Defense Metals Updates Metallurgical Test Work and Preliminary Feasibility Study Progress for its Wicheeda Rare Earth Elements Project

written by Raj Shah | February 13, 2024

February 13, 2024 (Source) – Defense Metals Corp. (**Defense Metals** or the **Company**) (TSXV: DEFN) (OTCQB: DFMTF) (FSE: 35D) is pleased to provide an update on the metallurgical work programs, undertaken by SGS Canada Inc. (**SGS**) and the ongoing Preliminary Feasibility Study (**PFS**) work by SRK Consulting (Canada) Inc. (**SRK**) and Hatch Limited (**Hatch**), for its wholly-owned Wicheeda Rare Earth Element Project located in British Columbia, Canada.

Highlights of Metallurgical Test Work and PFS-related Matters

1. The metallurgical test work required for the PFS has been completed. Multiple bench-scale flotation and flotation pilot plant test work resulted in the production of a high-grade mineral concentrate containing 50% Total Rare Earth Oxide (**TREO**) with an 80% recovery rate, which will be included in the PFS for the first 8 years of mine-life.
2. Bench-scale and hydrometallurgical pilot plant test work shows that the planned acid bake process will deliver approximately 90% TREO extraction from the mineral concentrate to a Mixed Rare Earth Carbonate product.
3. The PFS plant flowsheets are completed, based on the metallurgical test work, and equipment specifications have

been issued to vendors for cost quotations.

4. The field-based geotechnical, geochemical and environmental test work required for the PFS has been completed and lab-based studies are in progress.
5. Other PFS tasks, including open pit mine design and tailings storage trade-off studies, are well advanced.
6. Economic evaluation and cashflow modelling are in progress.
7. PFS report completion in the second quarter of 2024 is on schedule.
8. Eleven mixed rare earth precipitate samples from the hydrometallurgical test work have been sent to potential partners, processors or end-users.
9. Over the past 5 years, Defense Metals drilled 58 core holes totalling 12,073 metres (**m**; ~39,610 feet) to define the Wicheeda Rare Earth Element (**REE**) deposit and provide samples for metallurgical test work. This work resulted in measured and indicated (**M+I**) resources of 34.2 million tonnes, averaging 2.02% TREO[1], inclusive of 17.8 million tonnes of high-grade dolomite carbonatite averaging 2.92% TREO, in addition to inferred resources of 11.1 million tonnes, averaging 1.02% TREO. This represents a 260% increase over the Defense Metals initial 2019 mineral resource estimate, and a conversion to M+I of 101% of the prior 2021 mineral resource estimate.
10. Total expenditures on the Wicheeda REE Project since 2019, including costs for mineral resource estimate definition, all metallurgical test work, earlier studies and the remaining PFS-related costs are in excess of CAD $17.5 million.

11. Defense Metals has entered into a strategic Co-Design Agreement with the McLeod Lake Indian Band (**MLIB**), the First Nations community having the traditional territory

on which the Wicheeda Project sits.

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[1] TREO % is the sum of CeO_2, La_2O_3, Nd_2O_3, Pr_6O_{11}, Sm_2O_3, Eu_2O_3, Gd_2O_3, Tb_4O_7, Dy_2O_3 and Ho_2O_3 percentages.

Craig Taylor, CEO of Defense Metals, stated:

"Continuing positive results from our technical studies suggest that our wholly-owned Wicheeda REE Project has the potential to become the next producer of rare earth elements in North America accounting for a significant amount of the rare earths needed for the western world's future magnet metal production. We look forward to completing and filing the PFS for the Wicheeda REE Project in Q2-2024 and, subject to financing, moving directly into our feasibility study."

Metallurgical Test Work

- Extensive comminution, beneficiation, hydrometallurgical, and environmental tests have been completed and the resulting data have been applied in the PFS. These tests have studied development and optimization of milling and hydrometallurgical processes and the response of twenty-one variability samples representing different REE grades, lithologies and locations within the deposit.
- From 2018 to date, about CAD$5 million has been spent on metallurgical test work and the development of the metallurgical flowsheets for the Wicheeda REE Project.
- Thirty-one samples of deposit material, flotation and hydrometallurgical products have been subjected to detailed mineralogical examination.
- Twenty-one samples have been subjected to Bond milling index and SMC comminution tests.

- 210 open circuit flotation tests and seven locked cycle flotation tests, of samples ranging from 1 to 12 kilograms (**kg**), and a 26-tonne pilot flotation operation have been completed.
- Sixty-three static acid bake tests, sixteen short-duration acid bake kiln runs with associated water leach tests were completed. Additionally, SGS completed a total of 15 days of continuous kiln operation (in one 5-day and one 10-day segment) as part of a fully integrated hydrometallurgical pilot plant operation that processed 560 kg of flotation concentrate.
- Approximately 40 bench-scale impurity removal tests were done as well as about 40 rare earth precipitation tests and results incorporated in the integrated hydrometallurgical pilot plant operation and the project process design criteria.
- Many other small-scale tests examined water recycle options and other aspects of the metallurgical flowsheets.
- The liquid-solid separation characteristics of the flotation plant products and those of the hydrometallurgical plant have been determined through appropriate thickening and filtration tests.

Technical Report for the Wicheeda Rare Earth Element Project, British Columbia, Canada, dated October 27, 2023, with an effective date of August 28, 2023, and prepared by APEX Geoscience Ltd. is filed under Defense Metals Corp.'s Issuer Profile on SEDAR+ (www.sedarplus.com) and on the Company's website at www.defensemetals.com.

