

Action Note

Equity Research

June 4, 2020

Metals & Minerals

Denison Mines Corp.

(DML-T) C\$0.54

Denison Delivers Independent "Proof of Concept" for ISR Method

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Event

This morning, Denison announced that the hydrogeologic model for the Phoenix deposit produced an independent "proof of concept" for the application of the in-situ recovery (ISR) mining method at Phoenix.

Impact: POSITIVE

- Independent "Proof of Concept"** - Petrotek Corporation, the company's independent hydrogeologic quality technical specialist, designed the 2019 field test and developed the hydrogeologic model used to demonstrate the "proof of concept" for uranium extraction by ISR. The hydrogeologic model was developed based on the data collected from last year's field work including site-specific data from 19 test wells. The hydrogeologic model allowed for the simulation of the ISR wellfield including a total of 18 extraction wells and 33 injection wells across Test Area 1 & 2 of Phoenix.
- The simulation work resulted in Petrotek concluding the program demonstrated a "proof of concept" for ISR extraction of uranium from the Phoenix ore body.
- ISR de-risking work continues with 2020 field testing** — During the summer and fall months, the company plans to collect additional hydrogeological data at Phoenix designed to further evaluate and de-risk the application of ISR mining. The work will continue within the existing Test Areas 1 & 2 and include additional pump tests, groundwater sampling, permeability analysis, and rock mechanic tests.
- Look to optimize the process** - In addition to further validating the ISR process, Denison is looking to complete optimization work. The ultimate goal of the optimization work is to determine whether such factors as the addition of wells, variations in well spacing, and use of mechanical permeability enhancers (MaxPERF) can result in a higher annual production rate than the 6Mlbs outlined in the company's September 2018 pre-feasibility study.

TD Investment Conclusion

We are increasing our target price to \$0.80 from \$0.65 and maintain our HOLD rating. Our revised target price reflects a higher NAV multiple of 0.80x (previously 0.70x) on the back of the company's de-risking milestones of the ISR recovery method. We also recently increased our near-term uranium price forecast to reflect accelerating inventory draw-downs.

Recommendation:	HOLD
Risk:	SPECULATIVE
12-Month Target Price:	C\$0.80↑ Prior: C\$0.65
12-Month Dividend (Est.):	C\$0.00
12-Month Total Return:	48.1%

Market Data (C\$)

Current Price	C\$0.54
52-Week Range	\$0.24 - \$0.72
Mkt Cap (f.d.) (\$mm)	\$342.1
EV (\$mm)	\$345.0
Current Dividend	\$0.00
Dividend Yield	0.0%
Avg. Daily Trading Vol.	1,236,010

Financial Data (C\$)

Fiscal Y-E	December
Shares O/S (f.d.)(mm)	633.6
Float Shares (mm)	624.9
Net Debt (\$mm)	\$(4.9)
Net Debt/Total Cap	0.0%
NAVPS	\$0.96
Working Cap (\$mm)	\$8.1

Estimates (C\$)

Year	2018A	2019A	2020E	2021E
EPS (f.d.)	(0.05)	(0.03)	(0.03)	(0.01)
CFPS (f.d.)	(0.04)	(0.04)	(0.02)	(0.02)

EPS (f.d.) Quarterly Estimates (C\$)

Year	2018A	2019A	2020E	2021E
Q1	(0.01)	(0.01)	(0.01)	-
Q2	(0.01)	(0.01)	(0.01)	-
Q3	(0.01)	(0.01)	(0.01)	-
Q4	(0.02)	0.00	(0.01)	-

Supplemental Data

Year	2018A	2019A	2020E	2021E
U3O8 (US\$/lb)	25	26	31	36

Note: Starting January 1, 2018, the company began reporting its financial results in CAD. 2017 financial results are presented in USD.

All figures in C\$, unless otherwise specified



Company Profile

Denison Mines Corp. has a diversified portfolio of uranium assets, including an interest in the McClean Lake milling operation; development projects; an environmental management division; and exploration properties located in Canada's Athabasca Basin.

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Details

Hydrogeologic model highlights - The development of the Phoenix wellfield simulations used a 2-meter interval for overall in-situ conditions of the deposit and 5-spot well patterns placed across Test Area 1 & 2 using 10-meter spacings between wells that included 18 extraction wells and 33 injection wells.

