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SPEC BUY

Current Price \$0.24
Valuation \$0.33

Code: **MGV**
Sector: **Metals and Mining**

* All figures in AUD unless stated otherwise

Shares on Issue (M): **591**
Market Cap (\$M): **139**
cash **9**
debt **0**
Net cash (\$M June 2023, Argo assumed) **9**
Enterprise value (\$M): **130**

52 wk High/Low (ps): **\$0.33** **\$0.17**
12m av. daily vol. (Mshs): **0.59**

Key Metrics

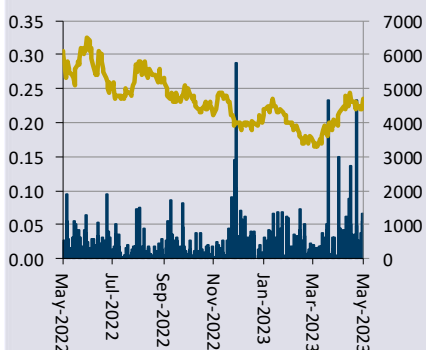
	FY24e	FY25e	FY26e
P/E (x)	0.0	10.4	2.5
EV/EBITDA (x)	-32.5	4.7	0.8

Financials:

	FY24e	FY25e	FY26e
Revenue (\$M)	0	58	220
EBIT (\$M)	-4	21	130
NPAT (A\$M)	-4	21	90
Net assets (\$M)	26	89	217
Op CF (\$M)	-4	24	159

Per share data:

	FY24e	FY25e	FY26e
EPS (c)	-0.6	2.3	9.6
Dividend (cps)	-	-	-
Yield (%)	-	-	-
CF/Share (cps)	NA	2.6	16.9
Prod (koz Au)	0.0	22.1	83.3



Please refer to important disclosures at the end of the report (from page 9)

Tuesday, 9 May 2023

Musgrave Minerals (MGV)

Easy Digging

Analyst | Ben Crooks

Quick Read

Following the release of Musgrave's Stage 1 pre-feasibility study we have updated our modelled base case mining scenario. We no longer assume toll treating, and instead model our base case as a stand-alone project with the construction of a 500ktpa processing plant. In this scenario, our modelled financing assumptions and resultant equity dilution is the largest driver of our valuation decreases to \$0.33 (previously \$0.40). We consider this a floor price of the project progression routes, and have a modelled a toll treatment scenario, detailed herein, that does indicate further upside potential. We maintain a Speculative Buy recommendation.

Easy Digging

Updated Model: Additional changes to our model include a reduced real discount rate to 7% (prior 8%), the introduction of mining at Break of Day underground and Leviticus and Numbers open pits. Our average mined grade has increased, our total mined inventory decreased, resulting in a LOM reduced production of approximately 55koz compared to prior. We assume project financing through a 50:50 debt to equity ratio. Given the breakdown of financial data available in MGV's PFS, we were able to compare previous costs assumptions and calibrate our model. In back analysis, MGV's released costs represent an approximate 12% increase on our previous modelled assumptions, which we consider in line with industry costs movements.

Toll Treating Scenario: In our assumed toll treat scenario, we remove \$80M from pre-production capex, increase processing costs by 23% (representing a lower processing cost with a toll premium), introduce a 150km surface haulage. Due to reduced equity dilution (still maintain 50:50 debt to equity), our modelled Musgrave valuation increases by 19% to \$0.38, while only increasing the Cue Gold Project valuation by 7%.

Leveraging Optionality: While we consider MGVs optionality with respect to its high-grade deposit located centrally to 3 mills as strategic, it also has potential to present risk. There is already sufficient processing capacity in the area, and toll treating terms may not be entirely favourable, with bargaining terms generally dependent on the level of success or despair of the plant operator during negotiations. High grade material has an additional risk as grade reconciliation is often at the mercy of the plant operator. While the nature of the deposit may suit M&A activity, this is no guarantee, and no insight into a timeframe. We believe that for MGV to maintain bargaining power, and ipso facto, maximise shareholder value, MGV must be prepared to build. Building would impose new risks and expectations on MGV, as producers are expected to renew depleted reserves and to continue production. Given MGV's exploration upside, we don't see this as untenable. Furthermore, in the current environment, Argonaut thinks that MGV will have sufficient backing to kick off if required. With so many project progression routes, we don't see MGVs challenge as an ability to provide shareholder value, but how to leverage the situation to maximise it.

Spot Prices: If we use the current spot price of US\$2022/oz for gold at an exchange rate of 0.68, our base case MGV valuation increases to \$0.40.

Recommendation

Our Speculative Buy recommendation remains unchanged, with our base case valuation decreasing to \$0.33 (prior \$0.40). We see further upside potential to this dependent on the route of project progression, financing terms, and in the current gold environment. We reiterate the rare nature of high-grade, near-surface gold deposits in WA.



