

Denison Announces Additional Highlights from Highly Successful Leaching Phase of Phoenix ISR Feasibility Field Test

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TORONTO, Nov. 22, 2022 - [Denison Mines Corp.](#) ("Denison" or the "Company") (TSX: DML) (NYSE American: DNN) is pleased to announce additional highlights from the completion of the highly successful leaching phase of the ongoing Phoenix in-situ recovery ("ISR") Feasibility Field Test ("FFT") at the Company's 95% owned Wheeler River project ("Wheeler River" or the "Project"). View PDF version

- Recovered approximately 14,400 lbs U₃O₈ over ten days of active leaching following completion of initial acidification of the Leaching Area (defined below).
- Returned maximum uranium head grade of recovered solution of 43 grams per litre ("g/l") when the leaching phase of the FFT was completed, with grades still rising (indicative of the ramp-up segment of a well production profile).
- Achieved suitable acidification for ISR mining within 7 days post initial injection at 5 metre well spacing (GWR-41) and within 17 days for 10 metre well spacing (GWR-38).
- Demonstrated ability to achieve and maintain uranium mass flow rate consistent with the assumptions in the Pre-Feasibility Study ("PFS") prepared for the Project in 2018.
- Further demonstrated hydraulic control of injected solution during the FFT, reporting no responses in the monitoring wells outside of the designed FFT test area.
- Confirmed breakthrough times between injection and recovery wells, consistent with the Project's hydrogeological model and the previously completed tracer test.

David Cates, Denison's President & CEO, commented, "The detailed results from the leaching phase of the Phoenix ISR FFT are very encouraging. Using only one injection well and two recovery wells for a period of active leaching of only ten days, we recovered an estimated 14,400 lbs U₃O₈ - representing approximately 1% of the mineral reserves estimated to be within the perimeter of the FFT test area. These results provide further tangible evidence of the viability of the ISR mining method at the Company's high-grade Phoenix uranium deposit."

Kevin Himbeault, Denison's Vice President of Plant Operations & Regulatory Affairs, added, "Uranium head grades were increasing at the time the leaching phase of the FFT was completed - returning a maximum uranium head grade of 43 g/l. This is over 300% higher than the head grade assumed in the 2018 PFS, and further supports the Company's decision to increase the assumed ISR mining head grade by 50% for the feasibility study. Overall, the leaching phase of the FFT has been highly successful - accomplishing our objectives for uranium head grade recovery, uranium mass flow rates, and hydraulic conductivity within the ore zone. These results further support the hydrogeological and metallurgical modelling expected to be incorporated into the feasibility study."

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.

In 2021, following the completion of various metallurgical tests, Denison announced a decision to adapt its plans for further metallurgical test work and project designs to reflect a 50% increase in the assumed head grade of uranium bearing solution to be recovered from the Phoenix well-field - from 10 g/L (as outlined in the PFS) to 15 g/L (see news release dated August 4, 2021 for details). An increase in head grade is expected to allow for optimization of operating parameters and processing plant designs in the feasibility study for the Project (see news release dated September 22, 2021).

The increasing uranium head grade observed during the leaching phase of the FFT, including results that exceeded 15 g/L, provide additional support for the decision to increase the assumed head grade in the feasibility study. In a production setting, the uranium bearing solution recovered from 'new' production wells, yielding higher than average head grades during the ramp-up segment of a well production profile, is

expected to be combined with recovered solution from 'existing' production wells producing gradually decreasing head grades over the life of well production profile.

FFT Leaching Phase

The leaching phase of the FFT commenced in September 2022 (see news release dated September 26, 2022), designed to assess the effectiveness and efficiency of the leaching process in the ore zone located approximately 400m below the surface, is now complete. The leaching phase consisted of the controlled injection of an acidic mining solution into a portion of the existing Test Pattern (defined below) within the ore zone (the "Leaching Zone") and the recovery of the solution back to the surface using existing test wells. Commercial-scale test well GWR-40 was used as the injection well, while uranium bearing solution was recovered from commercial-scale test wells GWR-41 and GWR-38. These wells are located within Phase 1 of the planned mining areas for Phoenix (See Figure 1 and 2 for photos from the FFT site). Additional details about Phase 1 and the estimated Probable mineral reserves contained therein are provided below.

Throughout the test program, both vertical and horizontal containment of the mining solution was maintained, with no migration of the mining solution observed above, below or outside of the designed FFT test area along the leaching zone. These results were consistent with the findings from the 2021 tracer test (see news release dated October 28, 2021) and further confirmed that both targeted mining head grades and flow rates are achievable while maintaining containment of ISR mining activities to defined areas in the ore zone.

