Defense Metals Hydrometallurgy Test Program Achieves ~90% Rare Earth Element Extraction From Wicheeda Flotation Concentrate

18.02.2020 | CNW

VANCOUVER, Feb. 18, 2020 - Defense Metals Corp. ("Defense Metals") (TSX-V:DEFN / OTCQB:DFMTF / FSE:35D) is pleased to announce that it has received final bench-scale hydrometallurgical test program results for the Wicheeda Rare Earth Element Property ("Wicheeda") from SGS Canada Inc. ("SGS"). Samples of Wicheeda flotation concentrate used in a hydrometallurgical test program led to the successful development of a flowsheet capable of processing the concentrate to a high grade mixed REE hydroxide precipitate. Highlights of the recently completed hydrometallurgical test program include:

- Initial processing via mild hydrochloric acid leach to extract gangue minerals while leaving REE (Rare Earth Elements) in the leach residue.
- High REE extraction from flotation concentrate of ~ 90% into a chloride based leach solution with opportunities identified to increase recoveries even further.
- Simple treatment of the leach solution with limestone achieved high (94-100%) removal of impurities such as iron, phosphorous, and thorium with only minor (2-4 %) REE losses.
- Simple treatment of purified liquor with hydrated lime led to the production of a high grade 67.5% TREE (Total REE, see Table 1 for detailed composition) mixed REE hydroxide precipitate at high (99-100%) Critical REE recovery from solution.
- Overall recoveries of 70-75% TREE from bulk sample to a high grade mixed REE hydroxide precipitate, and up to 76-78% TREE with reprocessing of the final leach residue.
- Regeneration of 20% (w/w) hydrochloric acid from final process liquors for re-use in the leaching operation.

As noted above, flowsheet improvement options have been identified that will be investigated through further testing including: locked cycle testing to investigate effect of recycling regenerated hydrochloric acid and sodium hydroxide; optimization of the gangue leach circuit to limit REE losses; reprocessing of leach residue back to the caustic crack stage to improve overall REE extraction; adoption of two-stage impurity removal process to limit the overall extent of REE co-precipitation; and inclusion of hydrochloric acid and caustic regeneration to reduce overall reagent consumption.

Once optimized, continuous hydrometallurgical pilot plant testing is required to confirm overall circuit operability, to confirm product recoveries, product grades, and reagent consumptions under continuous conditions and to produce bulk quantities of purified mixed REE product for further separation testing.

Details of the process development testwork carried out at SGS will be included in a joint Defense Metals / SGS paper, which will be presented at the "Processing of Critical Materials" Symposium (part of the Conference Of Metallurgists) in August 2020 in Toronto.

Craig Taylor, CEO of Defense Metals, stated; "These hydrometallurgical test results which showed REE extractions of ~90% from flotation concentrate, in conjunction with our recently released locked cycle flotation tests that produced a high grade 48.7% TREO concentrate, conclude a very successful yearlong metallurgical flowsheet optimization process. Defense Metals believes these are exceptional results that show the Wicheeda REE Deposit mineralization is readily amenable to processing via well-established flotation, and hydrochloric acid leach / caustic crack REE extraction methods. Based on these positive results we expect to finalize our plans to commence continuous pilot plant testing in the near future."

Table 1: Final REE Hydroxide Product Assay

Technical Details

The overall hydrometallurgical flowsheet is chloride based and uses hydrochloric acid to dissolve gangue minerals away from the REE carrying minerals. The REE containing leach residue is subsequently processed in a caustic treatment step to convert REE phosphates and fluorides into acid soluble REE hydroxides. The REE hydroxides are leached in hydrochloric acid and the leach solution is treated to remove impurities such as iron, aluminium, phosphorous and thorium. A purified and mixed REE product suitable for further REE separation can be produced either by hydroxide or oxalate precipitation. Final filtrates from gangue leaching and REE precipitation are combined and reacted with sulphuric acid to produce 20% (w/w) hydrochloric acid for re-use (Figure 1).

Figure 1: Simplified Wicheeda Hydrometallurgical Flowsheet

About the Wicheeda REE Property

The 1,708 hectare Wicheeda REE Property, located approximately 80 km northeast of the city of Prince George, British Columbia, is readily accessible by all-weather gravel roads and is nearby to infrastructure, including power transmission lines, the CN railway and major highways.

Geologically, the property is situated in the Foreland Belt and within the Rocky Mountain Trench, a major continental geologic feature. The Foreland Belt contains part of a large alkaline igneous province, stretching from the Canadian Cordillera to the southwestern United States, which includes several carbonatite and alkaline intrusive complexes hosting the Aley (niobium), Rock Canyon (REE), and Wicheeda (REE) deposits.

The Wicheeda REE Property is underlain by Kechika Group metasedimentary rocks that are intruded by the southeast-trending Wicheeda carbonatite; a deformed plug or sill approximately 250 metres in diameter that hosts significant REE mineralization. This intrusion comprises a ferroan dolomite carbonatite core, which passes gradationally outward into calcite carbonatite. The REE mineralization is primarily hosted by the dolomitic carbonatite.

Qualified Person

The scientific and technical information contained in this news release as it relates to the Wicheeda REE Property has been reviewed and approved by Kristopher J. Raffle, P.Geo. (BC) Principal and Consultant of APEX Geoscience Ltd. of Edmonton, AB, a director of Defense Metals and a "Qualified Person" as defined in National Instrument 43-101 – Standards of Disclosure for Mineral Projects. Mr. Raffle verified the data disclosed which includes a review of the analytical and test data underlying the information and opinions contained therein.

