Denison Mines

Denison Achieves Key Milestone with Completion of Metallurgical Test Work to Define Phoenix Process Plant Components and Confirmation of Ability to Produce Yellowcake

TORONTO, Aug. 3, 2022 /CNW/ - **Denison Mines Corp.** ("Denison" or the "Company") (TSX: DML) (NYSE American: DNN) is pleased to announce the substantial completion of extensive metallurgical test work to define the mechanical components for the planned Phoenix processing plant (the "Phoenix Plant"), as part of the Feasibility Study ("FS") underway for the Company's 95% owned Wheeler River project ("Wheeler River" or the "Project"). In addition, the metallurgical program has confirmed the ability to produce a yellowcake product that meets industry standard ASTM C967-13 specifications (see below for details). View PDF Version

Metallurgical test work intended to define the mechanical components for the Phoenix Plant was initiated in April 2021 at the Saskatchewan Research Council ("SRC") laboratories in Saskatoon. The test work consisted of bench-scale lab tests using uranium bearing solution ("UBS") that was previously produced from lab-scale leaching of core samples from the Phoenix deposit. These samples are intended to be representative of what is expected to be recovered from the In-Situ Recovery ("ISR") wellfield planned for the Phoenix deposit (see news release dated August 4, 2021).

Kevin Himbeault, Denison's Vice President of Plant Operations & Regulatory Affairs, commented, ***"The comprehensive test work undertaken by the Denison team has demonstrated our ability to produce (i) a saleable uranium product utilizing a simplified chemical precipitation process and (ii) high-quality effluent for final discharge to the environment. This is a significant milestone from which we can continue to optimize the designs for the Phoenix Plant and further our de-risking of the overall Project as part of the FS."***

This press release constitutes a "designated news release" for the purposes of the Company's prospectus supplement dated September 28, 2021 to its short form base shelf prospectus dated September 16, 2021.

The results of the metallurgical test work are highlighted by the following:

- The UBS from the high-grade Phoenix deposit was processed using simple chemical precipitation stages to remove certain elements prior to the yellowcake precipitation circuit.
- A yellowcake product that meets uranium industry standard ASTM C967-13 specifications (see below for details) has been precipitated in the lab.
- A high-quality effluent was obtained using typical industrial water treatment processes through pH control and precipitation.

Additionally, the metallurgical test program has provided several important inputs for the FS processes underway in relation to the planned Phoenix Plant and ISR operation, including confirmation of the following:

- The appropriateness of mechanical components for the Phoenix Plant similar to those outlined in the Pre-Feasibility Study ("PFS").
- The suitability for the Phoenix Plant to process UBS head grades averaging 15 g/L uranium.
- Metallurgical recovery rates of over 95% from processing of UBS to yellowcake.
- The ability to achieve industry standards for yellowcake through drying at 110°C, indicating calcination is not required for the planned Phoenix Plant.
- The ability to produce a yellowcake product that meets industry standards without the use of ammonia and the specialized and additional processes typically associated therewith.
- The ability to meet final plant effluent quality discharge criteria for protection of the environment, which is expected to be outlined in the draft Environmental Impact Statement ("EIS") planned to be submitted as part of the Environmental Assessment ("EA") for the Project.

Additionally, extensive test work has been completed in defining any potential elements of concern, required process components, reagents, and general operating parameters necessary to mitigate processing risks and ensure the production of a yellowcake product that meets industry standards. This has allowed for the significant progression of the plant and process designs for the FS.

Additional targeted metallurgical test work continues in the following areas:

- Specialized test work to potentially further improve the effluent treatment process, optimize reagent usage and enhance overall environmental protection.
- Lab scale leaching of intact cores continues, with additional tests to further refine the production recovery curve for the Phoenix ISR operation, which will inform ISR simulation modelling for the FS and will provide additional results for future wellfield and ISR plant design optimization.
- Lab scale leaching and remediation tests of crushed core, representing different hydrogeological units within the Phoenix

deposit, to determine achievable recovery, leaching rates, and remediation plans for the different units.

The laboratory work for the 2022 Metallurgical Program to support the feasibility study is being carried out at the SRC Mineral Processing and Geoanalytical Laboratories in Saskatoon, under the supervision of Wood Canada Limited (see news release dated September 22, 2021).

ASTM C967-13 Standard

ASTM C967-13 is a set of quality specifications applied to uranium ore concentrate that are generally recognized in the uranium industry for meeting requirements for refining and conversion to uranium hexafluoride and, therefore, a saleable product. Parties may, however, agree to less or more stringent specifications of product quality on a case by case basis.

