

Denison Mines Corp.

{DML-T, DNN-US}

SECTOR: Mining

STOCK PRICE \$0.485
RATING **BUY**
TARGET PRICE \$1.60
RISK Very High

PHOENIX DEPOSIT HYDROGEOLOGICAL TEST RESULTS

Hydraulic Conductivity Test Results from Phoenix Reach PFS Range

OUR TAKE: Denison has reported hydraulic conductivity results from the Phoenix Deposit ISR test field at its 90%-owned Wheeler River project (Figure 1). Results, at their upper range, achieved hydraulic conductivity levels consistent with the project's Preliminary Feasibility Study (PFS). Hydraulic conductivity, the ability and rate at which fluids can traverse the deposit rocks, is an important technical assumption of the PFS that will affect the degree of success in an eventual ISR mining operation at the Phoenix Deposit. Demonstrating hydraulic conductivity approaching/exceeding PFS-level assumptions, coupled with last week's better-than-expected core leach test results ([link to recent report](#)) continues to de-risk Phoenix as an ISR uranium mine candidate. Denison's 2020 metallurgical program at Phoenix is scheduled to continue throughout H1/2020, seeking to further de-risk the project while providing additional news flow.

KEY HIGHLIGHTS

- ◆ **Hydraulic Conductivity of Phoenix Deposit test areas should support PFS-scale mining.** The PFS production plan was based on achieving an average flow rate of 500 litres per minute (lpm) through the well field at a standard pressure (~145 psi differential) and assumed permeability/hydraulic conductivity rates to return an average uranium concentration in pregnant solution of 10 mg/litre (elemental uranium), producing 6.0 Mlbpa U₃O₈. The hydraulic conductivity numbers achieved in testing are encouraging and should support an operation of the scale outlined in the PFS. There are many factors that will vary continuously as eventual mining progresses, but preliminary data continues to suggest enough flexibility within key parameters that, on balance, should be capable of delivering PFS-level performance.
- ◆ **Test Area 2 - Commercial-Scale-Well number 2 test conductivity approaches PFS spec.** Results for Test Area 2 (Figure 2) were achieved following deployment of the MaxPerf Drilling Tool which increases the accessible pathways for fluids to travel.
 - **Range of Hydraulic Conductivity Measured:** 0.033 to 0.084 metres/day (vs PFS assumption of 0.086 metres/day).
- ◆ **Test Area 1 - Commercial-Scale-Well number 1 test conductivity results hindered by technical challenges.** Results for Test Area 1 (Figure 3) were hindered by an obstructed well screen rendering the test less effective at assessing pump/injection testing. These issues were addressed and resolved in the execution of testing at Area 2. Results from Test Area 1 should be viewed in this context.
 - **Range of Hydraulic Conductivity Measured:** peaked at 0.0052 metres/day (vs PFS assumption of 0.086 metres/day).
- ◆ **Packer Tests and Permeability Test Work.** An additional twenty-three packer tests reportedly "significantly expanded" on the data set underlying the PFS, with encouraging results, where 60% of the tests resulted in hydraulic conductivity rates exceeding that of the PFS assumption, without the use of the MaxPerf tool. Matrix permeability testing was reportedly largely in-line with PFS assumptions and is revealing interesting interconnected internal structure of some extremely high-grade core samples which allow for better fluid permeability than we might expect from such dense rocks, which is favourable for uranium mineralization / fluid contact and pick-up in a mining scenario.

RECOMMENDED ACTION

We recommend having exposure to Denison given our thesis that technical work will continue to de-risk Phoenix

- ◆ **Attractive entry point as risk/reward proposition improving.** Denison is making very significant progress de-risking an unconventional approach to mining Phoenix. Initial technical work is yielding promising results and success in further testing should see DML shares shed additional risk discount. Denison's unique (to the Athabasca) plan to in-situ leach the Phoenix deposit is perceived as technically challenging, but with a very high potential reward. The PFS on the project indicated the potential for US\$3.33/lb U₃O₈ cash OPEX, among the lowest cost in the world, due to the extremely high-grades at Phoenix coupled with the low cost in-situ mining approach.

