

PRESS RELEASE

DENISON REPORTS RESULTS FROM Q2 2021

Toronto, ON – August 5, 2021. Denison Mines Corp. ('Denison' or the 'Company') (TSX: DML, NYSE American: DNN) today filed its Condensed Consolidated Financial Statements and Management's Discussion & Analysis ('MD&A') for the quarter ended June 30, 2021. Both documents will be available on the Company's website at www.denisonmines.com or on SEDAR (at www.sedar.com) and EDGAR (at www.sec.gov/edgar.shtml). The highlights provided below are derived from these documents and should be read in conjunction with them. All amounts in this release are in Canadian dollars unless otherwise stated.

David Cates, President and CEO of Denison commented, "The Company continues to successfully advance on its ambition of developing the high-grade Phoenix deposit, as potentially one of the lowest cost uranium mines in the world, at a time when the uranium market is showing signs of a sustained recovery and the beginnings of a new contracting cycle.

Thus far in 2021, our corporate team has bolstered our balance sheet with our recent financings and uranium purchases, consolidated a further 5% ownership in our flagship Wheeler River project through our acquisition of 50% of JCU, and completed the transition of Uranium Participation Corp. to the Sprott Physical Uranium Trust. On the technical side, in relation to our progress at Phoenix, we have reported several positive updates on ISR field testing activities, metallurgical studies in support of the ISR mining method, and the discovery of additional high-grade uranium in the area of our expected first mining phase. Taken together, we believe that Denison is well positioned to continue de-risking the use of the ISR mining method at Phoenix and ultimately compete with the incumbent uranium producers in the coming years when the market needs additional sources of production.

Our focus for the remainder of 2021 is expected to be in the field, where we plan to be active on both the evaluation and exploration front. Our evaluation team is preparing for full-scale pump and injection tests as well as ion tracer tests at Phoenix, making use of the commercial-scale 5-spot test pattern installed earlier this year. Our exploration team is also readying to resume drill testing of various target areas at Wheeler River and nearby properties that are prospective for the discovery of additional potentially ISR amenable uranium resources. With results from these programs expected through the third and fourth quarter, it is an exciting time for investors to follow both the uranium market and Denison's company-specific activities closely."

HIGHLIGHTS

In-Situ Recovery ('ISR') field test activities at the Phoenix uranium deposit ('Phoenix') progress

A substantial portion of the ISR field test program has been successfully completed, including the installation of all five commercial-scale wells ('CSWs') and nine of eleven monitoring wells ('MWs') planned for the 5-spot test pattern (the 'Test Pattern') located in the Phase 1 area of Phoenix on the Company's Wheeler River Uranium Project ('Wheeler River' or the 'Project'). Based on the progress to date, multi-day pump and injection tests and ion tracer tests are planned to be initiated and completed on the full-scale Test Pattern during the third quarter.

Discovered high-grade uranium outside of the Phoenix Zone A high-grade domain

Drill hole GWR-045 was completed as part of the ISR field test program to install MWs to the northwest of the CSW Test Pattern. Based on the mineral resources currently estimated for Phoenix, GWR-045 was expected to intersect low grade uranium mineralization on the northwest margin of the deposit, approximately 5 metres outside of the boundary of the Phoenix Zone A high-grade resource domain. The drill hole, however, intersected a thick interval of high-grade unconformity-associated uranium mineralization with grades of 22.0% eU₃O₈ over 8.6 metres. The

intersection is presently open further to the northwest and represents an area for further exploration and potential mineral resource expansion of Phoenix.

Decision to increase anticipated ISR mining head grade at Phoenix by 50%

Positive interim results, completed to date, from the ongoing metallurgical test program for the planned ISR mining operation at Phoenix have consistently supported uranium bearing solution ('UBS') head-grade for Phoenix well in excess of the 10 grams / Litre used in the Pre-Feasibility Study ("PFS") completed for Wheeler River in 2018. Accordingly, the Company has decided to adapt its plans for the remaining metallurgical test work, including the bench-scale tests of the unit operations of the proposed process plant, to reflect a 50% increase in the head-grade of UBS to be recovered from the well-field.

Completed acquisition of 50% of JCU (Canada) Exploration Company, Limited ('JCU') for \$20.5 million

In June 2021, Denison announced that it had entered into a binding agreement with UEX Corporation ('UEX') to acquire 50% of JCU from UEX for cash consideration of \$20.5 million following UEX's acquisition of 100% of JCU from Overseas Uranium Resources Development Co., Ltd. for \$41 million. Denison's acquisition of 50% of JCU was completed on August 3, 2021. JCU holds a portfolio of 12 uranium project joint venture interests in Canada, including a 10% interest in Wheeler River, a 30.099% interest in the Millennium project (Cameco Corporation 69.901%), a 33.8123% interest in the Kiggavik project (Orano Canada Inc. ('Orano Canada') 66.1877%), and a 34.4508% interest in the Christie Lake project (UEX 65.5492%).

