

PRESS RELEASE

DENISON EXPANDS HIGH-GRADE MINERALIZATION OF GRYPHON DEPOSIT AS DRILLING CONTINUES AT WHEELER RIVER

Toronto, ON – September 22, 2016 Denison Mines Corp. (“Denison” or the “Company”) (DML: TSX, DNN: NYSE MKT) is pleased to report the expansion of the high-grade A and B series lenses both down-dip and up-dip on the southwestern portion of the Gryphon deposit, located on the Company’s 60% owned Wheeler River project in the infrastructure rich eastern portion of the Athabasca Basin region in northern Saskatchewan. A further four exploration drill holes have been completed at the Gryphon deposit, with each hole returning significant uranium intersections outside of the existing mineralized extent of the current mineral resources estimated for the Gryphon deposit.

Two of the exploration drill holes, located on 50 metre spaced sections and drilled approximately 50 metres **down-dip** from the previously delineated A and B series lenses, returned high-grade mineralization as follows:

Drill Hole WR-602D1

- 1.2% eU₃O₈ over 11.4 metres (from 692.7 to 704.1 metres), including
 - 3.8% eU₃O₈ over 1.0 metres (from 693.2 to 694.2 metres), and
 - 4.6% eU₃O₈ over 1.7 metres (from 699.4 to 701.1 metres)

Drill Hole WR-674

- 2.5% eU₃O₈ over 4.4 metres (from 744.8 to 749.2 metres), including
 - 3.2% eU₃O₈ over 3.4 metres (from 745.5 to 748.9 metres)

Two additional exploration drill holes, located on 75 metre spaced sections and drilled approximately 50 metres **up-dip** from the previously delineated A and B series lenses, returned results as follows:

Drill Hole WR-673

- 1.1% eU₃O₈ over 1.0 metres (from 627.6 to 628.6 metres), and
- 0.27% eU₃O₈ over 10.8 metres (from 642.05 to 652.85 metres)

Drill Hole WR-675

- 1.36% eU₃O₈ over 1.0 metres (from 607.9 to 608.9 metres)

The abovementioned results are reported as radiometric equivalent U₃O₈ (“eU₃O₈”) from a calibrated total gamma down-hole probe. Radiometric equivalent U₃O₈ results are preliminary in nature and all mineralized intervals will be sampled and submitted for chemical U₃O₈ assay. The holes were drilled at a high angle to mineralization to allow for better evaluation of true thicknesses which are expected to be approximately 75% of the intersection lengths.

Dale Verran, VP Exploration of Denison commented, “*The mineralized footprint around Gryphon continues to grow with ongoing drilling. As the summer 2016 drilling program wraps-up over the next couple of weeks, we are in the fortunate position of having the Gryphon deposit open in numerous areas with exciting future targets and encouraging potential for resource growth. As drill results come in from the summer program, our exploration team continues to plan for 2017, which is set to be another exciting year with the drill bit at a project that keeps delivering new and meaningful mineralization.*”

The Gryphon deposit is hosted in basement rock and is currently estimated to contain inferred resources of 43.0 million pounds U₃O₈ (above a cut-off grade of 0.2% U₃O₈) based on 834,000 tonnes of mineralization at an average grade of 2.3% U₃O₈. The current resource estimate, with an effective date of September 25th, 2015, includes the A, B and C series lenses defined from drilling campaigns in 2014 and 2015.

Exploration drilling at Wheeler River during 2016, which has focused on expanding the mineralization in the vicinity of the Gryphon deposit, has resulted in the discovery and expansion of the Gryphon D series lenses (see Denison's Press Release dated September 7, 2016) and the discovery of additional uranium mineralization down-dip and up-dip of the A and B series lenses reported herein. Table 1 provides highlight mineralized intersections from exploration drill holes WR-602D1, WR-673, WR-674 and WR-675.