Test Area 1 extraction wells were simulated at 5 gallons per minute (“GPM”) or less, and Test Area 2 extraction wells were simulated at 7.5 GPM or less, with total extraction for the simulation at 105.5 GPM and total injection of 105.4 GPM for a nearly balanced operational flow. There was large variability in travel times from injection well to extraction well, with the average flow path travel time estimated at 55 days. Over a 180-day simulation, 80% of the injected fluids were estimated to be captured during the simulation.

Outlook

The uranium price has increased ~35% year-to-date and now appears to be stabilizing in the mid-US\$30.00/lb range. The catalyst for the upward move is mine supply cuts, principally by Cameco and Kazatomprom. On a combined basis, the two producers have reduced mine supply by 15 million-20 million pounds for 2020, and we expect that lower production this year will have a knock-on effect into 2021, although the extent of the hit to 2021 production is unclear. We estimate that 2020 primary mine supply of uranium will be ~118 million lbs, with further downside possible depending on how long the Cigar Lake operation remains on care and maintenance (we are currently assuming all of Q2/20 and Q3/20). Based on our forecasts, global uranium mine supply this year will be at its lowest point since 2008.

Uranium market in deficit. We are projecting that the uranium market will record a supply deficit of ~28 million lbs in 2020 and sustained deficits over the next several years. In our view, these deficits will be of sufficient magnitude to materially draw down surplus inventories that have been over-hanging the market. Various estimates have placed surplus uranium inventory that is readily available to the market at between 60 million-80 million lbs. Our forecast deficits would cut the surplus by >50% by YE2021.

Exhibit 1. TD Securities Uranium Supply/Demand Model

	2012	2013	2014	2015	2016	2017	2018	2019	2020E	2021E	2022E	2023E	2024E
Mine Supply - Western World (mm lbs U3O8)													
Total Mine Supply - Western World	90	93	85	106	104	100	83	85	74	82	82	86	88
Net Eastern Mine Supply (lbs U3O8)	59	60	60	57	62	54	54	55	44	49	60	60	66
Total World Mine Supply (mmlb U3O8)	150	153	145	163	166	154	138	140	118	131	142	146	154
YoY % change	5.9%	2.4%	-5.3%	12.2%	2.1%	-7.6%	-10.2%	1.7%	-15.9%	10.9%	8.6%	2.6%	5.9%
Secondary Supply													
Global underfeeding and tails re-enrichment*	5	15	20	20	18	19	18	18	16	16	15	15	14
Mixed Oxide Fuel (MOX)*	10	8	8	4	5	5	5	6	6	6	6	6	7
US government sales (DOE Proposed)*	5	8	8	7	4	3	2	2	1	0	0	0	0
Additional Russian secondary supply*	24	24	5	2	2	0	0	0	0	0	0	0	0
Other			0	0	0	0	0	0	0	0	0	0	0
Total Secondary Supply (mmlb)	43	55	41	34	29	27	24	26	24	22	21	21	21
Secondary supply as % of global reactor demand	28%	32%	26%	21%	17%	16%	14%	15%	13%	12%	12%	12%	11%
Mobilization of Commercial Inventory													
Total Supply	193	208	190	205	202	187	169	173	149	160	170	174	183
Total World Demand													
Total World Nuclear Generating Capacity (MWe) *				345,377	351,271	358,819	368,571	372,978	374,420	384,508	385,211	389,242	394,906
Uranium requirements per MWe				464	474	472	472	472	472	472	472	472	472
Uranium demand (mmlb)				160	167	169	174	176	177	181	182	184	186
First Core Requirement (2 year lead)				-	-	-	-	-	-	-	-	-	-
Total World Demand (mmlbs U3O8)	155	170	155	160	167	169	174	176	177	181	182	184	186
YoY % change	0.0%	9.7%	-8.8%	3.4%	3.9%	1.7%	2.7%	1.2%	0.4%	2.7%	0.2%	1.0%	1.5%
Supply / Demand Balance (mmlb)	38	38	35	44	35	18	-5	-3	-28	-22	-11	-10	-4
Spot Uranium Price (US\$/lb U3O8)	\$48.73	\$38.57	\$33.60	\$36.89	\$26.57	\$22.12	\$24.82	\$25.94	\$31.19	\$36.00	\$37.50	\$40.00	\$40.00

* Source: World Nuclear Association - Nuclear Fuel Report 2019-2040 Reference Case

Note - TD LT price assumption starts in 2025; a flat US\$45/lb price is assumed for 2025 and beyond.

