Uranium Development & Exploration

The Athabasca Basin, Northern Saskatchewan

January 2021 | TD Securities Mining Conference

Cautionary Statements & References

This presentation and the information contained herein is designed to help you understand management's current views, and may not be appropriate for other purposes. This presentation contains information relating to the uranium market, third party and provincial infrastructure, and the plans and availability thereof, derived from third-party publications and reports which Denison believes are reliable but have not been independently verified by the Company.

Certain information contained in this presentation 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 presentation contains forward-looking information pertaining to the results of, and estimates, assumptions and projections provided in, the Wheeler PFS and the Waterbury PEA, including future development methods and plans, market prices, costs and capital expenditures; assumptions regarding Denison's ability to obtain all necessary regulatory approvals to commence development at Wheeler; 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 current and potential impacts of the COVID-19 pandemic, use of mining methods which are novel and untested in the Athabasca basin, the inability to permit or develop its projects as currently planned, the inability to secure sufficient financing to pursue its business objectives, the unpredictability of market prices, 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 13, 2020 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.

Readers should not place undue reliance on forward-looking statements. The forward-looking information contained in this presentation is expressly qualified by this cautionary statement. Any forward-looking information and the assumptions made with respect thereto speaks only as of March 13, 2020. Denison does not undertake any obligation to publicly update or revise any forward-looking information after such date 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 Mineral Resources and Mineral Reserves: This presentation 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 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.

Qualified Persons

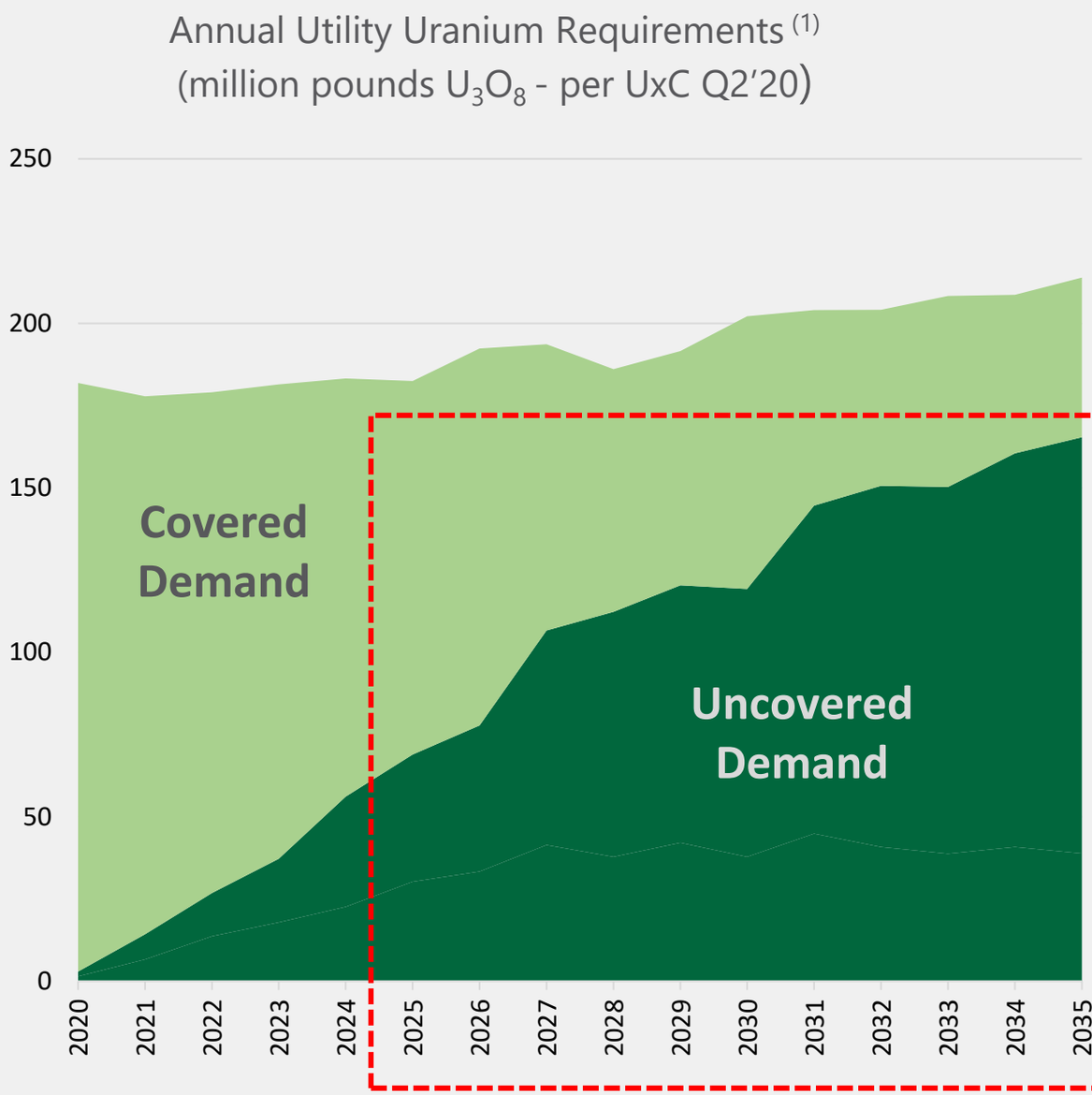
The disclosure of a scientific or technical nature within this presentation, including the disclosure of mineral resources, mineral reserves, as well as the results of the Wheeler PFS and Waterbury PEA, was reviewed and approved by David Bronkhorst, P.Eng., who is a Qualified Person in accordance with the requirements of NI 43-101.