Table 1: Highlight mineralized intersections from exploration drill holes WR-602D1, WR-673, WR-674 and WR-675

Section	Drill Hole	From (m)	To (m)	Length (m) ⁵	eU ₃ O ₈ (%) ^{1,2}
4900 GP	WR-602D1 ³	692.7	704.1	11.4	1.2
	(including) ⁵	693.2	694.2	1.0	3.8
	(including) ⁵	699.4	701.1	1.7	4.6
4925 GP	WR-673 ³	627.2	631.0	3.8	0.36
	(including) ⁵	627.6	628.6	1.0	1.1
	(and) ³	634.2	652.9	18.7	0.18
	(including) ⁴	642.05	652.85	10.8	0.27
4950 GP	WR-674 ³	691.8	692.8	1.0	0.13
	(and) ³	740.9	742.2	1.3	0.65
	(and) ³	744.8	749.2	4.4	2.5
	(including) ⁵	745.5	748.9	3.4	3.2
5000 GP	WR-675 ⁵	607.9	608.9	1.0	1.36
	(and) ³	613.4	614.6	1.2	0.14

Notes:

1. eU₃O₈ is radiometric equivalent U₃O₈ from a calibrated total gamma down-hole probe. eU₃O₈ results are preliminary in nature and all mineralized intervals will be sampled and submitted for chemical U₃O₈ assay.
2. Composites are compiled using 1.0 metre minimum ore thickness and 2.0 metres maximum waste
3. Intersection interval is composited above a cut-off grade of 0.05% eU₃O₈.
4. Intersection interval is composited above a cut-off grade of 0.1% eU₃O₈.
5. Intersection interval is composited above a cut-off grade of 1% eU₃O₈.
6. As the drill holes are oriented steeply toward the northwest and the basement mineralization is interpreted to dip moderately to the southeast, the true thickness of the mineralization is expected to be approximately 75% of the intersection lengths

Illustrative Figures & Further Details

A property location and basement geology map is provided in Figure 1. A plan map of the northeast plunging Gryphon deposit mineralized lenses, projected up to the simplified basement geology at the sub-Athabasca unconformity, is provided in Figure 2. The plan map shows the location of the D series lenses interpreted from winter 2016 drilling results, the previously reported summer mineralized intercepts as yellow stars (see Denison's Press Release dated September 7, 2016) and the location of intersections from the A and B series lenses reported herein as light blue stars.

Further details regarding the Gryphon deposit and the current mineral resource estimates are provided in the NI 43-101 Technical Report for the Wheeler River project titled "Preliminary Economic Assessment for the Wheeler River Uranium Project, Saskatchewan, Canada" dated April 8, 2016 with an effective date of March 31, 2016. 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.

Qualified Persons

The disclosure of a scientific or technical nature contained in this news release was prepared by Dale Verran, MSc, Pr.Sci.Nat., Denison's Vice President, Exploration, who is a Qualified Person in accordance with the requirements of NI 43-101. For a description of the assay procedures and the quality assurance program and quality control measures applied by Denison, please see Denison's Annual Information Form dated March 24, 2016 filed under the Company's profile on SEDAR (www.sedar.com).

About Wheeler River

The Wheeler River property is a joint venture between Denison (60% and operator), Cameco Corp. (30%), and JCU (Canada) Exploration Company Limited (10%), and is host to the high-grade Gryphon and Phoenix uranium deposits discovered by Denison in 2014 and 2008, respectively. The Gryphon deposit is hosted in basement rock and is currently estimated to contain inferred resources of 43.0 million pounds U_3O_8 (above a cut-off grade of 0.2% U_3O_8) based on 834,000 tonnes of mineralization at an average grade of 2.3% U_3O_8 . The Phoenix unconformity deposit is located approximately 3 kilometres to the southeast of Gryphon and is estimated to include indicated resources of 70.2 million pounds U_3O_8 (above a cut-off grade of 0.8% U_3O_8) based on 166,000 tonnes of mineralization at an average grade of 19.1% U_3O_8 , and is the highest grade undeveloped uranium deposit in the world.

On April 4th, 2016, Denison announced the results of a Preliminary Economic Assessment ("PEA") for the Wheeler River Project, which considers 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 current long term contract price of uranium (US\$44.00 per pound U_3O_8), and Denison's share of estimated initial capital expenditures ("CAPEX") of CAD\$336M (CAD\$560M on 100% ownership basis). Exploration results from the winter and summer 2016 drilling program have not been incorporated into the resource estimate or the PEA. 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. On July 19th, 2016 Denison announced the initiation of a Pre-Feasibility Study ("PFS") for the Wheeler River property and the complimentary commencement of an infill drilling program at the Gryphon deposit to bring the inferred resources to an indicated level of confidence.

About Denison

Denison is a uranium exploration and development company with interests focused in the Athabasca Basin region of northern Saskatchewan. Including its 60% owned Wheeler River project, which hosts the high grade Phoenix and Gryphon uranium deposits, Denison's exploration portfolio consists of numerous projects covering over 350,000 hectares in the infrastructure rich eastern Athabasca Basin. Denison's interests in Saskatchewan also include a 22.5% ownership interest in the McClean Lake joint venture, 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 deposit and a 63.01% interest in the J Zone deposit on the Waterbury Lake property. Both the Midwest and J Zone deposits 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.