Source: UxC, Bloomberg, TD Securities

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Exhibit 2. Denison's 2020 Cash Flow Outlook

Business Segment	2020 Remaining ¹ Budget C\$000
Canada Mining Segment	
Mineral Sales	\$791
Development and Operations	(\$2,565)
Mineral Property Exploration & Evaluation	(\$6,224)
	(\$7,998)
DES Segment	
DES Environmental Services	\$714
	\$714
Corporate and Other Segment	
UPC Management Services	\$1,725
Corporate Administration & Other	(\$4,268)
	(\$2,543)
Total	(\$9,827)

¹ As of March 1st.

Source: Company, TD Securities Inc.

Exhibit 3. Wheeler River Assumptions

		Sep-2018 PFS	TDS
Ownership	%	90.0%	90%
Total Tonnes in the DCF	ktonnes	1,398	1,398
Total Resources Used in DCF, U3O8	mmlb	109.4	109.2
Life of Mine	years	14	13
Production Start-Up		2024	2025
Assumed LT Price, U3O8	US\$/lb	65.00	45.00
Assumed LT CAD/USD Exchange Rate		0.77	0.82
Average Head Grade	%	3.5%	3.5%
Average Recovery	%	100%	97%
Total U3O8 Production (100% basis)	mmlb	109.4	106.0
Annual Avg. Production (100% basis)	mmlb	7.8	8.2
Initial Capex (100% basis)	C\$ mm	323	350
Sustaining Capex & Closure Costs (100%)	C\$ mm	809	887
Total Capex (100% basis)	C\$ mm	1,132	1,237
Total Operating Costs (100% basis)	C\$ mm		1,294
Average Annual Operating Costs	US\$/lb		9.53
Average Annual Operating Costs	C\$/lb		11.62
Post Tax NPV-8% (90%)*	C\$ mm	755.9	523.4
NPV-10% (90%)	C\$ mm		388.3
NPV-11% (90%)	C\$ mm		340.7

* At fiscal 2021. TDS Discounted to 2020

Source: Company, TD Securities Inc.

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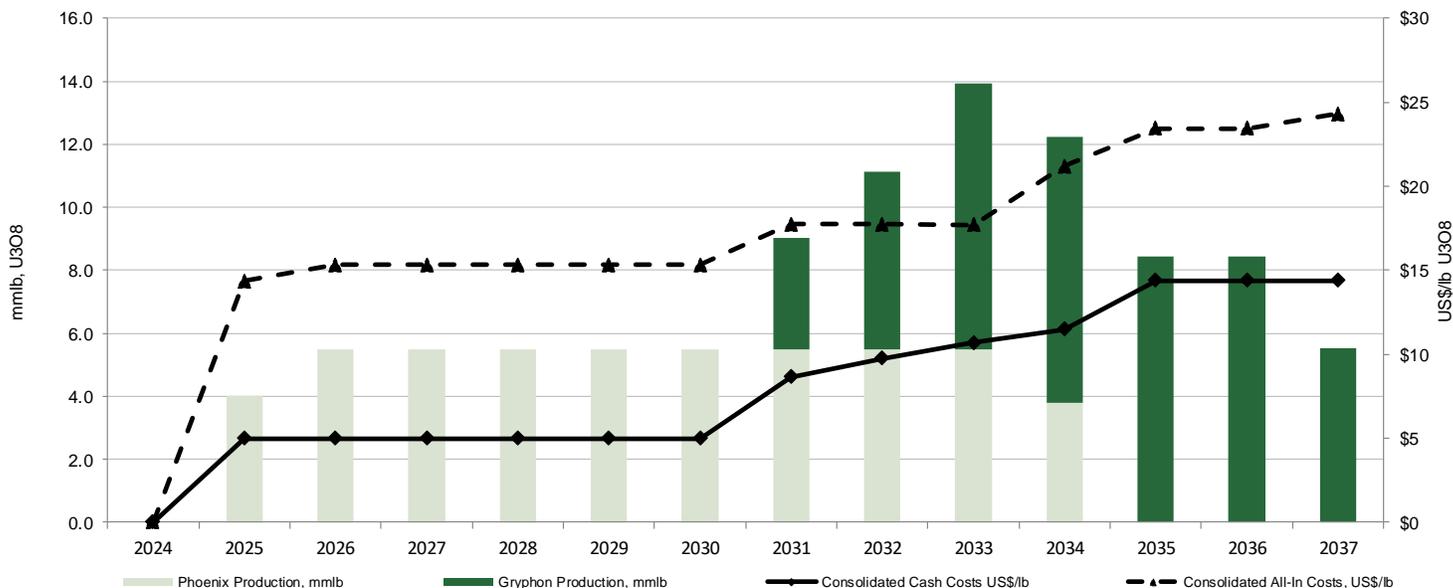
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Exhibit 4. Wheeler River Project Schedule