Technical Reports

- For further details regarding the **Wheeler River project**, please refer to the Company's press release dated September 24, 2018 and the technical report titled "*Prefeasibility Study for the Wheeler River Uranium Project, Saskatchewan, Canada*" with an effective date of September 24, 2018 ("Wheeler PFS").
- For further details regarding the **Waterbury Lake project**, please refer to the Company's press release dated November 17, 2020 and the technical report *titled "Preliminary Economic Assessment for the Tthe Heldeth Túé (J Zone) Deposit, Waterbury Lake Property, Northern Saskatchewan, Canada"* with an effective date of October 30, 2020 ("Waterbury PEA"). **The PEA is a preliminary analysis of the potential viability of the Project's mineral resources, and should not be considered the same as a Pre-Feasibility or Feasibility Study, as various factors are preliminary in nature. There is no certainty that the results from the PEA will be realized. Mineral resources are not mineral reserves and do not have demonstrated economic viability. Scheduled tonnes and grade do not represent an estimate of mineral reserves.**

For a description of the data verification, assay procedures and the quality assurance program and quality control measures applied by Denison, please see Denison's Annual Information Form dated March 13, 2020. Copies of the foregoing are available on Denison's website and under its profile on SEDAR at www.sedar.com and on EDGAR at www.sec.gov/edgar.shtml.

The Uranium Investment Thesis:
Fundamentals are improving, leading to a positive new uranium cycle



Key Market Themes:

1. Long-term contracts from the previous uranium bull cycle have acted as a lifeline to high-cost mines – this is coming to an end, with **significant uncovered utility requirements emerging** at a time that Denison is targeting to enter production

2. Demand story is positive and improving – requirements now exceed pre-Fukushima levels

3. Significant curtailment decisions have been made by largest uranium producers

4. Response to COVID-19 has put additional pressure on supply. Further curtailments have accelerated drawdown of secondary supplies

5. Given sustained low prices, project pipeline may be inadequate to deliver new production in time to replace mines that are dropping off

6. Long-standing trade issues which have distracted the market have been clarified – Section 232 investigation; subsequent report by the Nuclear Fuel Working Group; Russian Suspension Agreement

NOTES: (1) Data in this slide has been derived from UxC's Uranium Market Outlook dated Q2 2020.

Diversified Athabasca Basin Asset Base with Superior Development Leverage

Strategic Asset Portfolio:

- 90% interest in Flagship **Wheeler River** project
  - Development stage project
  - Largest undeveloped uranium project in the infrastructure rich eastern Athabasca Basin
  - Environmental Assessment ("EA") initiated*
- 22.5% interest in **McClean Lake Uranium Mill**
  - +12% of global uranium production
  - Excess licensed capacity
- 66.90% interest in **Waterbury Lake** project
  - PEA(1) for **Tthe Heldeth Túe´("THT")** deposit (formerly J Zone) highlights potential for future development portfolio
- Additional leverage to the uranium price
  - **McClean Lake, Midwest,** and **Waterbury Lake** all in close proximity to McClean mill
  - **+250,000 hectares** of exploration ground
- **Well funded** (~CAD$29M(2) in cash), plus internal sources of **cash flow** from Uranium Participation Corp. (TSX-U) & Closed Mines operations

Denison Mines

NOTES: (1) See Denison's news release dated Nov. 17, 2020; The PEA is a preliminary analysis and should not be considered the same as a Pre-Feasibility or Feasibility Study, see Cautionary Statements slide for details; (2) Estimated at the end of October 2020, see Denison's news release dated Nov. 5, 2020; (3) See Denison's news release from March 20, 2020 for details.

IMPORTANT NOTES ON COVID-19 IMPACTS

** Given recent social, financial and market disruptions, Denison suspended certain activities at Wheeler River, including the Environmental Assessment program, which is on the critical path to achieving the project development schedule outlined in the PFS.* ***On November 9th, Denison announced its decision to restart the EA, effective January 2021****. However, uncertainty associated with the temporary suspension remains and the Company is not yet able to estimate the impact to the project development schedule outlined in the PFS, and* ***users are cautioned that the estimates provided therein regarding the start of pre-production activities in 2021 and first production in 2024 should not be relied upon****.(3)*

22.5% Denison owned McClean Lake uranium mill

+250,000 Hectares of Prospective Exploration & Development Ground Focused in the Infrastructure Rich Eastern Athabasca Basin

Denison Land Position
as of June 30, 2019

All Season Highway / Haul Road

Provincial Power Grid

Flagship Wheeler River Development Project[(1)]

90% Denison Owned (10% JCU):

- Host to two high-grade uranium deposits
- NI 43-101 compliant Pre-Feasibility Study ("PFS") considers staged development plan
- **Phoenix** estimated to potentially have lowest costs of any undeveloped uranium deposit
  - **In-Situ Recovery ("ISR") mining method**
  - On-site processing to finished yellow cake
  - Commencement of EA in 2019
  - All-in costs of **US$8.90/lb U_3O_8**
  - Operating costs of **US$3.33/lb U_3O_8**
- **Gryphon** contributes additional low-cost pounds
  - Conventional underground mining approach
  - Assumes toll-milling at McClean Lake mill
  - All-in cost of **US$22.82/lb U_3O_8**
  - Operating costs of **US$11.70/lb U_3O_8**
- Combined **109.4M** lbs U_3O_8 Probable Reserves
- Combined **14** year mine life
- Initial CAPEX (Phoenix) of **$322.5M** (100%)