About Wheeler River

Wheeler River is the largest undeveloped uranium project in the infrastructure rich eastern portion of the Athabasca Basin region, in northern Saskatchewan – including combined Indicated Mineral Resources of 132.1 million pounds U_3O_8 (1,809,000 tonnes at an average grade of 3.3% U_3O_8), plus combined Inferred Mineral Resources of 3.0 million pounds U_3O_8 (82,000 tonnes at an average grade of 1.7% U_3O_8). The Project is host to the high-grade Phoenix and Gryphon uranium deposits, discovered by Denison in 2008 and 2014, respectively, and is a joint venture between Denison (operator) and JCU (Canada) Exploration Company Limited ("JCU"). Denison has an effective 95% ownership interest in Wheeler River (90% directly, and 5% indirectly through a 50% ownership in JCU).

A PFS was completed for Wheeler River in 2018, considering the potential economic merit of developing the Phoenix deposit as an ISR operation and the Gryphon deposit as a conventional underground mining operation. Taken together, the Project is estimated to have mine production of 109.4 million pounds U_3O_8 over a 14-year mine life, with a base case pre-tax NPV of $1.31 billion (8% discount rate), Internal Rate of Return ("IRR") of 38.7%, and initial pre-production capital expenditures of $322.5 million. The Phoenix ISR operation is estimated to have a stand-alone base case pre-tax NPV of $930.4 million (8% discount rate), IRR of 43.3%, initial pre-production capital expenditures of $322.5 million, and industry-leading average operating costs of US$3.33/lb U_3O_8. The PFS is prepared on a project (100% ownership) and pre-tax basis, as each of the partners to the Wheeler River Joint Venture are subject to different tax and other obligations.

Further details regarding the PFS, including additional scientific and technical information, as well as after-tax results attributable to Denison's ownership interest, are described in greater detail in the NI 43-101 Technical Report titled "Pre-feasibility Study for the Wheeler River Uranium Project, Saskatchewan, Canada" dated October 30, 2018, with an effective date of September 24, 2018. A copy of this report is available on Denison's website and under its profile on SEDAR at www.sedar.com and on EDGAR at www.sec.gov/edgar.shtml.

Denison suspended certain activities at Wheeler River during 2020, including the EA process, which is on the critical path to achieving the project development schedule outlined in the PFS. While the EA process has resumed, the Company is not currently able to estimate the impact to the project development schedule outlined in the PFS, and users are cautioned against relying on the estimates provided therein regarding the start of pre-production activities in 2021 and first production in 2024.

About Denison

Denison is a uranium exploration and development company with interests focused in the Athabasca Basin region of northern Saskatchewan, Canada. In addition to its effective 95% interest in the Wheeler River project, Denison's interests in the Athabasca Basin include a 22.5% ownership interest in the McClean Lake joint venture, which includes several uranium deposits and the McClean Lake uranium mill that is contracted to process the ore from the Cigar Lake mine under a toll milling agreement, plus a 25.17% interest in the Midwest Main and Midwest A deposits, and a 66.90% interest in the Tthe Heldeth Túé ("THT", formerly J Zone) and Huskie deposits on the Waterbury Lake property. The Midwest Main, Midwest A, THT and Huskie deposits are each located within 20 kilometres of the McClean Lake mill.

Through its 50% ownership of JCU, Denison holds additional interests in various uranium project joint ventures in Canada, including the Millennium project (JCU 30.099%), the Kiggavik project (JCU 33.8118%) and Christie Lake (JCU 34.4508%). Denison's exploration portfolio includes further interests in properties covering approximately 300,000 hectares in the Athabasca Basin region.

Denison is also engaged in post-closure mine care and maintenance services through its Closed Mines group (formerly Denison

Environmental Services), which manages Denison's reclaimed mine sites in the Elliot Lake region and provides related services to certain third-party projects.

Follow Denison on Twitter: @DenisonMinesCo

Qualified Persons

The disclosure of scientific or technical information related to the FFT or Wheeler River project contained in this release has been reviewed and approved, as applicable, by Mr. David Bronkhorst, P.Eng, Denison's Vice President, Operations or Mr. Andrew Yackulic, P. Geo., Denison's Director, Exploration, who are Qualified Persons in accordance with the requirements of NI 43-101.

