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PRESS RELEASE

DENISON TO INCREASE ITS INTEREST IN THE WHEELER RIVER URANIUM PROJECT

Toronto, ON – September 4, 2018 Denison Mines Corp. (“Denison” or the “Company”) (TSX: DML) (NYSE American: DNN) is pleased to announce that it has entered into an agreement with Cameco Corp. (“Cameco”) to increase its ownership in the Wheeler River Uranium Project (“Wheeler River” or the “Project”) through the acquisition of Cameco’s minority interest in the Project (the “Transaction”).

Pursuant to the terms of the Transaction, and subject to certain rights of first refusal (“ROFR”) in favor of JCU (Canada) Exploration Company Limited (“JCU”), Denison has agreed to acquire 100% of Cameco’s interest (expected to be approximately 24% by the end of 2018) in the Wheeler River Joint Venture (“Wheeler River JV”), in exchange for the issuance of 24,615,000 common shares of Denison (the “Consideration Shares”) at a deemed price of \$0.65 per share, for total consideration valued at approximately \$16 million (the “Purchase Price”). The acquisition of Cameco’s interest in the Wheeler River JV will increase Denison’s interest in the Project to 90% (or approximately 86.84% if JCU exercises its ROFR).

David Cates, President and CEO of Denison, commented ***“We are pleased to have reached an agreement with Cameco to acquire their remaining minority interest in Wheeler River. Denison, Cameco and JCU have worked together, since 2004, to advance Wheeler River to the point of being the largest undeveloped uranium project in the eastern Athabasca Basin. We believe this transaction represents a unique opportunity to add to our existing controlling interest in the Project and offer significant value accretion to Denison shareholders.”*** Mr. Cates further added, ***“We are eager to continue advancing the Project towards a development decision – with the next step being the planned completion of a Pre-Feasibility Study before the end of the third quarter.”***

Wheeler River is host to the Phoenix and Gryphon uranium deposits, which are estimated to contain combined Indicated Mineral Resources of 132.1 million pounds U₃O₈ at an average grade of 3.3% U₃O₈, plus combined Inferred Mineral Resources of 3.0 million pounds U₃O₈ at an average grade of 1.7% U₃O₈. The Project is situated along the road and power line that runs between Cameco’s McArthur River mine and Key Lake mill complex in northern Saskatchewan, and is a joint venture between Denison (63.3%, increasing to approximately 66% by the end of 2018 under a previously announced earn-in agreement), Cameco (26.7%, decreasing to approximately 24% by the end of 2018), and JCU (10%).

Restriction on Denison Shares

The Consideration Shares will be subject to a six month escrow period, during which time Cameco has agreed to not, directly or indirectly, transfer any Consideration Shares without the prior written consent of Denison. The transfer of the Consideration Shares is also restricted for a further six month period, where Denison retains the right, under certain circumstances, to designate a purchaser upon notice from Cameco of the intent to transfer or sell all or a portion of the Consideration Shares. The issuance of the Consideration Shares is subject to the receipt of regulatory approvals from the TSX and NYSE American stock exchanges.

Rights of First Refusal

Under the terms of the Wheeler River JV, JCU’s ROFR allows for JCU to purchase its proportional interest of Cameco’s share of the Wheeler River JV alongside of Denison. Based on Denison’s expected ownership interest of approximately 66%, and JCU’s ownership interest of 10%, JCU would have the right to purchase approximately 13.16% of Cameco’s expected 24% interest in the Wheeler River JV.

The Transaction is not conditional on JCU waiving its ROFR. Accordingly, should JCU elect to exercise the ROFR, the Purchase Price to be paid to Cameco by Denison shall be reduced to approximately \$13.9 million and Denison will own approximately 86.84% (rather than 90%) of the Wheeler River JV on completion of the Transaction.

Advisors & Counsel

Haywood Securities Inc. is acting as financial adviser to Denison in connection with the transaction, and Blake, Cassels & Graydon LLP is acting as legal counsel to Denison.