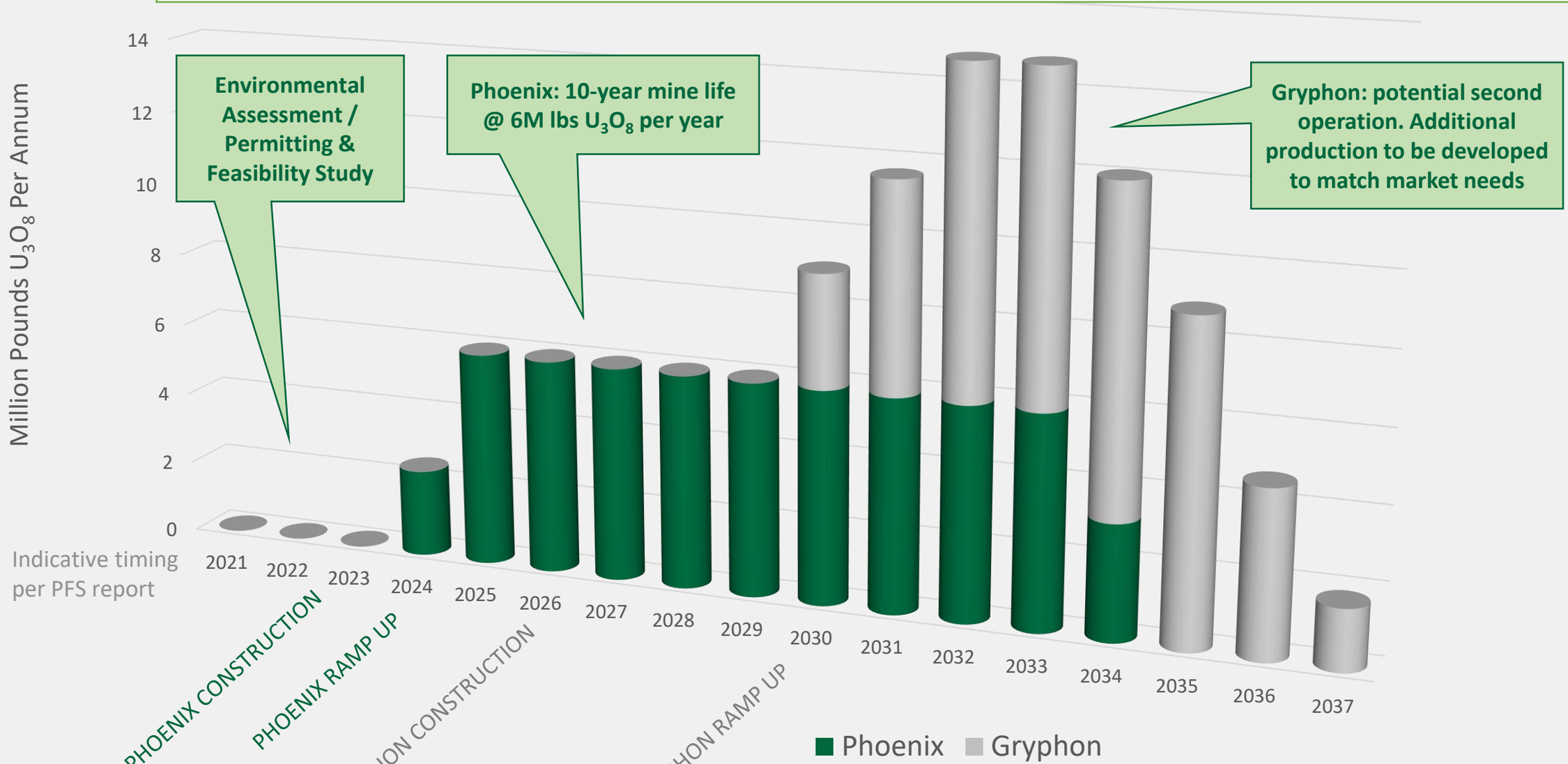
Denison Mines

NOTES: (1) Refer to the Wheeler River Technical Report titled "Pre-feasibility Study Report for the Wheeler River Uranium Project, Saskatchewan, Canada" dated September 24, 2018;

ISR test well head installed at Wheeler River Phoenix Deposit, Summer 2019

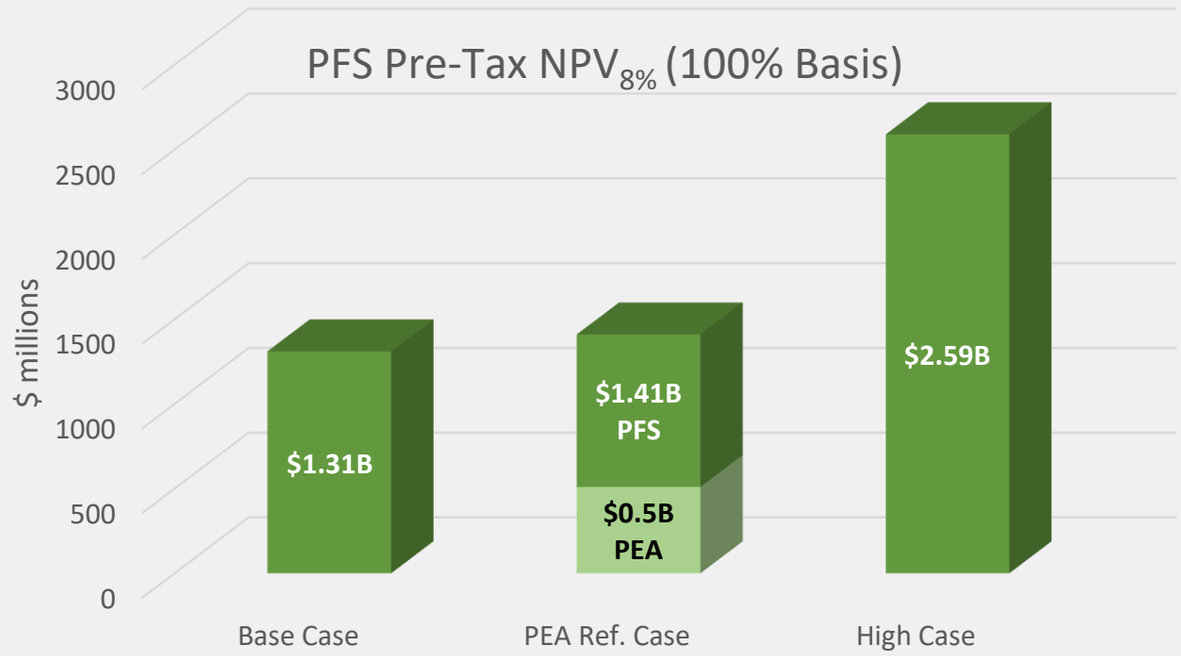
Wheeler River PFS:
Staged development plan with combined 14-year mine life(1)

IMPORTANT *The Wheeler River PFS estimated pre-production activities to begin in 2021, assuming receipt of required regulatory approvals, with first production from the Phoenix deposit expected in 2024. Given recent social, financial and market disruptions, Denison suspended certain activities at Wheeler River, including the Environmental Assessment programs which is on the critical path to achieving the project development schedule outlined in the PFS.* ***On November 9th, Denison announced its decision to restart the EA, effective January 2021****. The temporary suspension of the EA process is expected to impact the project development schedule outlined in the PFS for Wheeler River. The Company is not yet able to estimate the impact to the project development schedule outlined in the PFS, and* ***users are cautioned that the estimates provided therein regarding the start of pre-production activities in 2021 and first production in 2024 should not be relied upon****.(2)*



NOTES: (1) Refer to the Wheeler River Technical Report titled "Pre-feasibility Study Report for the Wheeler River Uranium Project, Saskatchewan, Canada" dated September 24, 2018.; (2) See Denison's news release from March 20, 2020 for details.