Description	2019 - 2021	2022	2023	2024	2025	2026	2027	2028	2029	2030-2033	2034	2035	2036	2037	2038-2039	2040-2043
Environmental Assessment	█															
Phoenix Feasibility Study and Detail Engineering	█	█														
Gryphon Feasibility Study and Detail Engineering			█	█	█	█	█	█	█							
Phoenix Construction		█	█	█												
Phoenix ISR Production				█	█	█	█	█	█	█	█	█	█			
Phoenix Restoration												█	█	█	█	█
Gryphon Construction						█	█	█	█							
Gryphon Production										█	█	█	█	█	█	█
Gryphon Restoration and Site Closure															█	█

Source: Company

Exhibit 5. Wheeler River Production and Cost Profile



Source: Company, TD Securities Inc.

Valuation

Denison is trading at 0.56x our 11%NAVPS estimate of \$0.96 (previously \$0.92) versus the base metal developers in our coverage universe at 0.64x. Our higher NAVPS estimate reflects the company's Q1/20 balance sheet and adjustments to the current share count.

Denison is currently trading at an EV/lb of US\$1.53 based on its total resources. This compares to its peer average currently trading at an EV/lb multiple of US\$1.80.

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Exhibit 6. Uranium Company Comparisons (EV/lb ratios)

	3-Jun-20	Corporate Resources ¹					EV/Res		
		Share	EV	2P	M+I	Global	EV/2P	EV/M&I	EV/All
Ticker	Price (C\$)	(US\$mm)	(Mlbs)	(Mlbs)	Resources	(Mlbs)	(US\$/lb)	(US\$/lb)	(US\$/lb)
Cameco Corp.	CCO	14.35	4,041.4	461.2	885.2	1,059.9	8.76	4.57	3.81
Denison Mines Corp.	DML	0.54	240.7	98.6	144.2	156.9	2.44	1.67	1.53
Fission Uranium Corp.	FCU	0.33	115.4	-	87.8	140.6	n/a	1.31	0.82
NexGen Energy Ltd.	NXE	1.88	594.9	234.1	256.6	348.3	2.54	2.32	1.71
UEX Corp.	UEX	0.15	42.4	-	69.8	86.4	n/a	0.61	0.49
Uranium Energy Corp.	UEC	1.35	193.4	-	58.4	103.9	n/a	3.31	1.86
Ur-Energy Corp.	URE	0.77	98.6	-	32.9	41.2	n/a	3.00	2.40
Median							2.54	2.32	1.71
Average							4.58	2.40	1.80

1: Resources are shown inclusive of reserves; M&I+I includes historical resource estimates.

Source: Company, CapIQ, TD Securities Inc.

Justification of Target Price

Our \$0.80 target price (\$0.65 previously) is based on 0.80x our 11%NAVPS estimate (0.70x previously) weighted 100% using a 0.73 Canadian dollar/U.S. dollar exchange ratio. Our revised target price reflects a higher NAV multiple on the back of the company's de-risking milestones of the ISR recovery method.

Key Risks to Target Price

Relative to the other companies in our equity coverage universe, we believe that an investment in Denison Mines is subject to a SPECULATIVE level of risk. Our recommendation is subject to forecast, financial, technical, political, and deposit-size risks. These include risks related to uranium prices; fuel cost; the governing fiscal and legislative regimes in the countries it operates in; the timing of key developments; market conditions; capital and operating costs; foreign exchange rates; resources; access to capital; operating parameters; permitting; environment; indigenous people; and staffing and key personnel retention. Denison's assets could be negatively affected by the ongoing restrictions to travel, social-distancing measures, and other challenges related to the COVID-19 pandemic.