KEY STATISTICS AND METRICS

52-Week High/Low	\$0.78/\$0.43
YTD Performance	-10%
Dividend Yield	N/A
Shares O/S	597M
Market Capitalization	\$290M
Cash	\$8.0M
Debt	NIL
Enterprise Value	\$282M
Daily Volume (3 mos.)	392,228
Currency	CAD

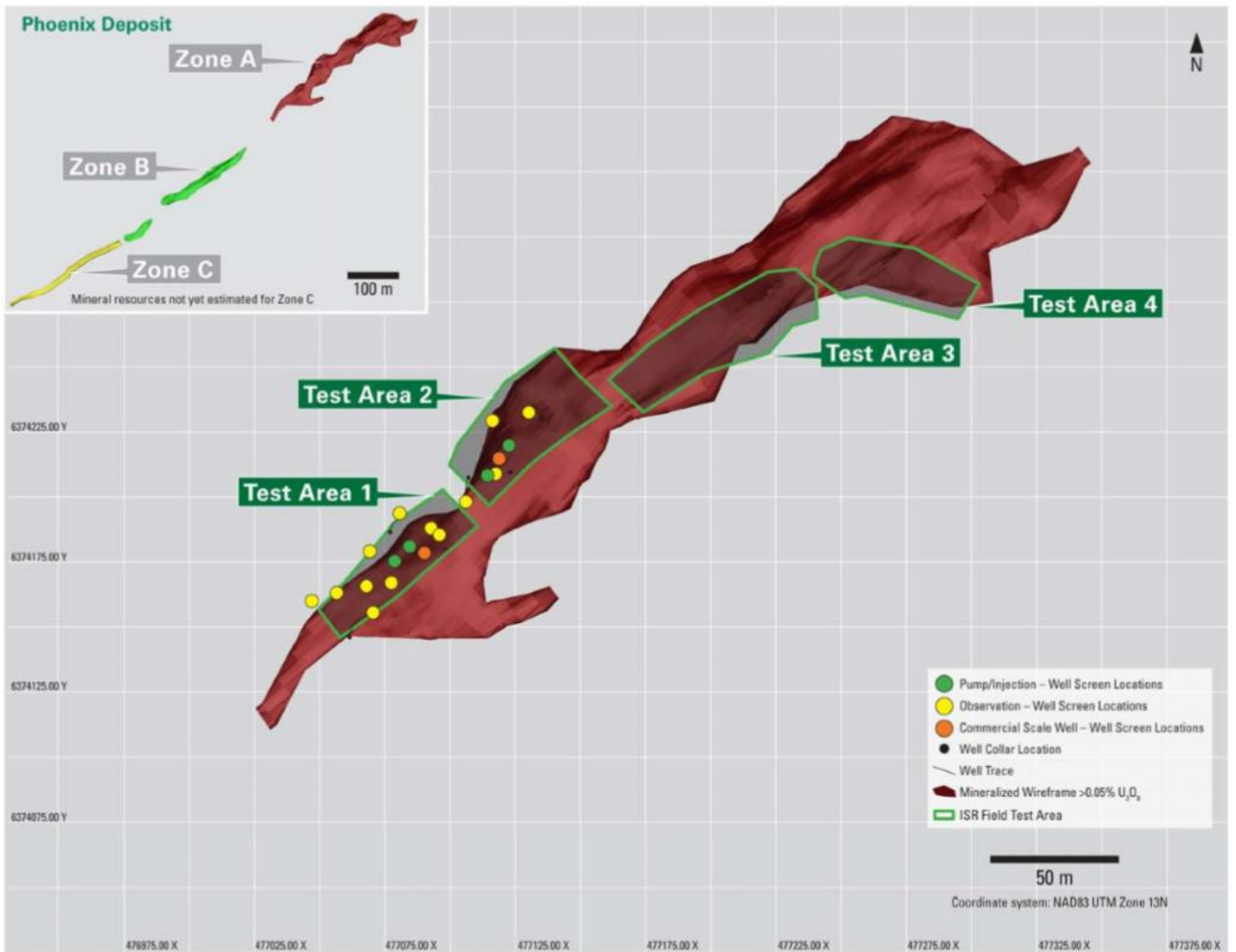
HAYWOOD ESTIMATES (CAD)

	2018A	2019E	2020E
Revenue (US\$M)	\$15.6	\$13.0	\$10.5
U ₃ O ₈ Production	-	-	-
EBITDA (US\$M)	(\$15.8)	(\$22.3)	(\$6.1)
CFPS (US\$)	(\$0.04)	(\$0.06)	(\$0.03)

VALUATION

Our target is based on a corporate NAV sum-of-parts assessment of Denison's full suite of interests, including a DCF_{10%} assessment of future production from the Wheeler River project and other credits. Net of corporate adjustments, our NAV is \$1.0 billion, or \$1.60 per share.