Wheeler River PFS:
Uranium price assumptions, commercial strategy, and sensitivities



Assumptions / Results[1]	Base Case	PEA Ref. Case	High Case
Uranium selling price	As above	US$44/lb U_3O_8	US$65/lb U_3O_8
Pre-tax $NPV_{8\%}$[2] (100% Basis)	**$1.31 billion**	**$1.41 billion**	**$2.59 billion**
Pre-tax IRR[2]	38.7%	47.4%	67.4%
Pre-tax payback period[3]	~24 months	~ 15 months	~ 11 months

Base Case Price Assumptions Reflect Commercial Strategy:

- **Phoenix Operation:**
  - Low all-in cost per lb U_3O_8 suggests contract "base-loading" not required
  - Uranium selling price based on UxC Spot price forecast (Q3'2018 UMO "Composite Midpoint" scenario)
  - ~US$29/lb U_3O_8 to US$45/lb U_3O_8
  - Stated in "constant" 2018 dollars
- **Gryphon Operation:**
  - US$50/lb U_3O_8 fixed price
  - Market support expected to be trigger for development

Comparison to 2016 Preliminary Economic Assessment ("PEA"):

- 2016 PEA provided pre-tax project $NPV_{8\%}$ of $513 million at fixed uranium price of US$44/lb U_3O_8
- PFS equivalent represents +**275% of pre-tax project NPV from PEA**

Denison Mines

NOTES: (1) Refer to the Wheeler River Technical Report titled "Pre-feasibility Study Report for the Wheeler River Uranium Project, Saskatchewan, Canada" dated September 24, 2018; (2) NPV and IRR are calculated to the start of pre-production activities for the applicable operation; (3) Payback period is stated as number of years to pay-back from the start of commercial production.

Phoenix De-Risking:

Combining the world's lowest-cost uranium mining method with the world's highest-grade undeveloped uranium deposit

ISR field testing at Wheeler River Phoenix Deposit, Summer 2019

ISR field testing at Wheeler River Phoenix Deposit, Summer 2019

Phoenix De-Risking: “Proof of Concept” achieved for application of ISR mining method at Phoenix(1)

Petrotek Corporation – independent specialist with unique expertise in subsurface fluid flows and ISR projects

- **Comprehensive hydrogeologic model:** Developed, using 2019 ISR Field Test data
- **Calibrated:** models compared to actual 2019 Field Test data, such that the "head" changes resulting from simulations in the models were similar to observed changes in the actual field tests
- **Parameters:** 18 extraction / recovery wells and 33 injection wells modelled across Test Area 1 and Test Area 2, nearly balanced operational flow; 180-day simulation was completed with approximately 80% of the injected fluids estimated to be captured during the simulation period
- **Report Conclusions:** modelling provided **“Proof of Concept”** for application of ISR to Phoenix with respect to potential extraction and injection rates

Denison Mines

NOTES: (1) See Denison’s news release from June 4, 2020 for details

ISR field testing at Wheeler River Phoenix Deposit, Summer 2019

Phoenix De-Risking:
Conventional freeze wall design adopted for Phoenix ISR to replace novel freeze cap / dome design

Post-PFS trade-off study supports decision to adopt freeze wall design to provide hydrogeologic containment(1)

- Parallel vertical cased holes drilled from surface and anchored into impermeable basement rock surrounding the Phoenix deposit
- Circulation of low-temperature brine solution through cased pipes will freeze groundwater in sandstone surrounding the deposit
- 10-metre-thick freeze wall, together with basement rocks will encompass Phoenix vertically from surface to basement rock underlying the deposit
- Design supported by hydrogeologic and ground freeze modelling

