Denison announces decision to advance Wheeler River Project following positive PFS results

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TORONTO, Dec. 18, 2018 - Denison Mines Corp. ("Denison" or the "Company") (DML: TSX, DNN: NYSE American) is report that the Company's Board of Directors and the Wheeler River Joint Venture ("WRJV") have approved the advanc the Wheeler River project, following a detailed assessment of the strong economic results produced by the recently file Pre-Feasibility Study ("PFS") prepared for the project in accordance with NI 43-101 (see news release dated October 3 support of the decision to advance the Wheeler River project, the WRJV has approved a $10.3 million budget for 2019 basis), which is highlighted by plans to initiate the Environmental Assessment ("EA") process as well as engineering stu related programs required to advance the high-grade Phoenix deposit as an in-situ recovery ("ISR") mining operation. D share of the 2019 budget for Wheeler River is $9.3 million, which reflects Denison's 90% ownership interest in the proje news release dated October 29, 2018). View PDF version.

Highlights from Wheeler River 2019 Budget

- Initiation of Environmental Assessment process: The submission of a Project Description ("PD"), to Federal and Regulatory Authorities is planned for early 2019, which is expected to initiate a multi-year EA, consultation, and p processes for the project.
- Commencement of ISR wellfield tests: Field tests involving the drilling of ISR wells into the Phoenix deposit will be assess permeability throughout the deposit by completing pump and other hydraulic tests within the orezone. The ISR wells will also allow for the collection of additional groundwater and ore samples, as well as provide assistanc the estimated cost of wellfield development.
- Initiation of metallurgical ISR pilot plant testing: Extensive laboratory studies replicating the ISR flowsheet are pla and optimize the mineral processing aspects of the Phoenix operation. Studies are expected to include the asses lixiviant chemistry and performance under a variety of permeability and grade conditions.
- Discovery focused exploration program: Following years of delineation drilling for the Phoenix and Gryphon depos exploration activities in 2019 are designed to evaluate high priority regional target areas by focusing on initial test at the sub-Athabasca unconformity – which could lead to the discovery of further uranium deposits that ma amenable to ISR mining.

David Cates, President and CEO of Denison, commented "With the potential for a Phoenix ISR operation to have the in lowest operating cost per pound of U_3O_8, as outlined in the Wheeler River PFS, the Board of Directors unanimously ap advancement of the project and the 2019 budget. The initiation of the EA process, as well as engineering and field stu designed to ultimately support a feasibility study, illustrates the Company's commitment to achieving the project develo timeline outlined in the PFS and claiming the 'pole-position' amongst undeveloped uranium projects in the Athabasca B With plans for 2019 including a discovery-oriented exploration program and various engineering programs designed to mine plan for the Phoenix ISR operation, we have the potential for several meaningful catalysts to emerge during the y

A location map of the Wheeler River project is provided in Figure 1, showing existing and proposed infrastructure. Figur the location of the high priority regional target areas planned for exploration drill testing in 2019.

Figure 1: Location map of the Wheeler River project, showing existing and proposed infrastructure (Full Resolution)

Figure 2: Location of the high priority regional target areas planned for exploration drill testing in 2019, shown on the W basement geology map. (Full Resolution)

Wheeler River PFS: Phoenix ISR Highlights

The PFS considers the potential economic merit of co-developing the Phoenix and Gryphon deposits. The high-grade deposit is designed as an ISR mining operation, with associated processing to a finished product occurring at a plant to site at Wheeler River. Based on the PFS plan, first production from Phoenix is expected in 2024, with the development Gryphon deposit to follow with first production from Gryphon projected for 2030. The Phoenix operation is estimated to case pre-tax Net Present Value ("NPV") of $930.4 million (at 8% discount rate) representing the large majority of the pr overall estimated pre-tax NPV(8%) of $1.31 billion – which includes the self-funding development of the Gryphon from cash-flows generated by the Phoenix operation.

