

PRESS RELEASE

Denison Announces Phoenix ISR Feasibility Field Test is Fully Permitted

Toronto, ON – August 8, 2022. Denison Mines Corp. (“Denison” or the “Company”) (TSX: DML; NYSE American: DNN) is pleased to announce that it has received a License to Possess, Use, Store and Transfer a Nuclear Substance (“Nuclear Substance License”) from the Canadian Nuclear Safety Commission (“CNSC”) for the In-Situ Recovery (“ISR”) Feasibility Field Test (“FFT”) planned for the Phoenix uranium deposit at the Company’s 95% owned Wheeler River project. Receipt of this license, together with the previously announced approval from the Saskatchewan Minister of Environment (see news release dated July 12, 2022), means that the FFT is fully permitted to proceed as per the Company’s plans.

In accordance with the Nuclear Safety and Control Act, the Nuclear Substance License allows Denison to possess the uranium collected from the operation of the FFT, store the uranium on site, and handle / transfer the recovered material for laboratory analyses.

Kevin Himbeault, Denison’s Vice President of Plant Operations & Regulatory Affairs, commented ***“We are pleased to have received the Nuclear Substance License from the CNSC. With receipt of this license, we are now fully permitted to operate the FFT facilities and carry out the process of recovering a uranium bearing solution from the Phoenix ore body. Overall, Denison was pleased with the CNSC’s license review process – particularly given the somewhat novel design of our FFT program and the collaboration necessary to ensure the safe and environmentally responsible handling of a nuclear substance of this nature.”***

David Cates, Denison’s President & CEO, added, ***“With the successful receipt of a Nuclear Substance License from the CNSC, our technical and regulatory teams have again demonstrated their ability to navigate the applicable regulatory regimes to support our plans to carry out a first-of-its-kind test of the ISR uranium mining method in Canada. Our focus has now transitioned to the timely completion of the construction and operation of the FFT, which represents a very exciting time in the Company’s modern history and is expected to generate further important de-risking milestones for the planned Phoenix ISR operation through the balance of the year.”***

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.

Update on FFT Construction

Following receipt of the Approval to Operate Pollutant Control Facilities from the Saskatchewan Minister of Environment (see news release dated July 12, 2022), earthworks and associated preparation of the site for the FFT facilities commenced at Wheeler River, and construction of the recovered solution management modules is underway in Saskatoon. Procurement efforts have been completed and deliveries of materials are being regularly received.

Figure 1 provides a plan view of the expected FFT site layout. For more information about the temporary surface facilities required to complete the FFT, including additional illustrative figures, please see our news release dated July 12, 2022.

Background on the FFT

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. 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 production and remediation profiles expected for the project.

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 majority of the test activities (leaching and neutralization phase) will occur within an estimated 60-day operating time frame, with the construction and placement of temporary facilities commencing approximately two months prior to the commissioning of the test facilities and initiation of the leaching 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 U₃O₈ (1,809,000 tonnes at an average grade of 3.3% U₃O₈), plus combined Inferred Mineral Resources of 3.0 million pounds U₃O₈ (82,000 tonnes at an average grade of 1.7% U₃O₈). 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 U₃O₈ 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 U₃O₈. 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.

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, required permitting, timing and the anticipated results thereof; 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.

Plan map of FFT facilities

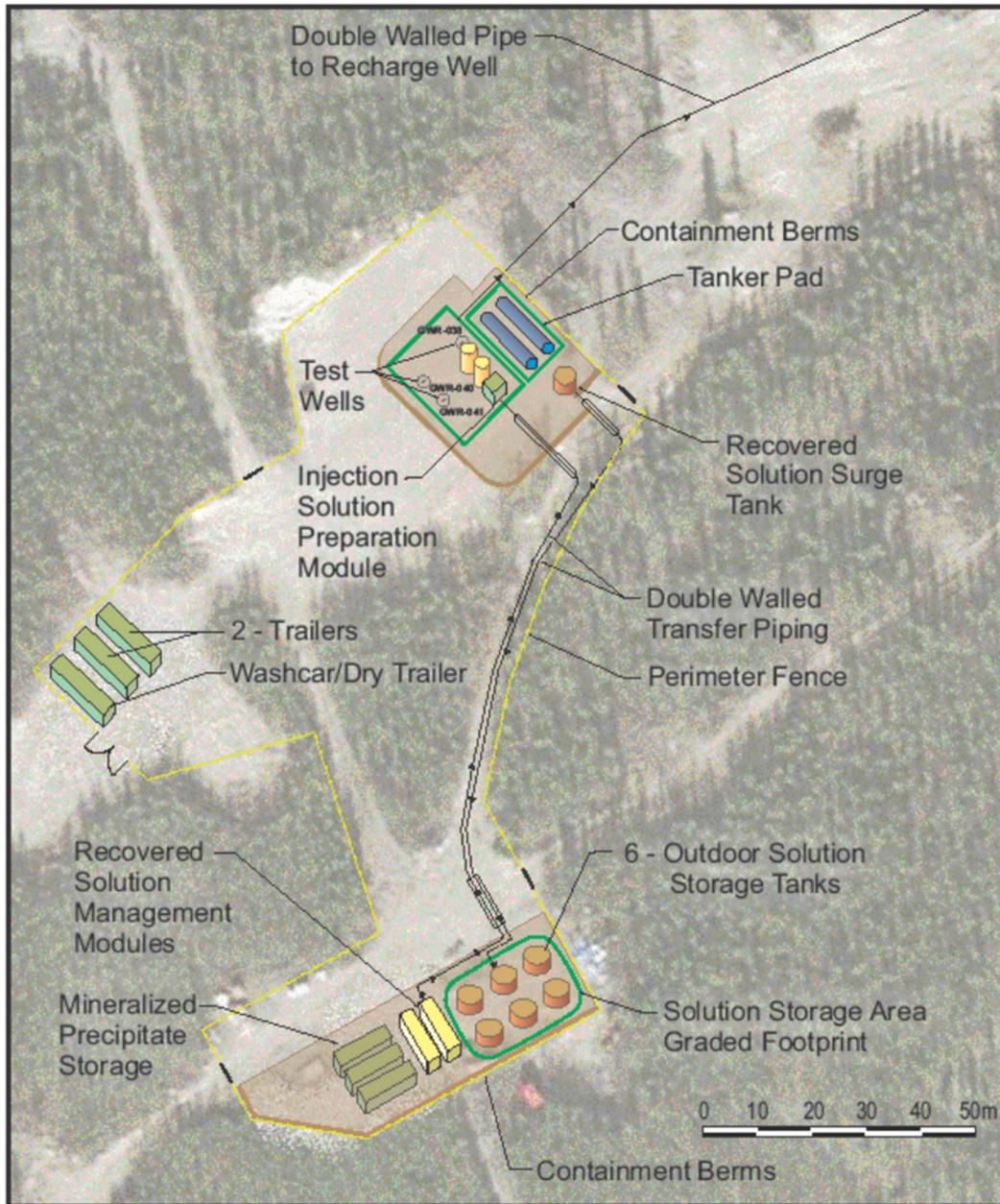


Figure 1: Plan map showing layout of FFT facilities