Musgrave Minerals Limited

Equities Research

Analyst: Ben Crooks

Recommendation
Current Price \$0.24
Valuation \$0.33

Sector Metals & Mining
Issued Capital (Mshs) 591
Market Cap (M) \$139
Monday, 8 May 2023

Profit & loss (\$M) 30 June	2023E	2024E	2025E	2026E
Sales Revenue	0	0	58	220
+ Other income/forwards	0	0	0	0
- Operating costs	0	0	-25	-52
- Royalties	0	0	-1	-6
- Corporate & administration	-2	-4	-4	-4
Total Costs	-2	-4	-31	-61
EBITDA	-2	-4	28	159
margin	0%	0%	75%	72%
- D&A	0	0	-7	-29
EBIT	-2	-4	21	130
+ Finance Income/Expense	0	0	-3	-4
PBT	-2	-4	17	126
- Tax expense	0	0	4	-36
- Impairments and other	0	0	0	0
NPAT	-2	-4	21	90

Cash flow (\$M)	2023E	2024E	2025E	2026E
+ Revenue	0	0	58	220
- Cash costs	-2	-4	-31	-61
- Forwards	0	0	0	0
-Tax payments	0	0	0	4
+ Interest & other	0	0	-3	-4
Operating activities	-2	-4	24	159
- Property, plant, mine devel.	0	0	-95	-1
- Exploration	-8	-8	-8	-8
- Deferred Consideration	0	0	0	0
Investment activities	-8	-8	-103	-9
+ Borrowings	0	0	60	-30
- Dividends	0	0	0	0
+ Equity	0	10	60	0
Financing activities	0	10	120	-30
Cash change	-10	-2	42	120

Balance sheet	2023E	2024E	2025E	2026E
Cash & bullion	9	7	48	168
Other Current Assets	0	0	0	0
Total current assets	9	7	48	168
Property, plant & equip.	14	22	118	99
Investments/other	0	0	0	0
Total non-curr. assets	14	22	118	99
Total assets	23	29	166	267
Trade payables	2	2	8	10
Short term borrowings	0	0	30	20
Other	2	2	8	10
Total curr. liabilities	3	3	47	40
Long term borrowings	0	0	30	10
Other	0	0	0	0
Total non-curr. liabil.	0	0	30	10
Total liabilities	3	3	77	50
Net assets	20	26	89	217

*See Argonaut Mining Scenario and Valuation section for Equity assumptions

Shares	2023E	2024E	2025E	2026E
New shs issued/exercisable	0	50	300	0
Average issue price	0.00	0.20	0.20	0.00
Ordinary shares - end	591	641	941	941
Diluted shares - end	591	641	941	941

Price assumptions	2024E	2025E	2026E	2027E
AUDUSD	0.700	0.700	0.700	0.700
Gold Price - USD	1850	1850	1850	1850

Financial ratios		2024E	2025E	2026E	2027E
GCFPS	A¢	-0.6	2.6	16.9	8.2
CFR	X	0.0	0.0	0.0	0.0
EPS	A¢	-0.6	2.3	9.6	5.8
PER	X	0.0	10.4	2.5	4.1
DPS	A¢	-	-	-	-
Yield	%	-	-	-	-
Interest cover	x	0.0	6.5	35.4	66.3
ROCE	%	-18%	17%	132%	95%
ROE	%	-15%	19%	58%	31%
Gearing	%	0%	34%	5%	4%

Operations summary	2024E	2025E	2026E	2027E
Cue Gold Project				
Ore processed (Mt)	0.0	0.1	0.5	0.5
Head grade (g/t)	0.00	5.74	5.33	4.45
Met. recovery	0%	96%	96%	96%
Gold prodn (kozs)	0	22	83	71
Cost per milled tonne (A\$/t)	0	97	104	126
Cash costs pre royalty (A\$/oz)	0	551	639	894
Sustaining capital (\$M)	0	1	1	1
All in sustaining costs (A\$/oz)	0	634	721	976
Growth capital (\$M)	8	102	8	19
CAIC (A\$/oz)	0	770	822	1835

Valuation summary	A\$M	A\$/sh
Cue Gold Project 7% real after tax	205	0.35
Exploration - 25%	51	0.09
Corporate Overheads	-25	-0.04
Cash and bullion	9	0.01
Debt	0	0.00
Tax benefit	0	0.00
Hedging	0	0.00
Option/equity dilution	-45	-0.08
NAV	194	0.33

Directors, management	
Graham Ascough	Non-Executive Chairman
Rob Waugh	Managing Director
Anthony Buckingham	GM - Development
Kelly Ross	Non-Executive Director
John Percival	Non-Executive Director
Brett Lambert	Non-Executive Director