Received \$5.8 million in connection with conversion of Uranium Participation Corporation ('UPC') into the Sprott Physical Uranium Trust

In April 2021, UPC announced that it had reached an agreement with Sprott Asset Management LP ('Sprott') to convert UPC into the Sprott Physical Uranium Trust. Upon completion of this transaction on July 19, 2021, Sprott became the manager of the Sprott Physical Uranium Trust, and the management services agreement ('MSA') between Denison and UPC was terminated. In accordance with the terms of the MSA, Denison received a cash payment of approximately \$5.8 million in connection with the termination.

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 and is a joint venture between Denison and Denison's 50%-owned JCU (Canada) Exploration Company Limited. Denison is the operator of the project and holds an effective 95% ownership interest. The project is host to the high-grade Phoenix and Gryphon uranium deposits, discovered by Denison in 2008 and 2014, respectively, estimated to have 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 PFS was completed in late 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 net present value ('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 was 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.

Given the social, financial and market disruptions related to COVID-19, and certain fiscally prudent measures, Denison temporarily suspended certain activities at Wheeler River starting in April 2020, including the formal parts of the EA program, which is on the critical path to achieving the project development schedule outlined in the PFS Technical Report. While the formal EA process has resumed in early 2021, the Company is not currently able to estimate the impact to the project development schedule, outlined in the PFS Technical Report, and users are cautioned that certain of the estimates provided therein, particularly regarding the start of pre-production activities in 2021 and first production in 2024 should not be relied upon.

About Denison

Denison Mines Corp. was formed under the laws of Ontario and is a reporting issuer in all Canadian provinces. Denison's common shares are listed on the Toronto Stock Exchange (the 'TSX') under the symbol 'DML' and on the NYSE American exchange under the symbol 'DNN'.

Denison is a uranium exploration and development company with interests focused in the Athabasca Basin region of northern Saskatchewan, Canada. In addition to its flagship Wheeler River uranium project, Denison's interests in Saskatchewan include a 22.5% ownership interest in the McClean Lake Joint Venture ('MLJV'), which includes several uranium deposits and the McClean Lake uranium mill, which is contracted to process the ore from the Cigar Lake mine under a toll milling agreement (see RESULTS OF OPERATIONS below for more details), plus a 25.17% interest in the Midwest 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, THT and Huskie deposits are located within 20 kilometres of the McClean Lake mill. In addition, Denison has an extensive portfolio of exploration projects in the Athabasca Basin region.

Through its 50% ownership of JCU, Denison also holds interests in various uranium project joint ventures in Canada, including the Millennium project (JCU 30.099%), the Kiggavik project (JCU 33.8123%) and Christie Lake (JCU 34.4508%).

Denison is engaged in mine decommissioning and environmental services through its Closed Mines group, which manages Denison's Elliot Lake reclamation projects and provides post-closure mine and maintenance services to a variety of industry and government clients.

Up until July 19, 2021, Denison also served as the manager of UPC. UPC was a publicly traded company listed on the TSX, which invested in uranium oxide in concentrates ('U₃O₈') and uranium hexafluoride ('UF₆'). In April, 2021, UPC announced that it had entered into an agreement with Sprott to convert UPC into the Sprott Physical Uranium Trust. This transaction closed on July 19, 2021, and the MSA between Denison and UPC was terminated.

Technical Disclosure and Qualified Person

The technical information contained in this press release has been reviewed and approved by David Bronkhorst, P.Eng, Denison's Vice President, Operations and/or Andrew Yackulic, P. Geo, Denison's Director, Exploration, each of whom is a Qualified Person in accordance with the requirements of NI 43-101.

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CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS

Certain information contained in this press 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 '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', 'be achieved' or 'has the potential to'.

In particular, this press release contains forward-looking information pertaining to the following: projections with respect to use of proceeds of recent financings; exploration, development and expansion plans and objectives, including the plans and objectives for Wheeler River and the related evaluation field program activities and exploration objectives; the plans for metallurgical test work; the impact of COVID-19 on Denison's operations; the estimates of Denison's mineral reserves and mineral resources or results of exploration; expectations regarding Denison's joint venture ownership interests; expectations regarding the continuity of its agreements with third parties; and its interpretations of, and expectations for, nuclear energy and uranium demand. Statements relating to 'mineral reserves' or 'mineral resources' are deemed to be forward-looking information, as they involve the implied assessment, based on certain estimates and assumptions that the mineral reserves and mineral resources described can be profitably produced in the future.

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 results and underlying assumptions and interpretations of the PFS as well as de-risking efforts such as the 2021 Field Program discussed herein may not be maintained after further testing or be representative of actual conditions within the applicable deposits. In addition, Denison may decide or otherwise be required to extend the EA and/or otherwise discontinue testing, evaluation and development work if it is unable to maintain or otherwise secure the necessary approvals or resources (such as testing facilities, capital funding, 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 26, 2021 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 press 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 press release. Denison does not undertake any obligation to publicly update or revise any forward-looking information after the date of this press 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") 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.