Cautionary Statement Regarding Forward-Looking Statements

Certain information contained in this news release constitutes 'forward-looking information', within the meaning of the applicable United States and Canadian legislation, concerning the business, operations and financial performance and condition of Denison. Generally, these forward-looking statements can be identified by the use of forward-looking terminology such as 'potential', 'plans', 'expects', 'budget', 'scheduled', 'estimates', 'forecasts', 'intends', 'anticipates', or 'believes', or the negatives and/or variations of such words and phrases, or state that certain actions, events or results 'may', 'could', 'would', 'might' or 'will' 'be taken', 'occur' or 'be achieved'.

In particular, this news release contains forward-looking information pertaining to the following: scope, objectives and interpretations of the FS process for the proposed ISR operation for the Phoenix deposit, including metallurgical testing programs described herein and the interpretation of the results therefrom; the scope and design, and related test work, with respect to plans and process designs for the FS; the definition of a saleable product; and expectations regarding its joint venture ownership interests and the continuity of its agreements with its partners and third parties.

Forward looking statements are based on the opinions and estimates of management as of the date such statements are made, and they are subject to known and unknown risks, uncertainties and other factors that may cause the actual results, level of activity, performance or achievements of Denison to be materially different from those expressed or implied by such forward-looking statements. For example, the modelling and assumptions upon which the work plans for the Wheeler River Project are based may not be maintained after further work is completed. In addition, Denison may decide or otherwise be required to discontinue testing, evaluation and development work if it is unable to maintain or otherwise secure the necessary resources (such as testing facilities, capital funding, regulatory approvals, etc.). Denison believes that the expectations reflected in this forward-looking information are reasonable but no assurance can be given that these expectations will prove to be accurate and results may differ materially from those anticipated in this forward-looking information. For a discussion in respect of risks and other factors that could influence forward-looking events, please refer to the factors discussed in Denison's Annual Information Form dated March 25, 2022 or subsequent quarterly financial reports under the heading 'Risk Factors'. These factors are not, and should not be construed as being exhaustive.

Accordingly, readers should not place undue reliance on forward-looking statements. The forward-looking information contained in this news release is expressly qualified by this cautionary statement. Any forward-looking information and the assumptions made with respect thereto speaks only as of the date of this news release. Denison does not undertake any obligation to publicly update or revise any forward-looking information after the date of this news release to conform such information to actual results or to changes in Denison's expectations except as otherwise required by applicable legislation.

Cautionary Note to United States Investors Concerning Estimates of Mineral Resources and Mineral Reserves *This news release may use the terms 'measured', 'indicated' and 'inferred' mineral resources. United States investors are advised that such terms have been prepared in accordance with the definition standards on mineral reserves of the Canadian Institute of Mining, Metallurgy and Petroleum referred to in Canadian National Instrument 43-101 Mineral Disclosure Standards ("NI 43-101") and are recognized and required by Canadian regulations. Inferred mineral resources have a great amount of uncertainty as to their existence, and as to their economic and legal feasibility. It cannot be assumed that all or any part of an inferred mineral resource will ever be upgraded to a higher category. Under Canadian rules, estimates of inferred mineral resources may not form the basis of feasibility or other economic studies. United States investors are cautioned not to assume that all or any part of an inferred mineral resource exists, or is economically or legally mineable. United States investors are also cautioned not to assume that all or any part of measured or indicated mineral resources will ever be converted into mineral reserves.*

Effective February 2019, the United States Securities and Exchange Commission ("SEC") adopted amendments to its disclosure rules to modernize the mineral property disclosure requirements for issuers whose securities are registered with the SEC under the Exchange Act and as a result, the SEC now recognizes estimates of "measured mineral resources", "indicated mineral resources" and "inferred mineral resources". In addition, the SEC has amended its definitions of "proven mineral reserves" and "probable mineral reserves" to be "substantially similar" to the corresponding definitions under the CIM Standards, as required under NI 43-101. However, information regarding mineral resources or mineral reserves in Denison's disclosure may not be comparable to similar information made public by United States companies.

SOURCE Denison Mines Corp.

For further information: Please contact: David Cates, President and Chief Executive Officer, (416) 979-1991 ext 362; Mac McDonald, Executive Vice President and Chief Financial Officer, (416) 979-1991 ext 242

Additional assets available online: Documents (1)

https://denisonmines.mediaroom.com/2022-08-03-Denison-Achieves-Key-Milestone-with-Completion-of-Metallurgical-Test-Work-to-Define-Phoenix-Process-Plant-Components-and-Confirmation-of-Ability-to-Produce-Yellowcake