Denison Announces 97% Recovery from Long-Term Phoenix ISR Core Leach Test

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TORONTO, Dec. 8, 2022 - Denison Mines Corp. ("Denison" or the "Company") (TSX: DML) (NYSE American: DNN) is announce highly successful results from long-term core leach metallurgical testing completed to further support the Fea Study ("FS") underway for the Phoenix In-Situ Recovery ("ISR") uranium mining operation proposed for the Company's owned Wheeler River project ("Wheeler River" or the "Project"). View PDF Version

To support the establishment of ISR production and recovery curves to be used in the FS, the Company completed a lo test of a representative intact core sample ("Core 4A") using specialized equipment to replicate the in-situ leaching con the Phoenix deposit.

The results from long-term core leach testing of Core 4A are highlighted by the following:

- Overall recovery of uranium in excess of 97% - demonstrating excellent recovery of uranium from intact high-grad without the use of permeability enhancement.
- Average recovered solution uranium head grade of 18.3 grams per litre ("g/L") - exceeding the assumed 15 g/L u grade being used in FS plant designs (see news release dated August 4, 2021).
- Continuous intact core leach testing over a period of 377 days, with uranium recovery head grades consistently m above 5 g/L during the final stages of the production curve and then declining during the ramp-down stage.
- Maximum recovered solution uranium head grade of 49.8 g/L achieved using similar lixiviant concentrations as to during the Feasibility Field Test ("FFT").

Kevin Himbeault, Denison's Vice President of Plant Operations & Regulatory Affairs, commented, "The positive results long-term intact core leach test carried out on Core 4A add to the weight-of-evidence de-risking the use of the ISR mini at the high-grade Phoenix uranium deposit. The ability to demonstrate the recovery of over 97% of the uranium from a l intact core sample is quite positive and provides notable support for the estimated recovery value of 85% used in the 20 Pre-Feasibility Study ("PFS"). Additionally, demonstrating an average uranium head grade of 18.3 g/L, over a year of te 4A, provides further tangible support for the assumed 15 g/L uranium head grade being used in FS plant designs."

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

Since 2019, Denison has completed several core leach tests using intact core samples obtained from Phoenix during v test programs. The test work has been completed at the Saskatchewan Research Council ("SRC") laboratories in Sask makes use of specialized equipment intended to replicate the in-situ leaching conditions of the Phoenix deposit - includ maintaining the core in its original shape and exerting uniform pressure on the exterior of the core (simulating in-situ ov pressure) to ensure lixiviant must travel through the natural pathways existing within the core sample. Previous core lea focused on the basic leaching characteristics of intact core from different hydrogeological units, allowing assessment of lixiviant compositions, uranium grade ramp-up, lixiviant flow characteristics through the intact core, and the neutralizatio of intact core. The core leach test of Core 4A was used to study similar parameters; however, it was leached longer ter develop an aggregate life-of-well recovery and production profile, including the initial ramp-up and the gradual decline o head grade. This profile will be used to support wellfield production modelling and optimization.

Core 4A is calculated to have a grade of 26.7% U_3O_8, which is comparable to the average grade of the estimated Indic Mineral Resources for Phoenix of 19.14% U_3O_8, and is representative of one of the main hydrogeological units identifie Phoenix deposit.

The actual grade of Core 4A was calculated post-test, as the intact core cannot be assayed without destroying the integ

core. Upon termination of the core leach test, the remaining core was crushed, ground, and assayed to determine the f uranium mass contained within the leached-out core sample. The residual mass of uranium, along with the mass of ura recovered during leaching, was used to calculate both the overall recovery as well as the original grade of the core.

About Wheeler River

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

A PFS was completed for Wheeler River in 2018, considering the potential economic merit of developing the Phoenix d an ISR operation and the Gryphon deposit as a conventional underground mining operation. Taken together, the Projec 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 billion (8% discount rate), Internal Rate of Return ("IRR") of 38.7%, and initial pre-production capital expenditures of $3 The Phoenix ISR operation is estimated to have a stand-alone base case pre-tax NPV of $930.4 million (8% discount ra 43.3%, initial pre-production capital expenditures of $322.5 million, and industry-leading average operating costs of US O_8. The PFS is prepared on a project (100% ownership) and pre-tax basis, as each of the partners to the Wheeler Rive 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 at Denison's ownership interest, are described in greater detail in the NI 43-101 Technical Report titled "Pre-feasibility Stu Wheeler River Uranium Project, Saskatchewan, Canada" dated October 30, 2018, with an effective date of September copy of this report is available on Denison's website and under its profile on SEDAR at www.sedar.com and on EDGAR www.sec.gov/edgar.shtml.