For more information, please contact

David Cates
President and Chief Executive Officer

(416) 979-1991 ext. 362

Sophia Shane
Investor Relations

(604) 689-7842

Follow Denison on Twitter

@DenisonMinesCo

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: exploration (including drilling) and evaluation activities, plans and objectives; potential mineralization of drill targets; the estimates of Denison's mineral resources and the results of its PEA.

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 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 24, 2016 available under its profile at www.sedar.com and in 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. 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: *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.*

Wheeler River Property Location and Geology

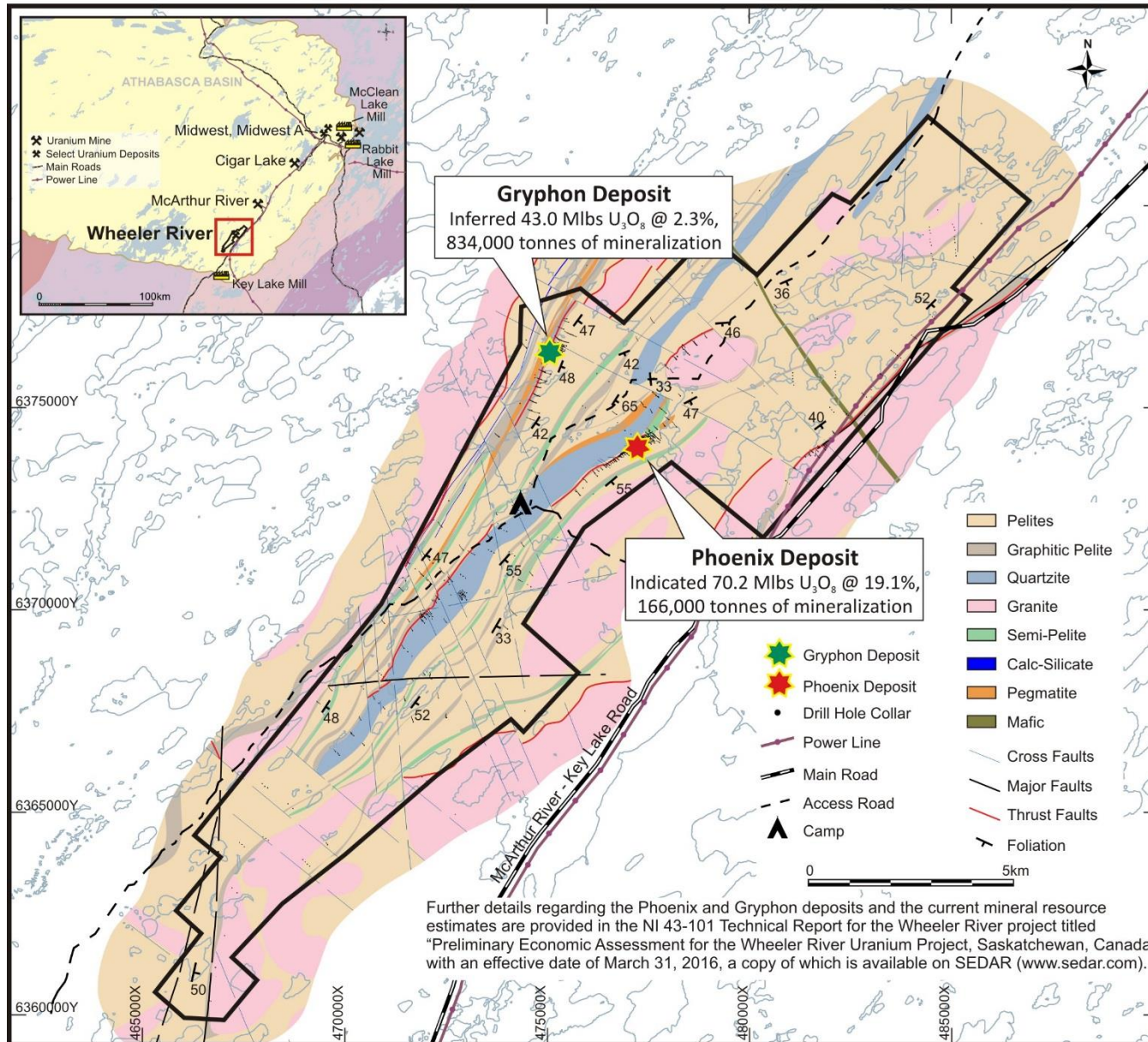


Figure 1: Wheeler River property location and basement geology

Plan Map, Gryphon Deposit

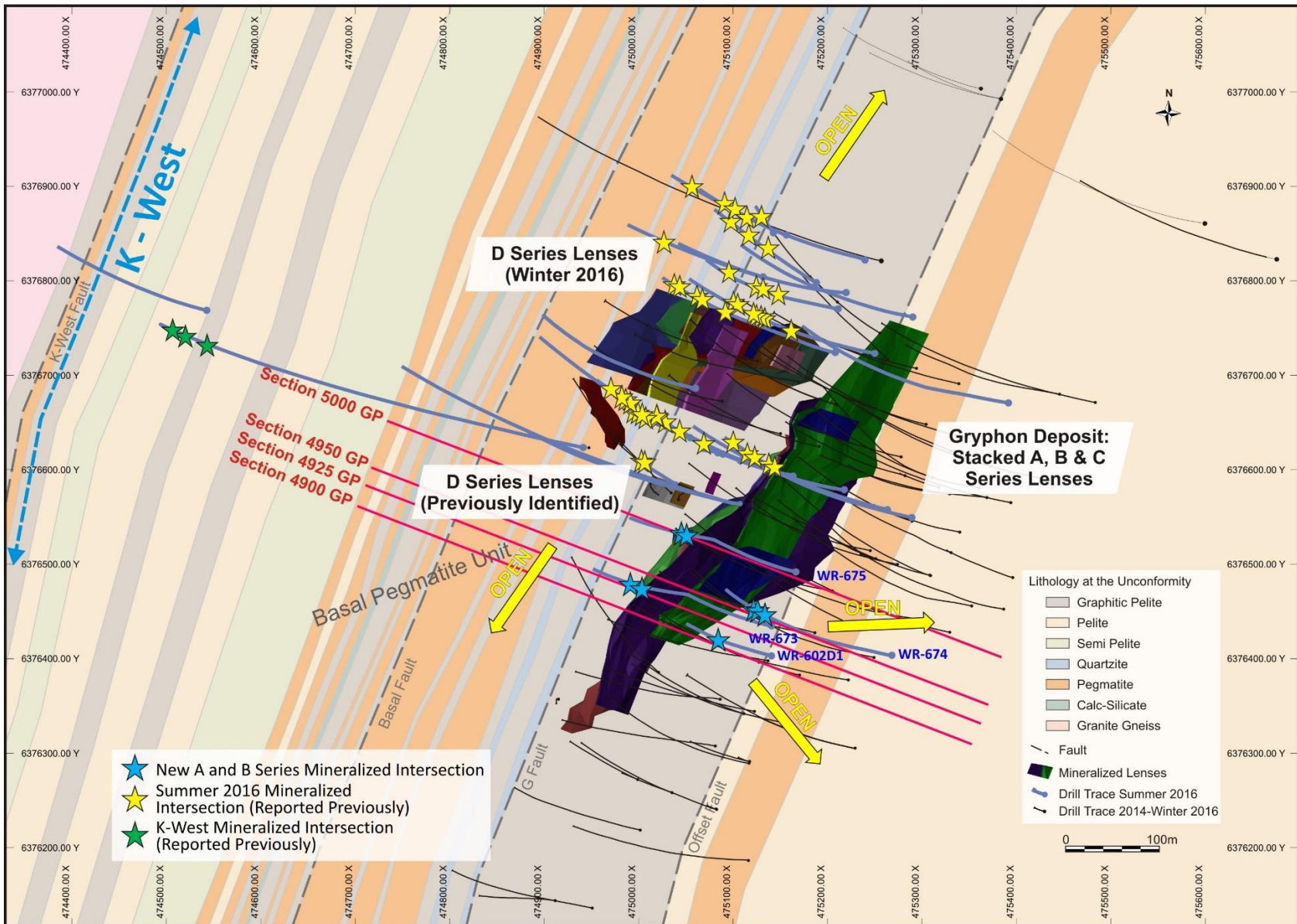


Figure 2: Plan map of the northeast plunging Gryphon mineralized lenses projected up to the simplified basement geology at the sub-Athabasca unconformity. Light blue stars depict the location of new mineralized intersections from the A and B series lenses.