The novel use of the ISR mining method at Phoenix pairs the world's lowest cost uranium mining method with the world grade undeveloped uranium deposit (Phoenix) – in what could prove to be one of the world's (1) lowest cost and

environmentally friendly and responsible uranium mining operations.

- Industry leading operating costs and comparatively low initial capex with ISR for Phoenix

Mine life	10 years (6.0 million lbs U_3O_8 per year on average)
Probable reserves(1)	59.7 million lbs U_3O_8 (141,000 tonnes at 19.1% U_3O_8)
Average cash operating costs	$4.33 (US$3.33) per lb U_3O_8
Initial capital costs	$322.5 million (100%)
Base case pre-tax IRR(2)	43.3%
Base case pre-tax $NPV_{8\%}$(2)	$930.4 million (100%)
Base case price assumption	UxC spot price(3) (from ~US$29 to US$45/lb U_3O_8)
Operating profit margin(4)	89.0% at US$29/lb U_3O_8
All-in cost(5)	$11.57 (US$8.90) per lb U_3O_8

(1) For further details on mineral reserves refer to the NI 43-101 Technical Report on Wheeler River titled "Pre-feasibility Study for the Wheeler River Uranium Project, Saskatchewan, Canada" dated October 30, 2018 available on Denison's website or on SEDAR at www.sedar.com and on EDGAR at www.sec.gov/edgar.shtml

(2) NPV and IRR are calculated to the start of pre-production activities for the Phoenix operation in 2021;

(3) Spot price forecast is based on "Composite Midpoint" scenario from UxC's Q3'2018 Uranium Market Outlook ("UMO") and is stated in constant (not-inflated) dollars;

(4) Operating profit margin is calculated as uranium revenue less operating costs, divided by uranium revenue. Operating costs exclude all royalties, surcharges and income taxes;

(5) All-in cost is estimated on a pre-tax basis and includes all project operating costs and capital costs, divided by the estimated number of pounds U3O8 to be produced

- Environmental advantages of ISR mining at Phoenix – The Company's evaluation of the ISR mining metho Phoenix has also identified several significant environmental and permitting advantages, namely the absence of t generation, the potential for no water discharge to surface water bodies, and the potential to use the existing Prov grid to operate on a near zero carbon emissions basis. In addition, the use of a freeze wall, to encapsulate the or contain the lixiviant used in an ISR operation, eliminates common environmental concerns associated with ISR m facilitates a controlled reclamation of the site. Taken together, the Phoenix operation has the potential to be one o environmentally friendly mining operations in the world. Owing largely to these benefits, consultation with federal provincial representatives and stakeholder communities, to date, has been encouraging regarding the use of ISR

Initiation of Environmental Assessment process

The PFS process identified the EA as a key element of the project's critical path. The PFS estimated a 3-4 year timelin approvals under the existing regulations of the Canadian Environmental Assessment Act ("CEAA 2012"), allowing for c to commence in 2022 with first production planned by 2024.

After careful consideration of the risks and opportunities associated with permitting and concurrent advancement of pro engineering activities, the Company has decided to submit a PD and initiate the EA process in early 2019 for the Phoen

operation, and to bring the Gryphon operation forward, at a later date, as required to achieve the PFS plan of Gryphon production by 2030. This is expected to simplify the EA and permitting process for the Phoenix operation and reduce th required to advance the project to a definitive development decision.

EA related expenditures planned for 2019 are estimated to be $2.5 million (100% basis) and, in addition to advancing th process, will include the continuation and expansion of the collection of certain baseline environmental data and the co stakeholder consultation efforts.

Commencement of ISR wellfield tests

Additional field and laboratory work is needed to increase confidence and reduce risk in the ISR application at Phoenix. preliminary field data supports the use of ISR, the ability to move fluids through the ore zone is an important technical ri requires additional evaluation ahead of the initiation of a formal Feasibility Study ("FS").