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Exhibit 7. Company Snapshot

Financial Data	2018A*	2019A	2020E	2021E
Average share price (C\$)	0.67	0.59	0.42	0.56
Wt. Avg. S/O (mm)	562.9	592.6	600.5	604.9
EPS (f.d.) (C\$/sh)	(0.05)	(0.03)	(0.03)	(0.01)
CFPS bf WC (C\$/sh)	(0.04)	(0.04)	(0.02)	(0.02)

Income Statement (C\$mm)	2018A*	2019A	2020E	2021E
Revenues	15.6	15.5	15.3	16.1
Operating Costs	15.9	14.4	12.8	12.1
Royalty	0.0	0.0	0.0	0.0
Depreciation	3.7	3.7	4.8	4.0
Exploration	15.5	15.2	7.7	9.0
Reclamation	0.0	0.0	0.0	0.0
G & A	5.4	2.6	3.1	3.1
Interest Expense	3.7	4.1	1.1	0.0
Realized Hedge Gain (loss)	0.0	0.0	0.0	0.0
UnRealized Hedge Gain (loss)	0.0	0.0	0.0	0.0
Other	(13.5)	1.0	(3.7)	0.0
EBITDA	(29.8)	(10.7)	(10.6)	(8.0)
EBIT	(33.5)	(14.4)	(15.4)	(12.0)
EBT	(37.2)	(18.5)	(16.4)	(12.0)
Taxes (recovery)	(8.3)	(5.4)	(1.6)	(3.6)
Effective tax rate	na	na	na	na
Minority interest	-	-	-	-
Reported net earnings	(33.8)	(18.1)	(16.1)	(8.4)
Adjusted net earnings	(27.7)	(18.1)	(16.1)	(8.4)
EPS Reported (C\$/sh.)	(0.06)	(0.03)	(0.03)	(0.01)
EPS (Adjusted) (C\$/sh.)	(0.05)	(0.03)	(0.03)	(0.01)

Revenues By Metal (C\$mm)	2018A*	2019A	2020E	2021E
Uranium/Tolling	4.2	4.2	4.2	5.8
Vanadium	0.0	0.0	0.0	0.0

Cash Flow Statement (C\$mm)	2018A*	2019A	2020E	2021E
Operating CF bf. ch. in WC	(21.3)	(21.1)	(12.7)	(10.3)
CF from operating activities	(21.0)	(18.8)	(11.2)	(10.3)
CF from financing activities	4.5	4.7	12.2	0.0
CF from investing activities	36.0	(0.9)	(0.6)	0.0
CAPEX	(1.6)	(0.9)	(0.0)	0.0
CFPS bf. ch. in WC (C\$/sh)	(0.04)	(0.04)	(0.02)	(0.02)

Balance Sheet (C\$mm)	2018A*	2019A	2020E	2021E
Cash	23.2	8.2	8.6	(1.7)
Current assets	31.7	16.5	24.9	14.6
Total assets	312.2	300.0	292.1	277.8
Current liabilities	12.5	14.9	13.1	13.1
Long term debt	0.0	0.0	0.0	0.0
Total liabilities	89.9	89.8	85.1	79.3
Non Controlling Interest	0.0	0.0	0.0	0.0
Working Capital	19.2	1.6	11.7	1.5
Shareholders' equity	222.2	210.1	206.9	198.5

*Historic financial results (prior to January 1, 2018) are presented in U.S. dollars.



Realized Metal Prices & Costs	2018A*	2019A	2020E	2021E
Uranium, U3O8 (US\$/lb)	24.86	25.94	31.19	36.00
Forex CAD to USD	0.77	0.75	0.72	0.73

Production and Sales	2018A*	2019A	2020E	2021E
Total U3O8 Production (000' lbs)	0	0	0	0

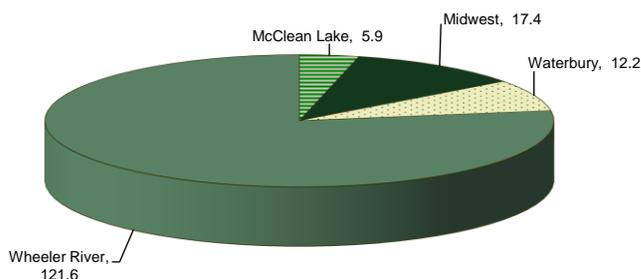
NAV Analysis	10% Discount		11% Discount	
	US\$mm	US\$/sh	US\$mm	US\$/sh
Mining Assets				
McClellan Mill Complex (22.5%)	68.5	0.11	68.5	0.11
Athabasca Basin Resources (22.5% to 60%)	173.8	0.27	173.8	0.27
Phoenix (90%)	381.0	0.60	340.7	0.54
Gryphon (90%)	7.3	0.01	0.0	0.00
Hook-Carter Property	4.1	0.01	4.1	0.01
Total Project NAV	634.7	1.00	587.1	0.93
Other Tangible Assets				
Investment - GoviEx	8.6	0.01	8.6	0.01
Skyharbour Resources	1.0	0.00	1.0	0.00
Corporate Adjustments				
Working Capital	8.1	0.01	8.1	0.01
Long Term Debt	0.0	-	0.0	-
In the Money Options/Warrants	0.0	-	0.0	-
Estimated Working Capital Additions	4.8	0.01	4.8	0.01
Estimated Debt Additions	0.0	-	0.0	-
Total Net Asset Value US\$/sh.	479.7	0.76	445.0	0.70
Total Net Asset Value C\$/sh.		1.04		0.96