Top shareholders	M shs	%
Westminex Group	50.0	8.5
Jetosea	44.9	7.6

Resources May '22	Mt	g/t Au	Kozs	Mkt cap/oz
Cue Gold Project	12.3	2.30	927	150
Indicated	5.1	2.60	435	
Inferred	7.2	2.10	492	

Argonaut model May '23	Mt	g/t Au	Kozs	Mkt cap/oz
TOTAL INVENTORY	2.4	0.04	346	402
Lena	0.7	1.7	40	
Break of Day open pit	0.7	7.0	150	
Big Sky	0.2	1.7	12	
White Heat-Mosaic	0.2	9.2	58	
Leviticus	0.04	4.0	5	
Numbers	0.1	1.5	6	
Break of Day underground	0.5	4.8	75	

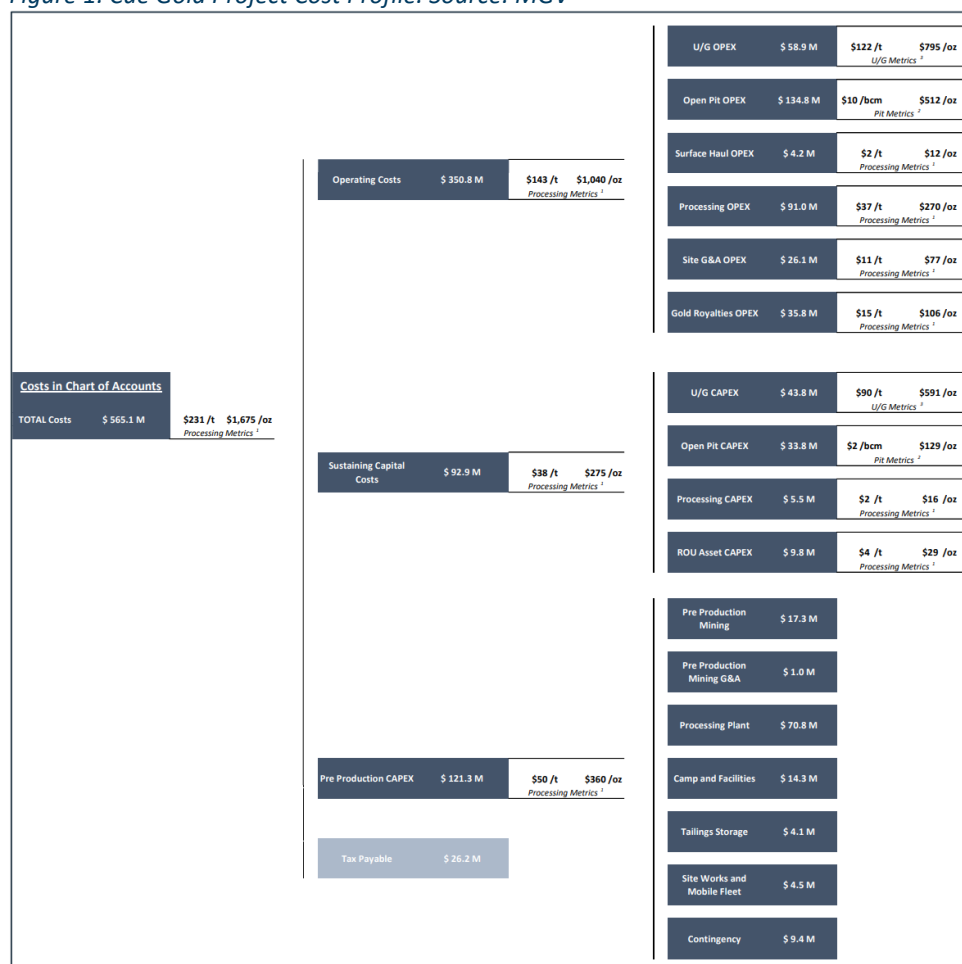
MGV's Stage 1 PFS

Musgrave Minerals recently released a Stage 1 PFS for their Cue Gold Project, Western Australia. The project envisages building a 500ktpa processing plant with an operational life of 5 years. Production averages just shy of 80kozpa in the first 3 years, ramping off in the last 2. MGV intend to fill this gap and extend the mine life in the Stage 2 PFS, which is currently scheduled to be released early CY24.

The study outlines a pre-production capital requirement of \$121M, a post-tax NPV₈ of \$215M and a post-tax IRR of 91% (pre-tax NPV₈ of \$235M and IRR of 95%). The AISC has been calculated at \$1315/oz. MGV have been remarkably transparent in their study with relation to the cost profile.