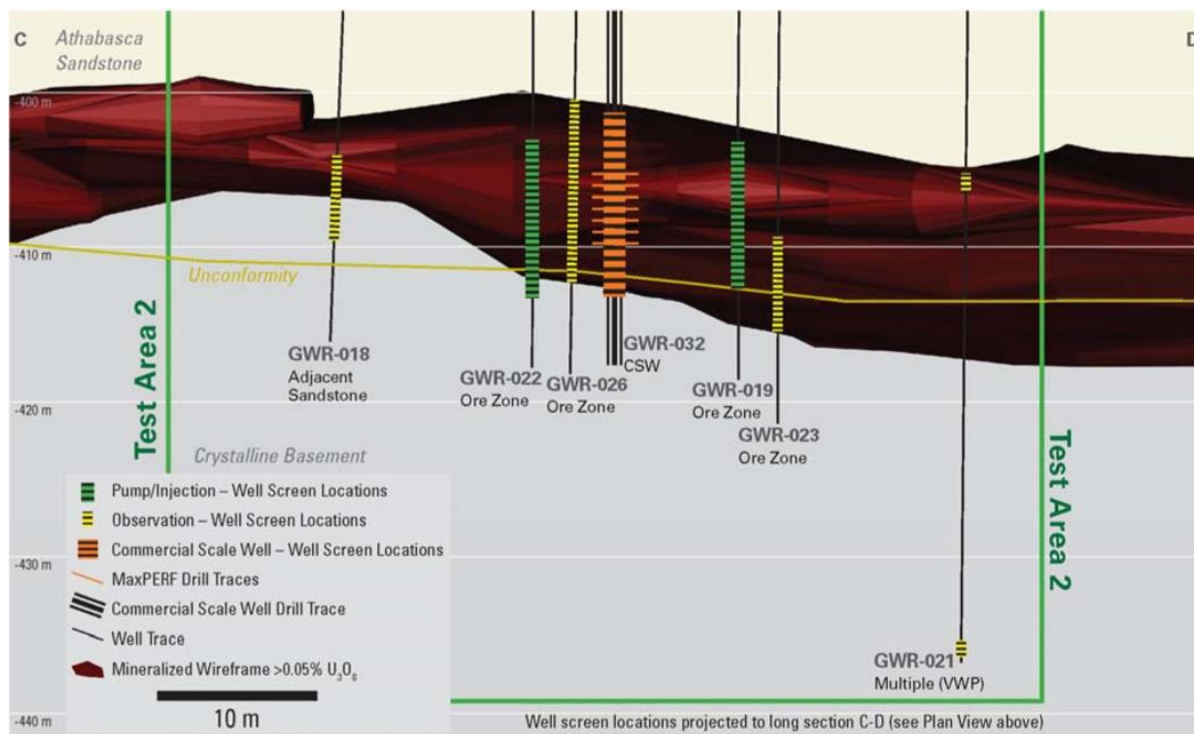
Figure 1. Phoenix ISR Field Test Areas Overview