Asset	Tonnes kt	Grade %	Interest %	Contained mmb
McClellan Lake - Athabasca Basin	977	1.24	22.5	6
Midwest Deposit -Athabasca Basin	1865	1.68	25.17	17
Wheeler River - Athabasca	1891	3.24	90.0	122
Waterbury - Athabasca	291	1.50	65.9	12
Total Resources (all categories, M+I+I)	5,025	2.17		157

US\$ EV/lb Athabasca Basin and categories (M+I+I) **\$1.53**

Resources

Resources by Asset (mm lb U3O8)



Source: Company, TD Securities Inc.



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TD Securities Equity Research Disclosures

Company	Ticker	Disclosures
Denison Mines Corp.	DML-T	1, 2, 4

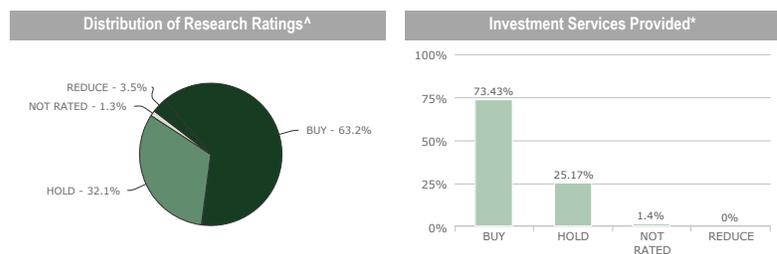
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2. TD Securities Inc., TD Securities (USA) LLC or an affiliated company has received compensation for investment banking services within the last 12 months with respect to the subject company.
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13. This security has Restricted voting shares.
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15. This security has Variable voting shares.
16. This security has Limited voting shares.

Additional Important Disclosures

We visited Denison Mine's Wheeler River mine in northern Saskatchewan on August 27, 2019. The Wheeler River mine accounts for 75% of our NAV estimate. The company provided local transportation and meals during this site visit.

Price Graphs

Full disclosures for all companies covered by TD Securities can be viewed at <https://www.tdsresearch.com/equities/welcome.important.disclosure.action> by TD Securities' institutional equity clients.



Current as of: June 4, 2020

[^] Percentage of subject companies under each rating category: BUY (covering ACTION LIST BUY, BUY and SPECULATIVE BUY ratings), HOLD, and REDUCE (covering TENDER and REDUCE ratings) and NOT RATED (covering UNDER REVIEW, SUSPENDED, and NOT RATED).

^{*} Percentage of subject companies within each of the four categories (BUY, HOLD, REDUCE, and NOT RATED) for which TD Securities Inc. has provided investment banking services within the last 12 months.

Definition of Research Ratings

ACTION LIST BUY: The stock's total return is expected to exceed a minimum of 15% (with higher thresholds for less liquid, more risky securities) over the next 12 months and it is a top pick in the Analyst's sector.

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BUY: The stock's total return is expected to exceed a minimum of 10% (with higher thresholds for less liquid, more risky securities) over the next 12 months.

SPECULATIVE BUY: The stock's total return is expected to exceed a minimum of 30% over the next 12 months (with higher thresholds for less liquid securities); however, there is material event risk associated with the investment that could result in a significant loss.

HOLD: The stock's total return is expected to be between 0% and 10%, (with higher thresholds for less liquid, more risky securities) over the next 12 months.

TENDER: Investors are advised to tender their shares to a specific offer for the company's securities or to support a proposed combination reflecting our view that a superior offer is not forthcoming.

REDUCE: The stock's total return is expected to be negative over the next 12 months.

SUSPENDED: Due to evolving circumstances, we can no longer generate what we consider a defensible target price and rating at the current time.

UNDER REVIEW: Our rating is under review pending additional information and/or analysis. The prior rating should not be relied on.

NOT RATED: We do not currently produce a recommendation and a target price on this security.

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Overall Risk Rating in order of increasing risk: Low (6.6% of coverage universe), Medium (38.5%), High (46.4%), Speculative (8.5%)

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Action Note

Equity Research

June 4, 2020

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