

# **/R E P E A T -- Defense Metals Metallurgy Study Returns 48.7% Rare Earth Oxide Concentrate Grade and 85.7% Recovery for Wicheeda Rare Earth Element Property/**

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VANCOUVER, Oct. 24, 2019 - [Defense Metals Corp.](#) ("Defense Metals") (TSX-V:DEFN / OTCQB:DFMTF / FSE:35D) i announce that it has received final metallurgical test results for the Wicheada Rare Earth Element Property ("Wicheada SGS Canada Inc. ("SGS"). Results from a total 40 batch flotation tests designed to produce an optimized Wicheada flowsheet through iterative test procedures with varying process conditions informed the final Locked-Cycle Test ("LCT") successfully produced (Table 1):

- 48.7% total rare earth oxide (TREO) high grade concentrate of cerium, lanthanum, neodymium, and praseodymium ( $\text{Ce}_2\text{O}_3+\text{La}_2\text{O}_3+\text{Nd}_2\text{O}_3+\text{Pr}_2\text{O}_3$ )
- 85.7% TREO metallurgical recovery
- 10.1 times upgrading ratio from head grade of 4.81% TREO
- 8.2% concentrate mass yield

According to the SGS Executive Summary for the metallurgical test results, "Excellent results were achieved through the process, including a high scale-up ratio, to a high-grade concentrate at high recoveries. The downstream hydrometallurgical process is expected to benefit significantly from this quality of flotation concentrate grade" (See Table 2 provided by SGS).

Craig Taylor, CEO of Defense Metals, stated: "With assays coming shortly from our 2019 drill program and hydromet tests in progress 2020 will be a banner year for Defense Metals."

With the conclusion of SGS flotation testwork Defense Metals has achieved its initial goal of confirming the reproducibility of previous 2011 metallurgical test work, and improving on those results by targeting a >40% TREO concentrate grade and 85% recovery. The Wicheada testwork flowsheet evaluated well-established direct froth flotation, which ultimately produced excellent rare earth mineral beneficiation performance, and there remains very good potential to further simplify the flowsheet and reduce operational cost with further optimization of grind size, conditioning/flootation temperature and depressant dosage.

Table 1: Wicheada Rare Earth Deposit Locked-Cycle Test Results

Batch flotation testwork was designed to evaluate the 2011 flowsheet, to further optimize the final Wicheada flowsheet for de-risking full-scale pilot plant processing of the entire 30 tonne bulk sample. Batch tests successfully quantified the effects of replacing analytical grade reagents with commercial reagents (collector/activators), varying reagent dosage, flotation kinetics, desliming methods, temperature, grind size, alternative depressant, and water chemistry.

Optimum conditions developed in 2 kg batch flotation tests were successfully scaled-up to generate 10 kg concentrate tests, where the best test (B19) produced a concentrate grading 52% TREO with 78% TREO recovery.

In addition to flotation testwork, preliminary heavy liquid separation (HLS) tests on stage-ground (-250  $\mu\text{m}$  to +106  $\mu\text{m}$ ) head material showed good potential for upgrading REO by gravity separation with gravity concentrate grade of 46.9% and 84.8% TREO recovery.

These are commercial operations and the results of Defense Metals' current results are from controlled lab testing and are comparable.

Table 2: Wicheada Metallurgy Compared to Worldwide REE Mines<sup>(1)(2)</sup>

<sup>1</sup> Verbaan, N., Bradley, K., Brown, N., and Mackie, S., 2015 A review of hydrometallurgical flowsheets considered in current REE projects. In: Simandl G.J. and Neetz, M. (Eds.). Symposium on Strategic and Critical Materials Proceedings. November 13-14, 2015, Victoria, British Columbia Ministry of Energy and Mines, British Columbia Geological Survey Paper 2015-3, pp. 147-162.

<sup>2</sup> These are commercial operations and the results of Defense Metals' current results are from controlled lab testing and are not comparable.

The 1,780 hectare Wicheada 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 geological 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) Canyon (REE), and Wicheada (REE) deposits.

The Wicheada REE Property is underlain by Kechika Group metasedimentary rocks that are intruded by the southeast-trending Wicheada carbonatite; a deformed plug or sill approximately 250 metres in diameter that hosts significant REE mineralization. The intrusion comprises a ferroan dolomite carbonatite core, which passes gradationally outward into calcite carbonatite. The 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 Wicheada REE Property has been reviewed and approved by Kristopher J. Raffle, P.Geo. (BC) Principal and Consultant of APEX Geoscience Ltd. of Edmonton, Alberta, Canada, 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

The Wicheada flotation test charges were prepared by SGS from the 30 tonne Wicheada sample which was crushed to 12.7 mm (1/2") using a combination of jaw and cone crushers. The crushed material was homogenized using a front-end mixer over a period of several hours. Approximately 300 kg (two drums) of crushed material was collected by selecting 5-10 kg samples from random location in the homogenized pile.

A sub-sample of the head sample was submitted for abrasion index testing, and the remainder crushed to 100% passing 3.3 mm. A 25 kg sample was taken for Bond Rod Mill Work Index (RWI) AND Bond Ball Mill Work Index (BWI) testwork. The remaining sample was further crushed to 100% passing 3.3 mm. The less than 3.3 mm sample was split into 2 kg and 10 kg charges for batch and bulk concentrate flotation production tests. Flotation charges were stage-ground to 100% passing 106 µm or finer based on mineralogical data and SGS's prior experience with REE flotation testwork programs.

For the locked-cycle test, a stability check reveals that reasonable stability was achieved quickly for all elements, and the data were deemed suitable for projected mass balance calculation, to simulate the metallurgical performance that would be achieved in a continuous operation.

Head grade, batch, and locked-cycle concentrate products 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-elemental analysis.

The SGS analysis 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 Minerals Lakefield is an ISO/IEC 17025 and ISO9001:2015 accredited. SGS is independent of Defense Metals Corp.

#### About Defense Metals Corp.

[Defense Metals Corp.](#) is a 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 1,780 hectare Wicheada 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 OTCQX.

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 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 test results, receipt of assays from drilling, 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, 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" occur or be achieved), and variations of such words, and similar expressions are not statements of historical fact and are 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, 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. These factors include, but are not limited to, the price of metals, 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' 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, levels of 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 need 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 exploration or development activities or the completion of geologic reports or studies; (xii) the uncertainty of profitability upon Defense Metals history of losses; (xiii) risks related to environmental regulation and liability; (xiv) risks associated with the need 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 for the continued exploration and development of Defense Metals projects; (xvi) risks related to the outcome of legal actions; (xx) political and regulatory risks associated with mining and exploration; (xix) risks related to current global financial conditions; (xx) other risks and uncertainties related to Defense Metals prospects, properties and business strategy. These risks, among 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 personnel, 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 place 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 revise any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by applicable securities legislation.

SOURCE [Defense Metals Corp.](#)

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