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 at an average grade of 3.3% U₃O₈, plus combined Inferred Mineral Resources of 3.0 million pounds U₃O₈ at an average grade of 1.7% U₃O₈. The project is host to the high-grade Gryphon and Phoenix uranium deposits (discovered by Denison in 2014 and 2008, respectively), and is a joint venture between Denison (63.3% and operator), Cameco (26.7%), and JCU (10%).

A Pre-Feasibility Study ("PFS") was initiated for the Wheeler River project in Q3'2016 and is expected to be completed during Q3'2018. Prior to initiation of the PFS, a Preliminary Economic Assessment ("PEA") was completed in 2016, which considered the potential economic merit of co-developing the high-grade Gryphon and Phoenix deposits as a single underground mining operation. The PEA returned a base case pre-tax Internal Rate of Return ("IRR") of 20.4% based on the then current long term contract price of uranium (US\$44.00 per pound U₃O₈), and Denison's 60% share of estimated initial capital expenditures ("CAPEX") of CAD\$336M (CAD\$560M on 100% basis).

The PEA is preliminary in nature and includes inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them to be categorized as mineral reserves, and there is no certainty that the preliminary economic assessment will be realized. Mineral resources are not mineral reserves and do not have demonstrated economic viability.

In January, 2017, Denison entered into an agreement with its Wheeler River Joint Venture partners, Cameco and JCU, to fund 75% of Joint Venture expenses in 2017 and 2018 (ordinarily 60%) in exchange for an increase in Denison's interest in the project to up to approximately 66%. Under the terms of the agreement, Cameco will fund 50% of its ordinary 30% share in 2017 and 2018, and JCU is expected to continue to fund its 10% interest in the project. Pursuant to the agreement, as at December 31, 2017, Denison had increased its interest in the Wheeler River project from 60% to 63.3%.

Further details regarding the Wheeler River project are provided in the NI 43-101 Technical Report for the Wheeler River project titled "Technical Report with an Updated Resource Estimate for the Wheeler River Property, Northern Saskatchewan, Canada" dated March 15, 2018 with an effective date of March 9, 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. Dale Verran, MSc, P.Geo, Pr.Sci.Nat., Denison's Vice President, Exploration, who is a Qualified Person in accordance with the requirements of NI 43-101 has reviewed and approved the technical information contained in this release.

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 63.3% owned Wheeler River project, which ranks as the largest undeveloped high-grade uranium project in the infrastructure rich eastern portion of the Athabasca Basin region, Denison's Athabasca Basin exploration portfolio consists of numerous projects covering approximately 321,000 hectares. Denison's interests in Athabasca Basin also 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 currently processing ore from the Cigar Lake mine under a toll milling agreement, plus a 25.17% interest in the Midwest and Midwest A deposits, and a 65.45% interest in the J Zone deposit and Huskie discovery on the Waterbury Lake property. Each of Midwest, Midwest A, J Zone and Huskie are located within 20 kilometres of the McClean Lake mill.

Denison is also engaged in mine decommissioning and environmental services through its Denison Environmental Services division and is the manager of Uranium Participation Corp., a publicly traded company which invests in uranium oxide and uranium hexafluoride.

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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 United States Private Securities Litigation Reform Act of 1995 and similar 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: Denison's percentage interest in its properties and its plans and agreements with its joint venture partners; the proposed transaction with Cameco, including its terms, conditions, and likelihood and anticipated effect of its completion; effect of completion; the interests of JCU and its rights under the terms of the Wheeler River JV; estimates of Denison's mineral resources and the results of its PEA; and plans and objectives with respect to preparing a PFS to assess on a preliminary basis the potential for project development. 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, performance or achievements of Denison to be materially different from those expressed or implied by forward-looking statements. 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 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 27, 2018 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 Measured, Indicated and Inferred Mineral Resources: *This press release may use the terms "measured", "indicated" and "inferred" mineral resources. United States investors are advised that while such terms are recognized and required by Canadian regulations, the United States Securities and Exchange Commission does not recognize them. "Inferred mineral resources" have a great amount of uncertainty as to their existence, and as to their economic and legal feasibility. It cannot be assumed that all or any part of an inferred mineral resource will ever be upgraded to a higher category. Under Canadian rules, estimates of inferred mineral resources may not form the basis of feasibility or other economic studies. 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.*