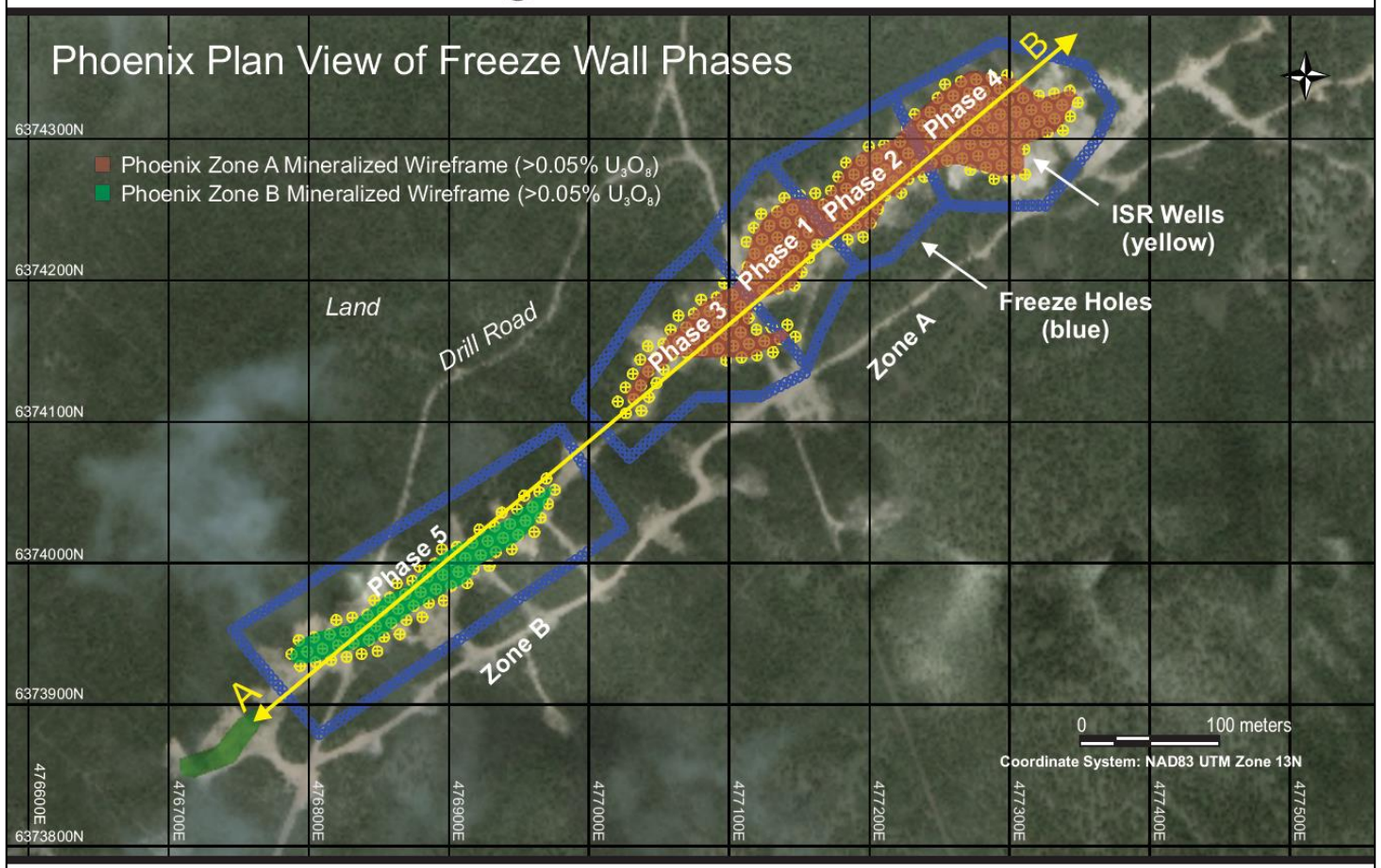
✓ **Eliminates common environmental concerns with ISR mining and facilitates controlled reclamation**

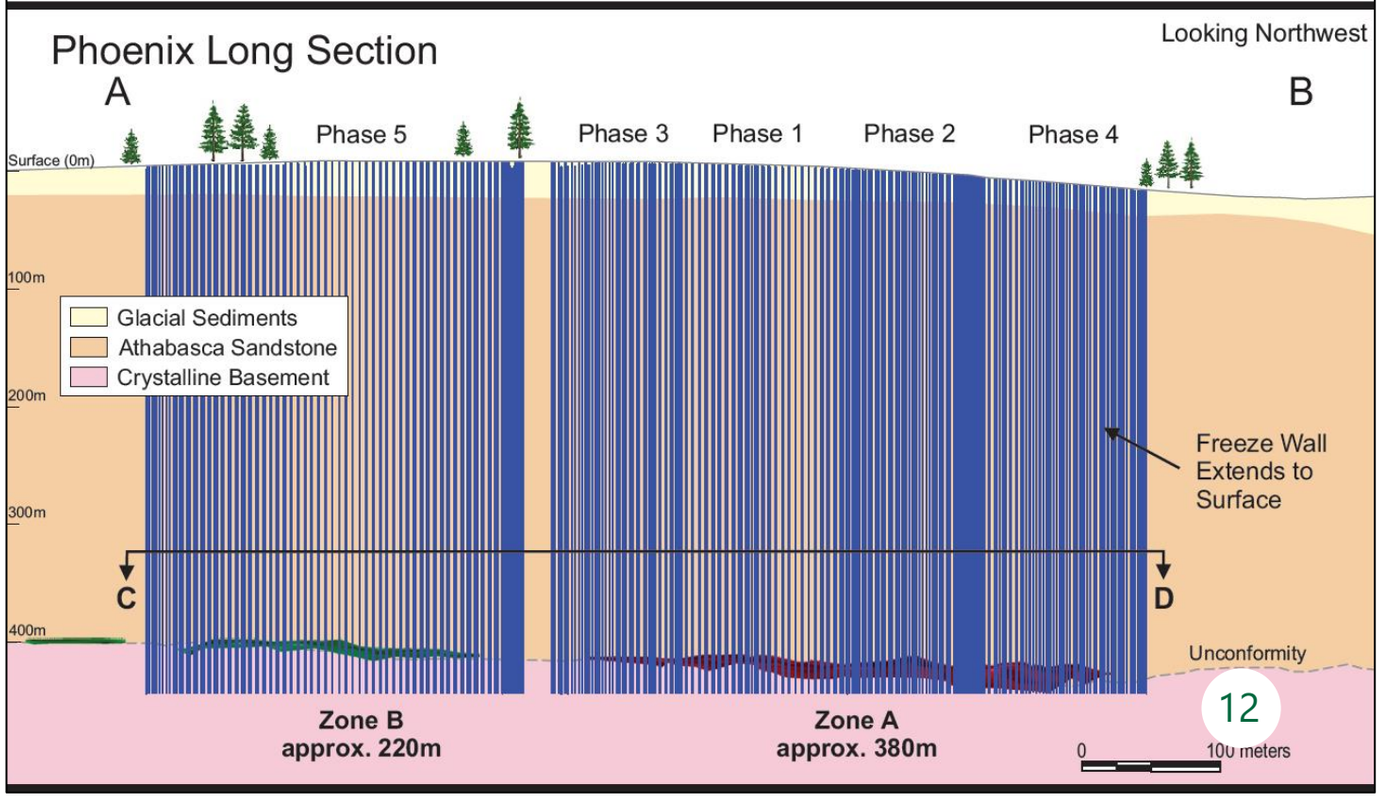
Denison Mines

NOTES: (1)) See Denison's news release dated December 1, 2020 for additional information on the freeze wall design for Phoenix.