PFS Plant Design

Results from the metallurgical test work have been used to develop flowsheets for the planned comminution, beneficiation

and hydrometallurgical plants. These flowsheets have been completed, reviewed and used to generate major equipment specifications for grinding mills, kilns, etc., which have been issued to equipment suppliers for quotes.

The metallurgical process design, engineering and costing is on track to allow completion of the PFS in Q2 of 2024.

Optimization of Open Pit Mining

Geotechnical investigation work for the mine design and pit optimization was performed by SRK and completed in December 2023. This work included sixteen geotechnical drill holes totaling 225.5 m, and twenty excavated overburden geotechnical test pits. Within the Wicheeda REE deposit pit shell, six diamond drill holes totaling 1,182 m were completed, inclusive of 4 open pit geotechnical drill holes totaling 920 m, and in-pit exploration holes totaling 262 m.

Pit design work is underway, incorporating the latest geotechnical information provided from the 2023 geotechnical drilling program.

Community Engagement

Defense Metals entered into a Co-Design Agreement with the McLeod Lake Indian Band (**MLIB**) (see news release dated January 17, 2024), thus solidifying a joint commitment to the successful advancement of the Wicheeda REE Project. The Co-Design Agreement emphasizes a joint planning approach, empowering MLIB to play an integral part in the design and decision-making process in the technical, social, engineering and environmental aspects of the Wicheeda REE Project. This agreement expands upon the Mineral Exploration Agreement Memorandum of Understanding previously entered into with MLIB.

The McLeod Lake Indian Band purchased an equity stake in Defense Metals, signalling their long-term commitment to the success of the Wicheeda REE Project.

Infrastructure and Tailings Management Studies

Tradeoff studies are being performed on the various options being considered for tailings management and infrastructure locations are being determined.

The Wicheeda REE Project has excellent infrastructure and logistics, which are expected to allow for lower operating and capital costs, including:

- The future mine site and beneficiation plant will be located:
  - along a permitted Forest Service Road approximately 38 km east from the paved John Hart Provincial Highway at the community of Bear Lake.
  - ~37 km from the Canadian National Railway mainline.
  - ~36 km from the main natural gas distribution pipeline..
  - ~34 km from high-voltage powerlines that supply BC with abundant green hydroelectric power.
  - ~ 110 km from an international airport in Prince George

- British Columbia has a long history of mining and its industry participants are recognized worldwide as expert in open pit mining and mineral processing.
- Prince George is a major industrial center supplying both the mining and wood products industries. Most of the equipment that will be required for the mining operation will be supplied by companies already established in the area.

- Multiple options exist for location of the hydrometallurgical plant site close to reagent supply.
- Easy access to the year-round port of Prince Rupert, the closest North American port to Asian markets.

Environmental Test Work and Field Studies

Environmental and geochemical test work has been performed on both flotation and hydrometallurgical plant products and mixtures thereof. Data have been used by SRK in the design of facilities.

Surface water sampling and field investigations commenced in 2022 and will continue through 2024. The results of these and future environmental investigations will be used to inform siting, design, and mitigation planning as well as to prepare technical data reports to support Environmental Assessment and permitting processes.

Qualified Persons

The scientific and technical information concerning metallurgy and processing contained in this news release as it relates to the Wicheeda REE Project has been reviewed and approved by J.R. Goode, P.Eng., a metallurgical consultant to the Company and a "Qualified Person" as defined in NI 43-101. This news release has also been reviewed and approved by Kristopher J. Raffle, P.Geo. (B.C.), a technical consultant to the Company, a Principal and Consultant of APEX Geoscience Ltd. of Edmonton, Alberta, and a "Qualified Person" as defined in NI 43-101.

About Defense Metals Corp. and its Wicheeda Rare Earth Element Project

Defense Metals Corp. is a mineral exploration and development company focused on the development of its 100% owned, 8,301-

hectare (~20,534-acre) Wicheeda REE Project that is located on the traditional territory of the McLeod Lake Indian Band in British Columbia, Canada.

The Wicheeda REE Project, approximately 80 kilometres (~50 miles) northeast of the city of Prince George, is readily accessible by a paved highway and all-weather gravel roads and is close to infrastructure, including hydro power transmission lines and gas pipelines. The nearby Canadian National Railway and major highways allow easy access to the port facilities at Prince Rupert, the closest major North American port to Asia.

Defense Metals Corp. trades on the TSX Venture Exchange under the symbol “DEFN”, in the United States, trading symbol “DFMTF” on the OTCQB and in Germany on the Frankfurt Exchange under “35D”

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Cautionary Statement Regarding “Forward-Looking” Information or Statements

This news release contains “forward–looking information or statements” within the meaning of applicable securities laws, which may include, without limitation, statements relating to completion of the PFS and the expected timelines, the completion of additional work and studies and the expected timelines, advancing the Wicheeda REE Project, completing the PFS and progressing towards a feasibility study, the technical, financial and business prospects of the Company, its 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 and metallurgical results, risks related to the inherent uncertainty of exploration and development and cost estimates, the potential for unexpected costs and expenses and those other risks filed under the Company’s profile on SEDAR+ (www.sedarplus.com). While such estimates and assumptions are considered reasonable by the management of the Company, they are inherently subject to

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