

PRESS RELEASE**Denison Announces History-Making Recovery of Uranium Bearing Solution from Phoenix ISR Feasibility Field Test**

Toronto, ON –October 17, 2022. Denison Mines Corp. (“Denison” or the “Company”) (TSX: DML; NYSE American: DNN) is pleased to announce that it has successfully recovered uranium bearing solution from the Phoenix in-situ recovery (“ISR”) Feasibility Field Test (“FFT”) underway at the Company’s 95% owned Wheeler River project (“Wheeler River” or the “Project”).

David Cates, Denison’s President & CEO, commented, ***“The successful recovery of uranium bearing solution from Denison’s high-grade Phoenix deposit is a historic moment for uranium mining in Canada. This accomplishment reflects the culmination of several years of technical de-risking and provides tangible validation of the Company’s selection of the ISR mining method for Phoenix in our 2018 Wheeler River Pre-Feasibility Study. With this result, Denison has truly showcased its industry leadership in bringing the low-cost ISR mining method to the high-grade uranium deposits of the Athabasca Basin.”***

Kevin Himbeault, Denison’s Vice President of Plant Operations & Regulatory Affairs, added, ***“The recovery of uranium bearing solution at targeted rates and grades is history in the making. Initial analysis indicates the hydrogeological system has responded as expected with pH trends, flow characteristics and uranium recovery meeting expectations. I am extremely proud of our team’s focus and dedication in getting us to this momentous stage safely and on schedule.”***

The leaching phase of the FFT commenced in September 2022 (see news release dated September 26, 2022) and preliminary results received to date have demonstrated the successful acidification of the Test Pattern (defined below) and recovery of uranium through the ISR mining method. Several samples of recovered solution have been collected during the leaching phase and remain subject to full lab assay and analysis, which will generate additional detailed information about the performance of the FFT.

Given the highly successful results of the FFT, lixiviant injection has ceased, and operators at the Phoenix FFT site are preparing to transition from the leaching phase of the FFT to the neutralization phase, which is expected to be completed before the end of the year. The final phase of the FFT, which involves management of the recovered solution, is expected to commence in the spring of 2023.

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.

Feasibility Field Test

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.

The leaching phase is designed to assess the effectiveness and efficiency of the leaching process in the mineralized zone, which is approximately 400m below the surface. The leaching phase includes the controlled injection of an acidic solution into a portion of the existing Test Pattern within the mineralized zone (the “Leaching Zone”) and the recovery of the solution back to the surface using existing test wells. The recovered solution from the leaching phase is expected to contain dissolved minerals, including uranium, copper, iron, molybdenum, and zinc.

The neutralization phase involves the recovery of the remainder of the leached mineralized solution from the Leaching Zone 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 will be 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 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 Pre-Feasibility Study (“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 67.01% interest in the Tthe Heldeth T   (‘‘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 ~280,000 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.

For more information, please contact

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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; 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.