Proposed Phoenix Wellfield and Freeze Wall Containment Configuration

Denison Mines





Phoenix De-Risking:
Freeze wall design shows potential for significant advantages[1][2]

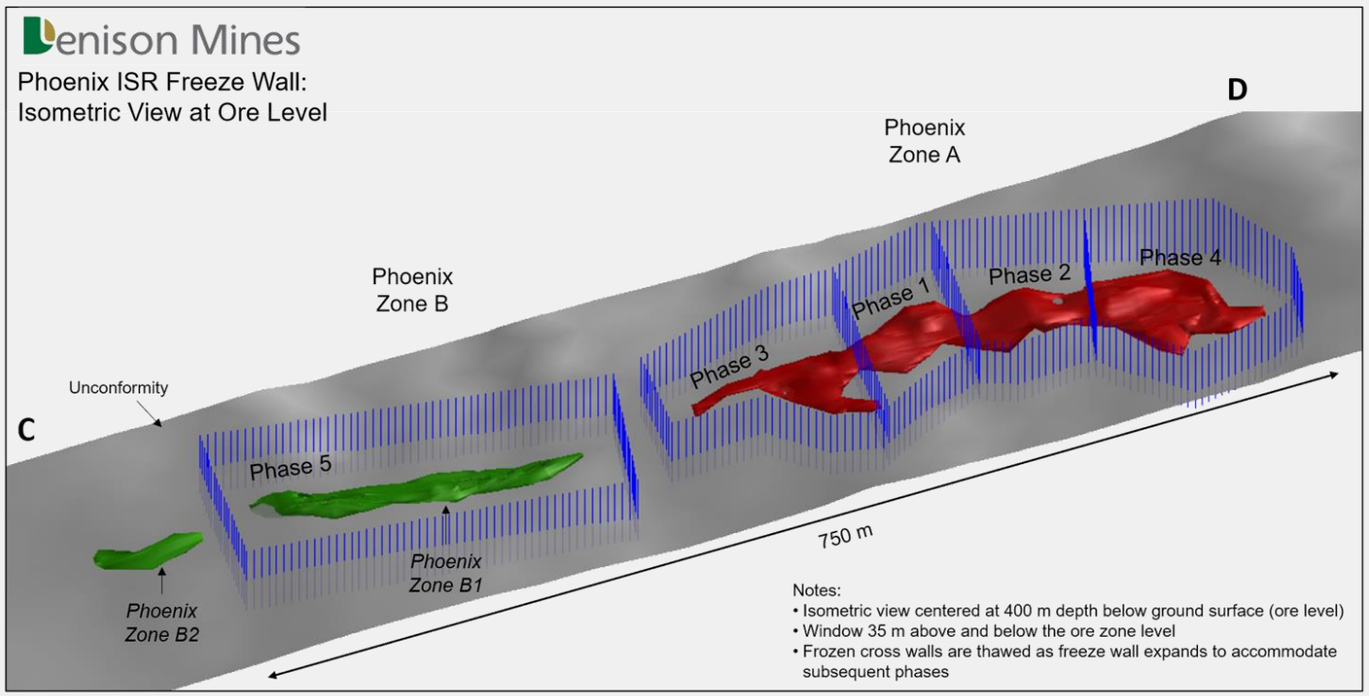


Table 1. Freeze Wall Phased Mining Approach						
	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	**Total**
Reserves (% of total)*	36%	26%	14%	15%	9%	**100%**
Expected Life (months)	43	31	17	19	11	**121**

**Note: These amounts are estimates and projections only and do not include Phoenix Zone B2 reserves of 133,000 lbs U_3O_8. The aggregate reserves, and many of the assumptions and qualifications related thereto, as well as the mine plan associated with the declared reserves are set forth in the Wheeler River PFS.*

Table 2. Freeze Wall Holes Drilled Per Phase						
	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	**Total**
Expected (# of holes)	57	41	54	52	118	**322**
Expected Meterage	24,500	17,600	23,200	22,400	50,700	**138,400**

✓ **Enhanced environmental design**
- Full hydraulic containment of ISR well field to surface
- Defined area for reclamation

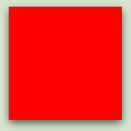
✓ **Lower technical complexity and operational risk**
- Existing diamond drilling methods
- Reduction of intersection of freeze holes and ISR wells[1]

✓ **Expected reduction in initial capital**
- Lower cost drilling
- Phased mining approach

✓ **Strengthened project sustainability**
- Diamond drilling widely employed in northern Sask.
- Ability to leverage existing skilled workforce
- Drilling over life of mine

