium and praseodymium from flotation concentrate into a leach solution (Figure 1).

This hydrometallurgy program that started in December, which includes pilot-plant operations, will be concluded in the last quarter of 2022. It will provide data to allow a detailed design and capital- and operating-cost calculations. Updates on the test work will be provided periodically as results become available.

Luisa Moreno, President of Defense Metals commented: "We are delighted that the acid-bake process has yielded higher recoveries of rare earths and offers the potential to significantly reduce operating and capital costs, thus improving project economics and further establishing Wicheeda as a potential near-term source of rare earths."

---

[1] Independent Preliminary Economic Assessment for the Wicheeda Rare Earth Element Project, British Columbia,
Canada, dated January 6, 2022, with an effective date of November 7, 2021, and prepared by SRK Consulting
(Canada) Inc. is filed under Defense Metals Corp.'s Issuer Profile on SEDAR (www.sedar.com).

Ongoing tests:

- Testing of the acid-bake process started in late 2021, with over 20 tests on several concentrate samples completed to investigate the impact of bake conditions including acid addition, concentrate grade, and bake temperature.
- Tests continue to show that the sulphuric acid-bake approach is highly effective. Across all tests, including those under sub-optimal conditions, the neodymium/praseodymium extraction is 94% with better test results showing 97 to 99% extraction.
- Short-duration acid-bake pilot operations using the SGS Lakefield 165 mm diameter kiln are ongoing.
- Pregnant leach solution from the static acid-bake tests is now being tested for impurity removal and the precipitation of a refined rare-earth product suitable for sale.

Details of the Acid-Bake-Water-Leach (AB-WL) Process

In the AB-WL process, Wicheeda's mineral concentrate will be treated with concentrated sulphuric acid at high temperatures (200?C-600?C) converting the rare earths in the minerals to water-soluble sulphates, which readily dissolve during the subsequent water leach. The leachate is then purified, and the rare-earth elements recovered by a simple precipitation process. This process requires less equipment, and involves

fewer steps and circuits, as schematically presented in Figure 2. Importantly, this flowsheet is the same as that used by Lynas at its Kuantan REE production facility and by Baogang at the Bayan Obo REE recovery plants (using a bastnasite and monazite ore). Most of the world's REE are produced by the Acid-Bake process.

About the Wicheeda REE Property

The 100% owned 2,008-hectare Wicheeda Rare-Earth Project, located approximately 80 km northeast of the city of Prince George, British Columbia, is readily accessible by all-weather gravel roads and is near infrastructure, including power transmission lines, the CN railway, and major highways.

The Wicheeda Rare-Earth Project yielded a robust 2021 PEA that demonstrated an after-tax net present value (NPV@8%) of $517 million, and 18% IRR[1]. A unique advantage of the Wicheeda Rare-Earth Project is its ability to produce a saleable high-grade flotation concentrate. The PEA contemplates a 1.8 Mtpa (million tonnes per year) mill-throughput open-pit mining operation with 1.75:1 (waste:mill feed) strip ratio over a 19-year mine (project) life, producing an average of 25,423 tonnes REO annually. A Phase 1 initial-pit strip ratio of 0.63:1 (waste:mill feed) would yield rapid access to higher-grade surface mineralization in year one and payback of $440 million initial capital within five years. The Acid-Bake process is expected to improve upon the 2021 PEA economics.

Qualified Person

The scientific and technical information contained in this news release, as it relates to the Wicheeda Rare-Earth Project, has been reviewed and approved by John Goode, P. Eng., who is a Qualified Person as defined by National Instrument 43-101 and has provided the technical information relating to metallurgy in this news release.

About Defense Metals Corp.

Defense Metals Corp. is a mineral-exploration and development company focused on the acquisition, exploration and development of mineral deposits containing metals and elements commonly used in the electric-power market, defense industry, national-security sector and in the production of green-energy technologies, such as, rare-earth magnets used in wind turbines and in permanent-magnet motors for electric vehicles. Defense Metals owns 100% of the Wicheeda Rare-Earth Project located near Prince George, British Columbia, Canada. Defense Metals Corp. trades in Canada under the symbol "DEFN" on the TSX Venture Exchange, in the United States, under "DFMTF" on the OTCQB and in Germany on the Frankfurt Exchange under "35D".

For further information, please contact:

Todd Hanas, Bluesky Corporate Communications Ltd.
Vice President, Investor Relations
Tel: (778) 994 8072
Email: todd@blueskycorp.ca

Neither the TSX Venture Exchange nor its Regulation Services Provider (as that term is defined in the policies of the TSX Venture Exchange) accepts responsibility for the adequacy or accuracy of this news release.

Cautionary Statement Regarding "Forward-Looking" Information

This news release contains "forward-looking information or statements" within the meaning of applicable securities laws, which may include, without limitation, statements relating to advancing the Wicheeda Rare-Earth Project, completing the geotechnical and hydrogeological drill program and the expected results and outcomes, the Company's plans for its Wicheeda Rare-Earth Project including other studies and development work, expected results and outcomes, the technical, financial and business prospects of the Company, its rare-earth project and other matters. All statements in this news release, other than statements of historical facts, that address events or developments that the Company expects to occur, 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 and actual results may differ materially from those in the forward-looking statements. Such statements and information are based on numerous assumptions regarding present and future business strategies and the environment in which the Company will operate in the future, including the price

of rare-earth elements, the anticipated costs and expenditures, the ability to achieve its goals, that general business and economic conditions will not change in a material adverse manner, that financing will be available if and when needed and on reasonable terms. Such forward-looking information reflects the Company's views with respect to future events and is subject to risks, uncertainties and assumptions, including the risks and uncertainties relating to the interpretation of exploration results, risks related to the inherent uncertainty of exploration and cost estimates, the potential for unexpected costs and expenses and those other risks filed under the Company's profile on SEDAR at www.sedar.com. While such estimates and assumptions are considered reasonable by the management of the Company, they are inherently subject to significant business, economic, competitive and regulatory uncertainties and risks. Factors that could cause actual results to differ materially from those in forward looking statements include, but are not limited to, continued availability of capital and financing and general economic, market or business conditions, adverse weather and climate conditions, failure to maintain or obtain all necessary government permits, approvals and authorizations, failure to maintain community acceptance (including First Nations), risks relating to unanticipated operational difficulties (including failure of equipment or processes to operate in accordance with specifications or expectations, cost escalation, unavailability of materials and equipment, government action or delays in the receipt of government approvals, industrial disturbances or other job action, and unanticipated events related to health, safety and environmental matters), risks relating to inaccurate geological and engineering assumptions, decrease in the price of rare-earth elements, the impact of Covid-19 or other viruses and diseases on the Company's ability to operate, an inability to predict and counteract the effects of COVID-19 on the business of the Company, including but not limited to, the effects of COVID-19 on the price of commodities, capital market conditions, restriction on labour and international travel and supply chains, loss of key employees, consultants, or directors, increase in costs, delayed drilling results, litigation, and failure of counterparties to perform their contractual obligations. The Company does not undertake to update forward-looking statements or forward-looking information, except as required by law.



View original content to download multimedia:https://www.prnewswire.com/news-releases/defense-metals-acid-bake-process-yields-improved-rare-earth-

SOURCE Defense Metals Corp.