ISR field testing planned for 2019 is expected to include the installation of approximately 15 to 20 ISR wells into the Ph orebody, which is expected to provide a representative test of the various ore domains associated with Phoenix and the conditions in actual ISR operations. The field test is expected to have the following key objectives:

- Confirm the ability to pump fluids through the various domains of the orebody and quantify volumes, pressures an conditions required within the ore zones and surrounding host rock;
- Confirm the ability, costs and schedule to drill larger diameter (8 inch) boreholes and set impermeable casings wi ground surrounding Phoenix;
- Confirm baseline water conditions in, and surrounding, the deposit for the design of water treatment during opera plans and the completion of expected environmental assessments;
- Obtain additional representative ore samples from core drilling to facilitate extensive ISR metallurgical testing; an
- Obtain surface geotechnical data of soils for foundation designs.

Expenditures related to the field testing planned for 2019 are estimated to be $2.4 million (100% basis).

Initiation of metallurgical ISR pilot plant testing

The PFS results are based on metallurgical test work which was focused on proving the applicability of ISR mining (via and leachability (via conventional leach tests) for the development of the Phoenix operation. As the project advances t EA process and towards the initiation of a FS, additional metallurgical test work is required to both test and optimize the metallurgical processing elements of the Phoenix operation. A customized laboratory test program is expected to be de properly achieve the desired metallurgical test objectives – which are likely to include the following:

- Assess the performance of different lixiviants in a variety of permeability and grade conditions;
- Evaluate the potential for build-up of contaminants in the lixiviant;
- Evaluate opportunities to recover rare earth metals as a by-product;
- Increase confidence in the concentration of the lixiviant for the process plant design; and
- Improve confidence in ground restoration abilities and cost estimates.

A laboratory scale pilot plant is planned to run over a one-year period, starting during the second half of 2019, with app $0.5 million (100% basis) budgeted for the setup and initial operation of the pilot plant in 2019.

Other project development activities

A further approximately $1.7 million (100% basis) is budgeted for project development / evaluation related activities in 2 including the completion of certain third-party review studies, additional engineering trade-off studies related to the prop Gryphon operation, program management costs, and operator fees to the WRJV.

The 2019 program is part of a multi-year project development plan that calls for the completion of a FS by the end of 20 receipt of final environmental and permitting approvals in 2021 or 2022 – which is expected to position Denison definitive development decision on the project. Future activities in 2020 and beyond may include:

- Drilling of pilot / test freeze holes to increase confidence in costs associated with establishing the freeze wall surr Phoenix deposit;
- Completion of condemnation drilling and mineral resource updates at Phoenix to ensure potentially economic min resources are encapsulated within the freeze wall perimeter; and
- Initiation of a formal FS in accordance with NI 43-101.

Discovery focused exploration program

The 2019 budget also calls for a $3.2 million (100% basis) discovery focused exploration program at Wheeler River. Th consists exclusively of diamond drilling, including approximately 13,500 metres in 23 planned drill holes.

Following the completion of the PFS and given the highly encouraging results from the proposed Phoenix ISR operation exploration drilling program will be focused on initial testing of targets at the sub-Athabasca unconformity, with the pote discover additional ISR amenable uranium deposits. Potential for basement hosted uranium mineralization will not be i where opportunities also exist to evaluate prospective basement targets.

High priority regional target areas planned for testing in 2019 include K West, M Zone, K South, Gryphon South, Q Sou and O Zone, each of which is shown in Figure 2.

About Wheeler River

Wheeler River is the largest undeveloped uranium project in the infrastructure rich eastern portion of the Athabasca Ba northern Saskatchewan – including combined Indicated Mineral Resources of 132.1 million pounds U_3O_8 at an a grade of 3.3% U_3O_8, plus combined Inferred Mineral Resources of 3.0 million pounds U_3O_8 at an average grade of 1.7% project is host to the high-grade Phoenix and Gryphon uranium deposits (discovered by Denison in 2008 and 2014, res and is a joint venture between Denison (90% and operator) and JCU (Canada) Exploration Company Limited (10%).