Methodology and QA/QC

Head grade, batch and locked-cycle flotation, and hydrometallurgical product assays for cerium, lanthanum, neodymium and praseodymium oxides were determined via lithium-borate fusion of a 0.5 gram sample analyzed via wavelength dispersion X-ray fluorescence (WD-XRF). The remaining rare earth elements for the head sample were determined via 0.5 gram sodium-peroxide fusion multi-element ICP-MS.

The SGS analyses included a quality assurance / quality control (QA/QC) program including the insertion of rare earth element standard and blank samples. Defense Metals detected no significant QA/QC issues during review of the data. Defense Metals is not aware of any drilling, sampling, recovery or other factors that could materially affect the accuracy or reliability of the data referred to herein. SGS is an ISO/IEC 17025 and ISO9001:2015 accredited laboratory. SGS is independent of Defense Metals Corp.

About Defense Metals Corp.

Defense Metals Corp. is an advanced mineral exploration company focused on the acquisition of mineral deposits containing metals and elements commonly used in the electric power market, military, national security and the production of "GREEN" energy technologies, such as, high strength alloys and rare earth magnets. Defense Metals has an option to acquire 100% of the 1,708 hectare Wicheeda Rare Earth Element

Property 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".

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.

Forward Looking Information

This news release includes certain statements that constitute "forward-looking information or statements" within the meaning of applicable securities law, including without limitation, Defense Metals plans for its properties/ projects, metallurgical testing and results, commence pilot plant testing, other statements relating to the technical, financial and business prospects of Defense Metals and its properties, and other matters.

Forward-looking statements address future events and conditions and are necessarily based upon a number of estimates and assumptions. These statements relate to analyses and other information that are based on forecasts of future results, estimates of amounts not yet determinable and assumptions of management. Any statements that express or involve discussions with respect to predictions, expectations, beliefs, plans, projections, objectives, assumptions or future events or performance (often, but not always, using words or phrases such as "expects" or "does not expect", "is expected", "anticipates" or "does not anticipate", "plans", "estimates" or "intends", or stating that certain actions, events or results "may", "could", "would", "might" or "will" be taken, occur or be achieved), and variations of such words, and similar expressions are not statements of historical fact and may be forward-looking statements. Forward-looking statement are necessarily based upon a number of factors that, if untrue, could cause the actual results, performances or achievements of Defense Metals to be materially different from future results, performances or achievements express or implied by such statements. Such statements and information are based on numerous assumptions regarding present and future business strategies and the environment in which Defense Metals will operate in the future, including the price of metals and elements, anticipated costs and the ability to achieve 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, and that third party contractors, equipment and supplies and governmental and other approvals required to conduct Defense Metals planned exploration activities will be available on reasonable terms and in a timely manner. While such estimates and assumptions are considered reasonable by the management of Defense Metals, they are inherently subject to significant business, economic, competitive and regulatory uncertainties and risks.

Forward-looking statements are subject to a variety of risks and uncertainties, which could cause actual events, level of activity, performance or results to differ materially from those reflected in the forward-looking statements, including, without limitation: (i) risks related to uranium, rare earth elements, and other commodity price fluctuations; (ii) risks and uncertainties relating to the interpretation of exploration results; (iii) risks related to the inherent uncertainty of exploration and cost estimates and the potential for unexpected costs and expenses; (iv) that resource exploration and development is a speculative business; (v) that Defense Metals may lose or abandon its property interests or may fail to receive necessary licences and permits; (vi) that environmental laws and regulations may become more onerous; (vii) that Defense Metals may not be able to raise additional funds when necessary; (viii) the possibility that future exploration, development or mining results will not be consistent with Defense Metals expectations; (ix) exploration and development risks, including risks related to accidents, equipment breakdowns, labour disputes or other unanticipated difficulties with or interruptions in exploration and development; * competition; (xi) the potential for delays in exploration or development activities or the completion of geologic reports or studies; (xii) the uncertainty of profitability based upon Defense Metals history of losses; (xiii) risks related to environmental regulation and liability; (xiv) risks associated with failure to maintain community acceptance, agreements and permissions (generally referred to as "social licence"), including local First Nations; (xv) risks relating to obtaining and maintaining all necessary government permits, approvals and authorizations relating to the continued exploration and development of Defense Metals projects; (xvi) risks related to the outcome of legal actions; (xvii) political and regulatory risks associated with mining and exploration; (xix) risks related to current global financial conditions; and (xx) other risks and uncertainties related to Defense Metals prospects, properties and business strategy. These risks, as well as others, could cause actual results and events to vary significantly.

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, the loss of key directors, employees, advisors or consultants, adverse weather conditions, increase in costs, equipment failures, litigation, failure of counterparties to perform their contractual obligations and fees charged by service providers. Investors are cautioned that forward-looking statements are not guarantees of future performance or events and, accordingly are cautioned not to put undue reliance on forward-looking statements due to the inherent uncertainty of such statements. The forward-looking statements included in this news release are made as of the date hereof and Defense Metals disclaims any intention or obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise, except as expressly required by applicable securities legislation.

SOURCE Defense Metals Corp.

Contact
Todd Hanas, Bluesky Corporate Communications Ltd., Vice President, Investor Relations, Tel: (778) 994

8072, Email: todd@blueskycorp.ca