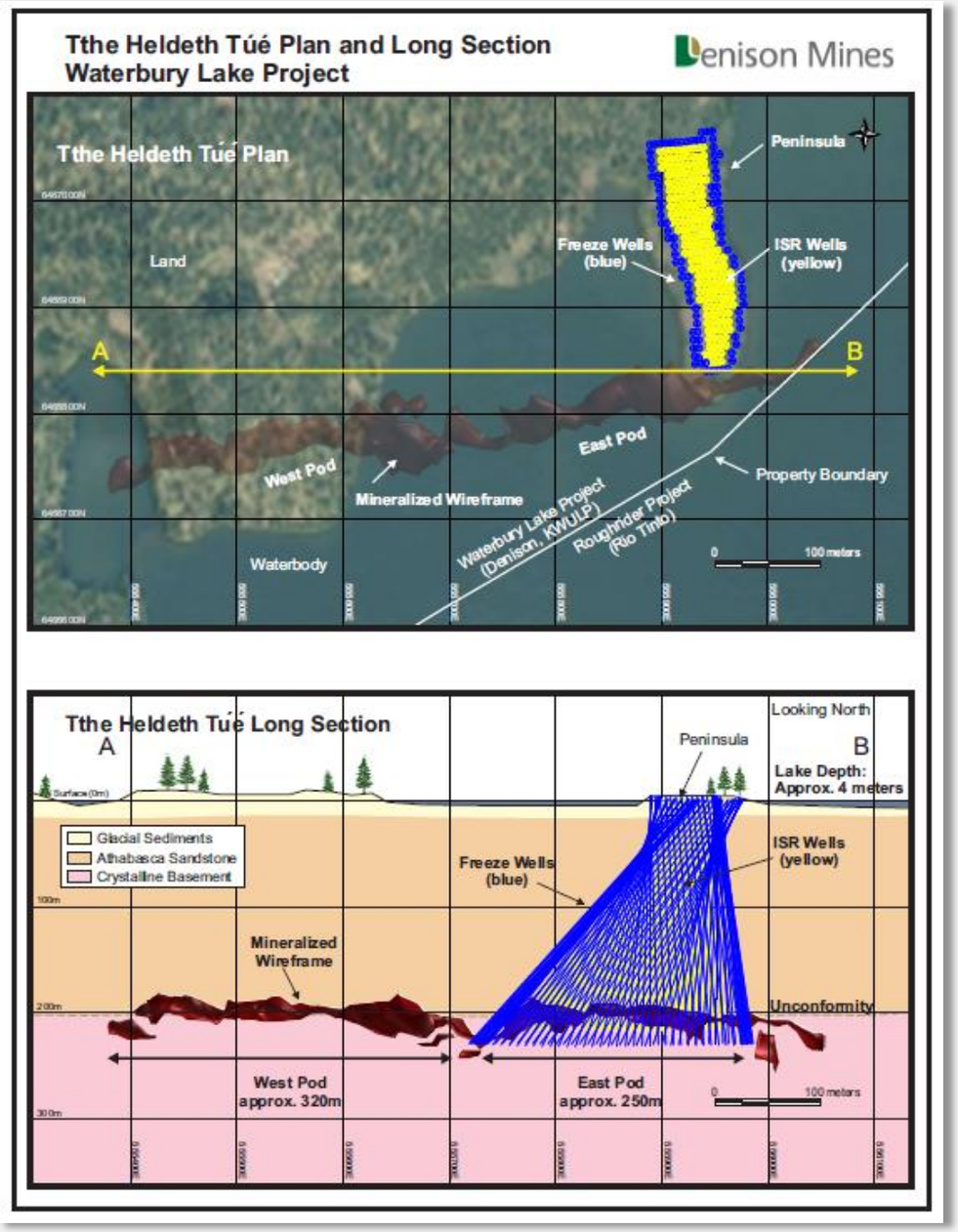
NOTES: (1) For additional information on horizontal freeze cap design included in PFS, refer to the Wheeler River Technical Report titled "Pre-feasibility Study Report for the Wheeler River Uranium Project, Saskatchewan, Canada" dated September 24, 2018; (2) See Denison's news release dated December 1, 2020 for additional information on the freeze wall design for Phoenix.

Phoenix De-Risking:
Significant progress de-risking primary technical risks from PFS(1)

Nature of Risk	Post PFS Assessment	Mitigation Steps Completed in 2019-2020	Current Assessment
Well field containment (PFS freeze dome design)		• Freeze containment trade-off study (2020) leading to selection of conventional freeze wall design (diamond drilling), eliminating need for complex / costly directional drilling; • Environmental and operational benefits associated with full containment of IRS mining operation, and elimination of risk associated with IRS wells intersecting horizontal freeze wells from previously planned “dome”	
Well field permeability (High permeability zones; 70-80% of the contained uranium)		• 2019 & 2020 ISR field tests • Established baseline permeability through field hydrogeological (pump and injection) testing and permeameter testing • Validated effectiveness of permeability enhancement tools, well spacing, well designs and injection pressures • Resulted in “Proof of Concept” conclusion with hydrogeologic model	
Well field permeability (Low permeability zones; 20-30% of the contained uranium)		• 2019 & 2020 ISR field tests • Established baseline permeability through field hydrogeological (pump and injection) testing and permeameter testing • Additional testing / mitigation planned to better define leachability in low permeability zones and optimal mitigation approaches	
Leaching kinetics (UBS head grade)		• Ongoing metallurgical test program – including various leach tests (at various temperatures and with various lixiviant compositions), plus specialized core leach tests	
Leaching kinetics (UBS recovery)		• Ongoing metallurgical test program – resulting in improved understanding of fluid pathways gained through completion of specialized core leach tests and permeameter field tests.	

NOTES: (1) This listing of risks is not exhaustive, and readers should also refer to Annual Information Form of the Company dated March 13, 2020 and the Wheeler River Technical Report titled “Pre-feasibility Study Report for the Wheeler River Uranium Project, Saskatchewan, Canada” dated September 24, 2018 for further details regarding the project and the risks identified by the Company with respect to its operations and the PFS. This is a qualitative analysis of certain risks, subject to assumptions and judgement of management, and may not be demonstrative of final results. Readers are also encouraged to review Denison’s public disclosures for additional information regarding de-risking activities completed since the completion of the PFS.

Waterbury Lake:
PEA demonstrates potential for ISR to transform portfolio projects[(1)]