A PFS was completed, considering the potential economic merit of co-developing the high-grade Phoenix and Gryphon the results of which were announced on September 24, 2018. Taken together, the project is estimated to have mine pro 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), In of Return ("IRR") of 38.7%, and initial pre-production capital expenditures of $322.5 million. The PFS is prepared on a p (100% ownership) and pre-tax basis, as each of the partners to the Wheeler River Joint Venture ("WRJV") are subject t tax and other obligations.

Further details regarding the Wheeler River project, including additional scientific and technical information relevant to t well as after-tax results attributable to Denison's ownership interest, are described in greater detail in the NI 43-101 Tec Report for the Wheeler River project titled "Pre-feasibility Study for the Wheeler River Uranium Project, Saskatchewan, dated October 30, 2018 with an effective date of September 24, 2018. A copy of this report is available on Denison's w under its profile on SEDAR at www.sedar.com and on EDGAR at www.sec.gov/edgar.shtml.

Qualified Persons

The disclosure of the results of the PFS contained in this news release, including the mineral reserves, was reviewed a by Peter Longo, P. Eng, MBA, PMP, Denison's Vice-President, Project Development, who is a Qualified Person in acco the requirements of NI 43-101.

The disclosure of a scientific or technical nature regarding the Phoenix and Gryphon deposits, including the mineral res contained in this news release was reviewed and approved by Dale Verran, MSc, P.Geo., Pr.Sci.Nat., Denison's Vice P Exploration, who is a Qualified Person in accordance with the requirements of NI 43-101.

For a description of the data verification, assay procedures and the quality assurance program and quality control meas applied by Denison in its exploration activities, please see Denison's Annual Information Form dated March 27, 2018 fil Company's profile on SEDAR at www.sedar.com.

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 90% 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 320,000 hectares. Denison's interests in the 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 65.92% interest in the J Zone and Huskie deposits 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.

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 results of, and estimates, assumptions and projections provided in, the PFS, including future development methods and plans, market prices, costs and capital expenditures; the Company's current plans with respect to the commencement and completion of an EA and feasibility study on the project; assumptions regarding Denison's ability to obtain all necessary regulatory approvals to commence development; Denison's percentage interest in its projects and its agreements with its joint venture partners; and the availability of services to be provided by third parties. Statements relating to "mineral resources" are deemed to be forward-looking information, as they involve the implied assessment, based on certain estimates and assumptions that the 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. Denison faces certain risks, including the inability to permit or develop the project as currently planned, the unpredictability of market prices, the use of mining methods which are novel and untested in the Athabasca Basin, events that could materially increase costs, changes in the regulatory environment governing the project lands, and unanticipated claims against title and rights to the project. Denison believes that the expectations reflected in this forward-looking information are reasonable but there can be no assurance that such statements 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 "Risk Factors" in Denison's Annual Information Form dated March 27, 2018 available under its profile at www.sedar.com and its Form 40-F available at www.sec.gov/edgar.shtml. 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 its expectations except as otherwise required by applicable legislation.

Cautionary Note to United States Investors Concerning Estimates of Measured, Indicated and Inferred Mineral Resources and Probable Mineral Reserves: This news release may use the terms 'measured',

'indicated' and 'inferred' mineral resources. United States investors are advised that while such terms have been prepared in accordance with the definition standards on mineral reserves of the Canadian Institute of Mining, Metallurgy and Petroleum referred to in Canadian National Instrument 43-101 Mineral Disclosure Standards ("NI 43-101") and are recognized and required by Canadian regulations, the United States Securities and Exchange Commission ("SEC") 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. The estimates of mineral reserves in this press release have been prepared in accordance with 43-101. The definition of probable mineral reserves used in NI 43-101 differs from the definition used by the SEC in the SEC's Industry Guide 7. Under the requirements of the SEC, mineralization may not be classified as a "reserve" unless the determination has been made, pursuant to a "final" or "bankable" feasibility study that the mineralization could be economically and legally produced or extracted at the time the reserve determination is made. Accordingly, Denison's probable mineral reserves disclosure may not be comparable to information from U.S. companies subject to the reporting and disclosure requirements of the SEC.

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