Source: Denison Mines

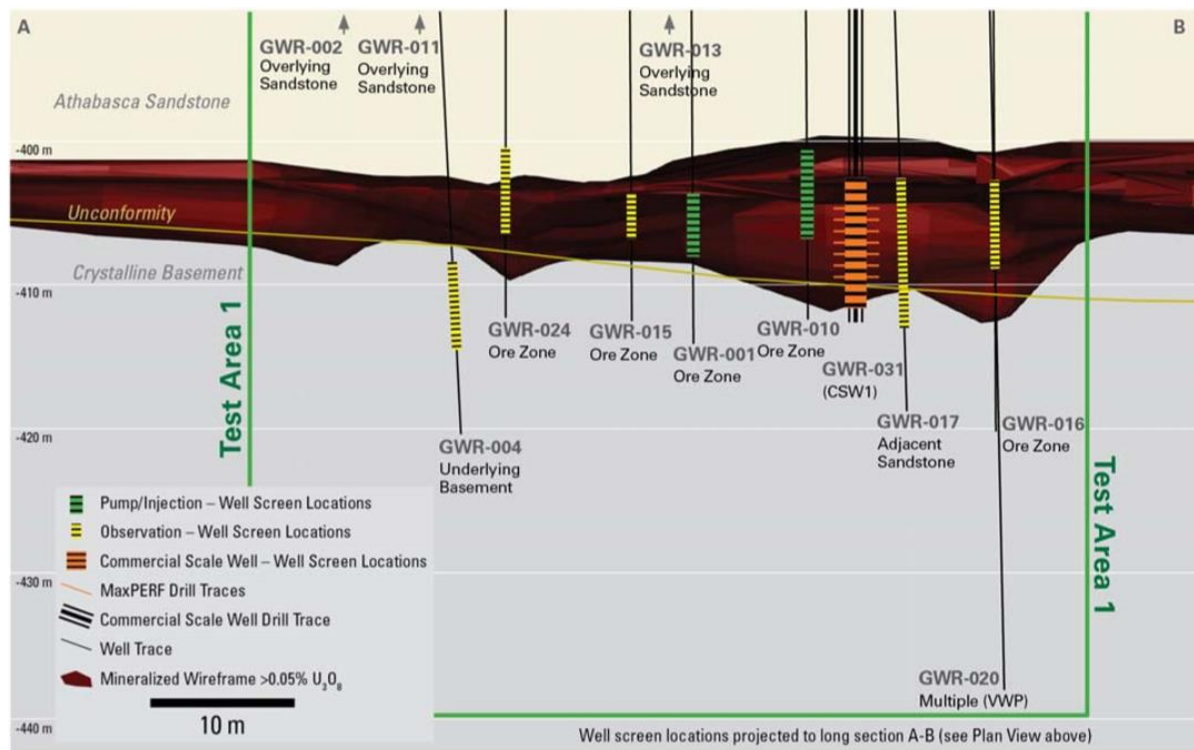


Figure 2. Test Area 2 Long Section – Well Screen Locations



Source: Denison Mines

Figure 3. Test Area 1 Long Section – Well Screen Locations



Source: Denison Mines



Figure 4. Stock Chart (Weekly)



Source: Haywood Securities Inc., Stockcharts.com



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I, Colin Healey, hereby certify that the views expressed in this report (which includes the rating assigned to the issuer's shares as well as the analytical substance and tone of the report) accurately reflect my/our personal views about the subject securities and the issuer. No part of my/our compensation was, is, or will be directly or indirectly related to the specific recommendations.

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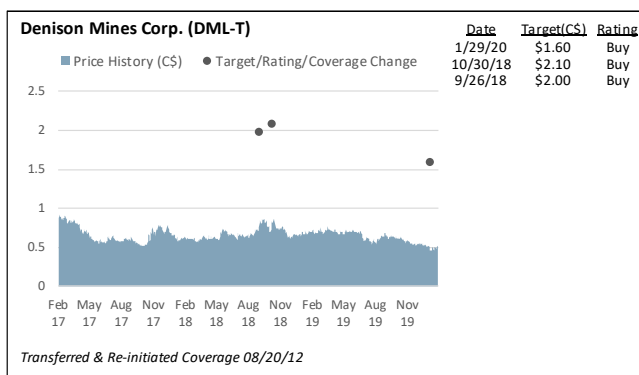
Other material conflict of interest of the research analyst of which the research analyst or Haywood Securities Inc. knows or has reason to know at the time of publication or at the time of public appearance:

- ◆ n/a

Distribution of Ratings (as of February 24, 2020)

	%	#	IB Clients (TTM)
Buy	76.9%	80	93.5%
Hold	14.4%	15	3.2%
Sell	1.0%	1	0.0%
Tender	1.0%	1	0.0%
UR (Buy)	1.0%	1	0.0%
UR (Hold)	0.0%	0	0.0%
UR (Sell)	0.0%	0	0.0%
Dropped (TTM)	5.8%	6	3.2%

Price Chart, Rating and Target Price History (as of February 24, 2020)



B: Buy; H: Hold; S: Sell; T: Tender; UR: Under Review
Source: Capital IQ and Haywood Securities

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