Following the completion of the leaching phase of the FFT in mid-October, field activities transitioned to the neutralization phase of the FFT. The final phase of the FFT, which involves the management of the recovered solution, is expected to begin in the spring of 2023.

Feasibility Field Test Background

The FFT is designed to use the existing commercial-scale ISR test pattern ("Test Pattern"), installed at Phoenix in 2021 (see news releases dated July 29, 2021, and October 28, 2021), to facilitate a combined assessment of the Phoenix deposit's hydraulic flow properties with the leaching characteristics that have been assessed through the metallurgical core-leach testing program.

The FFT is fully permitted, having been authorized by both the Saskatchewan Minister of Environment (see news release dated July 12, 2022) and the Canadian Nuclear Safety Commission (see news release dated August 8, 2022).

Overall, the FFT is intended to provide further verification of the permeability, leachability, and containment parameters needed for the successful application of the ISR mining method at Phoenix and is expected to validate and inform various feasibility study design elements - including the expected production and remediation profiles.

The operation of the FFT is planned to occur in three phases: (1) the leaching phase, (2) the neutralization phase, and (3) the recovered solution management phase.

As described above, the leaching phase is now complete. The neutralization phase was initiated in mid-October 2022, and is intended to verify the efficiency and effectiveness of the process for returning the Leaching Zone to environmentally acceptable conditions. During this phase, a mild alkaline (basic) solution is injected into the Leaching Zone to neutralize the area and reverse the residual effects of the acidic solution injected during the leaching phase.

The recovered solution management phase involves separating the solution recovered from both the leaching phase and the neutralization phase into (i) mineralized precipitates and (ii) a neutralized treated solution.

About Phoenix Phase 1

As outlined in the Company's news release dated December 1, 2020, Denison has decided to adapt its plans for the Project to use a phased mining approach, which is expected to allow for the targeted extraction of the least capital-intensive reserves first, based on the grade and distribution of ore in various areas of the deposit. The supporting trade-off study provides for mining to occur over 5 phases.

Phase 1 of the deposit is estimated to contain approximately 22.2 million pounds U_3O_8 (37,242 tonnes at 27.1% U_3O_8 , above a cut-off grade of 0.8% U_3O_8) in Probable mineral reserves. Based on current designs, the Company estimates approximately 6.6 million pounds U_3O_8 (7,717 tonnes at 39.2% U_3O_8 , above a cut-off grade of 0.8% U_3O_8) in Probable mineral reserves are contained within the expected operating perimeter of the commercial scale wells in the 5-spot Test Pattern. Of these estimated Probable mineral reserves, the Company further estimates that 1.4 million pounds U_3O_8 (2,326 tonnes at 26.2% U_3O_8 , above a cut-off grade of 0.8% U_3O_8) are contained within the operating perimeter of GWR-38, GWR-40, and GWR-41. These estimates are derived as a direct subset of those reported in the 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 (the "PFS Report"). The key assumptions, parameters and methods used to estimate the mineral reserves herein remain unchanged.

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).

The 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 PFS Report, a copy of which 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 67.01% 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 ~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, which manages Denison's reclaimed mine sites in the Elliot Lake region and provides related services

to certain third-party projects.

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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: expectations with respect to the FFT program, scope, timing and the anticipated results thereof; the interpretation of the results of the FFT obtained to-date; scope, objectives and interpretations of the feasibility study process for the proposed ISR operation for the Phoenix deposit, including metallurgical testing programs described herein and the interpretation of the results therefrom; the interpretations of the PFS as reflected in the PFS Report; 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 exploration and/or 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 exploration, 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 press release may use terms such as "measured", "indicated" and/or "inferred" mineral resources and "proven" or "probable" mineral reserves, which are terms defined with reference to the guidelines set out in the Canadian Institute of Mining, Metallurgy and Petroleum ("CIM") Definition Standards on Mineral Resources and Mineral Reserves ("CIM Standards"). The Company's descriptions of its projects using CIM Standards may not be comparable to similar information made public by U.S. companies subject to the reporting and disclosure requirements under the United States federal securities laws and the rules and regulations thereunder. United States investors are cautioned not to assume that all or any part of measured or indicated mineral resources will ever be converted into mineral reserves. United States investors are also cautioned not to assume that all or any part of an inferred mineral resource exists, or is economically or legally mineable.

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