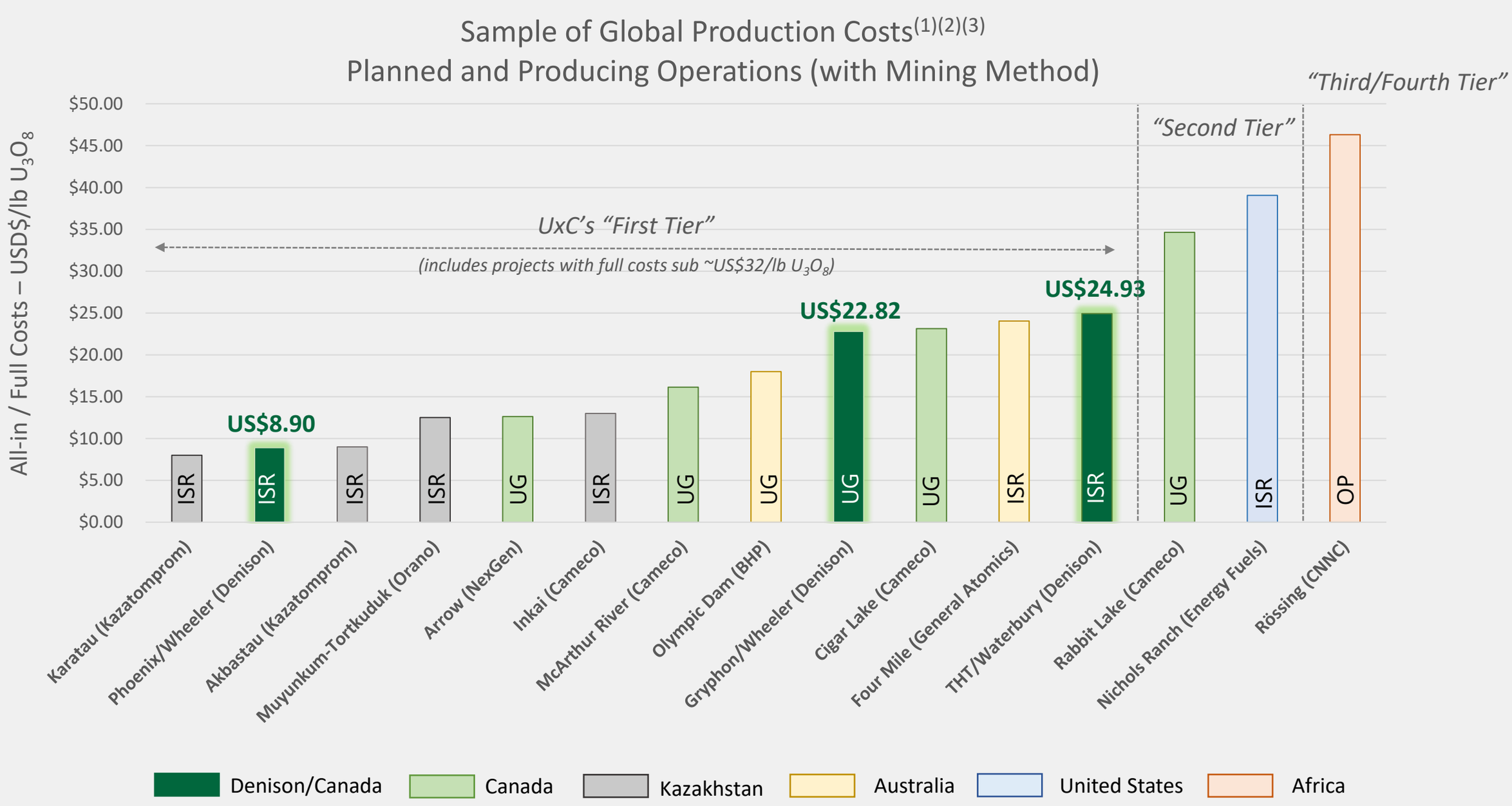
Tthe Heldeth Túé (formerly J Zone) Deposit:

- Independent NI 43-101 PEA prepared by Engcomp (Saskatoon)
- Selection of **ISR mining method** + **freeze wall** containment
  - ➢ Core samples collected for permeametry analyses validate the potential amenability of ISR mining to the THT deposit
  - ➢ Metallurgical tests confirm UBS head grade of 7g/l achievable
- **9.7M lbs U_3O_8** recoverable over a 6-year production period
- Uranium Bearing Solution ('UBS') transported by truck on existing roads to **McClean Lake Mill (22.5% Denison)** for processing
- Minimal site infrastructure (Points North Landing 10km away)
- Engaged with Ya'thi Néné Lands and Resources Office led to name change for 'J Zone' deposit to **Tthe Heldeth Túé** ("THT")
- **Highly successful results** for a small uranium deposit – demonstrating significant potential for ISR beyond Phoenix:
  - ✓ *Initial Capital Costs: $112 million*
  - ✓ *Base case: Pre-tax NPV of $177M; Pre-tax IRR of 39.1%*
  - ✓ *All in Costs: CAD$33.16 (USD$24.93) per lb U_3O_8*

NOTES: (1) For more information on the Preliminary Economic Assessment ("PEA") for Waterbury Lake / Tthe Heldeth Túé, pleases refer to the Waterbury Lake Technical Report titled "Preliminary Economic Assessment for the Tthe Heldeth Túé (J Zone) Deposit, Waterbury Lake Property, Northern Saskatchewan, Canada" dated October 30, 2020 .

Denison's Development Portfolio:

Multiple projects positioned amongst the lowest all-in cost assets of UxC's First Tier



NOTES: (1) Chart data, including all-in costs and UxC's categorization of production cost "tiers", have been derived from UxC's estimates of Worldwide Production Costs from the Uranium Production Cost Study dated August 2019; (2) For Phoenix and Gryphon, refer to the Wheeler River Technical Report titled "Pre-feasibility Study Report for the Wheeler River Uranium Project, Saskatchewan, Canada" dated September 24, 2018. (3) for Tthe Heldeth Túé (Waterbury), refer to the Waterbury Lake Technical Report titled "Preliminary Economic Assessment for the Tthe Heldeth Túé (J Zone) Deposit, Waterbury Lake Property, Northern Saskatchewan, Canada" dated October 30, 2020.

Capital Structure & Corporate Information

Market Summary [1]	
Exchanges	TSX: DML, NYSE American: DNN
Shares Outstanding	679.0 M
Share Units	7.7 M
Options	15.1 M
Fully Diluted Shares	701.8 M
Market Cap – DML @ C$0.96/share[2]	CAD $652 M
Daily Trading Volume – DML[3]	2.2M Shares
Market Cap – DNN @ US$0.75/share[2]	USD $509 M
Daily Trading Volume – DNN[3]	2.7M Shares

Management & Directors

- David Cates (President & CEO, Director)
- Mac McDonald (Exec. VP & CFO)
- Dave Bronkhorst (VP Operations)
- Tim Gabruch (VP Commercial)
- Amanda Willett (VP Legal)

- Catherine Stefan (Non-Executive Chair)
- W. Robert Dengler (Director)
- Brian D. Edgar (Director)
- Ron F. Hochstein (Director)
- Jun Gon Kim (Director)
- Jack Lundin (Director)
- Patricia M. Volker (Director)

Website: www.denisonmines.com Twitter: @DenisonMinesCo Email: info@denisonmines.com

NOTES: (1) Share capital information as of December 31st, 2020; (2) Based on shares outstanding above and DML/DNN share prices as of January 19th, 2021; (3) Average daily trading volume over previous 3 months as of January 19th, 2021