Denison suspended certain activities at Wheeler River during 2020, including the EA process, which is on the critical pa achieving the project development schedule outlined in the PFS. While the EA process has resumed, the Company is n able to estimate the impact to the project development schedule outlined in the PFS, and users are cautioned against r 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 no Saskatchewan, Canada. In addition to its effective 95% interest in the Wheeler River project, Denison's interests in the Basin include a 22.5% ownership interest in the McClean Lake joint venture, which includes several uranium deposits a McClean Lake uranium mill that is contracted to process the ore from the Cigar Lake mine under a toll milling agreemen 25.17% interest in the Midwest Main and Midwest A deposits, and a 67.01% interest in the Tthe Heldeth Túé ("THT," fo Zone) and Huskie deposits on the Waterbury Lake property. The Midwest Main, Midwest A, THT and Huskie deposits a 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 Cana 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 ~300,000 hectares in the Athabasca Bas

Denison is also engaged in post-closure mine care and maintenance services through its Closed Mines group, which m Denison's reclaimed mine sites in the Elliot Lake region and provides related services to certain third-party projects.

Qualified Persons

The disclosure of scientific or technical information related to the FFT, the core leach testing, or Wheeler River project c this release has been reviewed and approved, as applicable, by Mr. David Bronkhorst, P.Eng, Denison's Vice Presiden Operations or Mr. Andrew Yackulic, P. Geo., Denison's Director, Exploration, who are Qualified Persons in accordance 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 a United States and Canadian legislation, concerning the business, operations and financial performance and condition o

Generally, these forward-looking statements can be identified by the use of forward-looking terminology such as 'poten 'expects', 'budget', 'scheduled', 'estimates', 'forecasts', 'intends', 'anticipates', or 'believes', or the negatives and/or varia such words and phrases, or state that certain actions, events or results 'may', 'could', 'would', 'might' or 'will' 'be taken', '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 described herein and the interpretation of the results therefrom; the scope and design, and related test work, with respe and process designs for the FS; and expectations regarding its joint venture ownership interests and the continuity of it 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 a and they are subject to known and unknown risks, uncertainties and other factors that may cause the actual results, lev 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 R are based may not be maintained after further work is completed. In addition, Denison may decide or otherwise be requ discontinue testing, evaluation and development work if it is unable to maintain or otherwise secure the necessary reso 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 accu results may differ materially from those anticipated in this forward-looking information. For a discussion in respect of ris other factors that could influence forward-looking events, please refer to the factors discussed in Denison's Annual Info Form dated March 25, 2022 or subsequent quarterly financial reports under the heading 'Risk Factors'. These factors a should not be construed as being exhaustive.

Accordingly, readers should not place undue reliance on forward-looking statements. The forward-looking information c this news release is expressly qualified by this cautionary statement. Any forward-looking information and the assumpti with respect thereto speaks only as of the date of this news release. Denison does not undertake any obligation to publ or revise any forward-looking information after the date of this news release to conform such information to actual resul 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 ne may use the terms 'measured', 'indicated' and 'inferred' mineral resources. United States investors are advised that suc have been prepared in accordance with the definition standards on mineral reserves of the Canadian Institute of Mining and Petroleum referred to in Canadian National Instrument 43-101 Mineral Disclosure Standards ('NI 43-101') and are and required by Canadian regulations. 'Inferred mineral resources' have a great amount of uncertainty as to their existe to their economic and legal feasibility. It cannot be assumed that all or any part of an inferred mineral resource will ever upgraded to a higher category. Under Canadian rules, estimates of inferred mineral resources may not form the basis o or other economic studies. United States investors are cautioned not to assume that all or any part of an inferred miner exists, or is economically or legally mineable. United States investors are also cautioned not to assume that all or any p 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 d rules to modernize the mineral property disclosure requirements for issuers whose securities are registered with the SE Exchange Act and as a result, the SEC now recognizes estimates of "measured mineral resources", "indicated mineral and "inferred mineral resources". In addition, the SEC has amended its definitions of "proven mineral reserves" and "pr mineral reserves" to be "substantially similar" to the corresponding definitions under the CIM Standards, as required un 43-101. However, information regarding mineral resources or mineral reserves in Denison's disclosure may not be com similar information made public by United States companies.

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