MGVs Stage 1 post-tax NPV₈ of \$215M and post-tax IRR of 91%

Figure 1: Cue Gold Project Cost Profile. Source: MGV



Source: MGV

High average LOM recoveries of 97.8%, with up to 60% gravity recovery

The process plant has been designed and costed by GRES, with an average LOM recovery of 97.8%, and gravity recoveries achieving up to 60%. Two integrated landform tailings storage facilities have been designed, which will provide storage until the Leviticus pit has been mined and repurposed for tailings storage.

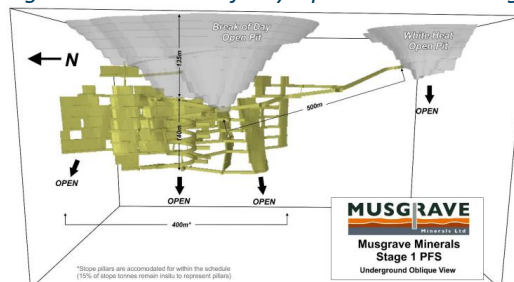
The mining schedule consist of 6 open pits and 1 underground. The average strip ratio across the 6 pits is 15.7. Optimisation on both the underground and open pit have been based on a \$2500/oz gold price. Costing for the underground and open pit has been based on Q1 2023 request for quotes. Production includes approximately 77% indicated and 23% inferred material.

Figure 2: Cue Gold Project Mining Schedule

Units	Total	Year Period					
		1	2	3	4	5	6
Pre-Production Active (1 yes, 0 no)	0.6	-	-	-	-	-	-
Open Pit Mining Active (1 yes, 0 no)	0.3	1.0	1.0	1.0	1.0	1.0	-
Underground Mining Active (1 yes, 0 no)	-	-	-	0.8	1.0	0.8	-
Processing Active (1 yes, 0 no)	-	1.0	1.0	1.0	1.0	1.0	1.0
Mining Quantities Schedule							
Break of Day OP							
Overburden/Waste (bcm)	6,193,459	440,565	1,524,564	3,130,240	1,098,091	-	-
Ore Mined (t)	667,668	79,053	11,659	280,126	296,830	-	-
Ore Grade (g/t)	7.0	9.4	1.3	6.5	7.0	-	-
Ore Ounces (oz)	149,328	23,847	501	58,399	66,581	-	-
White Heat OP							
Overburden/Waste (bcm)	1,999,258	482,874	1,516,384	-	-	-	-
Ore Mined (t)	197,867	1,730	196,137	-	-	-	-
Ore Grade (g/t)	9.2	8.7	9.2	-	-	-	-
Ore Ounces (oz)	58,224	485	57,739	-	-	-	-
Lena OP							
Overburden/Waste (bcm)	3,045,713	312,273	911,839	735,449	513,569	572,583	-
Ore Mined (t)	723,403	73,440	103,075	111,675	97,015	338,198	-
Ore Grade (g/t)	1.7	1.6	1.3	1.3	1.3	2.1	-
Ore Ounces (oz)	39,702	3,694	4,152	4,627	4,149	23,080	-
Big Sky OP							
Overburden/Waste (bcm)	996,396	-	206,001	194,770	57,231	538,394	-
Ore Mined (t)	212,800	-	30,406	26,099	3,380	152,916	-
Ore Grade (g/t)	1.7	-	1.3	1.7	1.6	1.8	-
Ore Ounces (oz)	11,668	-	1,295	1,408	172	8,794	-
Leviticus OP							
Overburden/Waste (bcm)	668,422	-	486,515	181,906	-	-	-
Ore Mined (t)	40,878	-	10,800	30,078	-	-	-
Ore Grade (g/t)	4.0	-	2.8	4.4	-	-	-
Ore Ounces (oz)	5,206	-	984	4,222	-	-	-
Numbers OP							
Overburden/Waste (bcm)	284,723	-	-	284,723	-	-	-
Ore Mined (t)	121,739	-	-	121,739	-	-	-
Ore Grade (g/t)	1.5	-	-	1.5	-	-	-
Ore Ounces (oz)	5,727	-	-	5,727	-	-	-
Break of Day UG							
Waste (t)	354,725	-	-	-	147,842	140,941	65,942
Ore Mined (t)	484,412	-	-	-	74,125	226,166	184,121
Ore Grade (g/t)	4.8	-	-	-	3.5	5.2	4.9
Ore Ounces (oz)	75,197	-	-	-	8,247	37,686	29,263
All Sources							
Ore Mined (t)	2,448,767	154,223	352,077	569,717	471,350	717,279	184,121
Ore Grade (g/t)	4.4	5.7	5.7	4.1	5.2	3.0	4.9
Ore Ounces (oz)	345,051	28,026	64,671	74,382	79,149	69,559	29,263

Source: MGV

Figure 3: PFS Break of Day Open Pit and Underground



Source: MGV

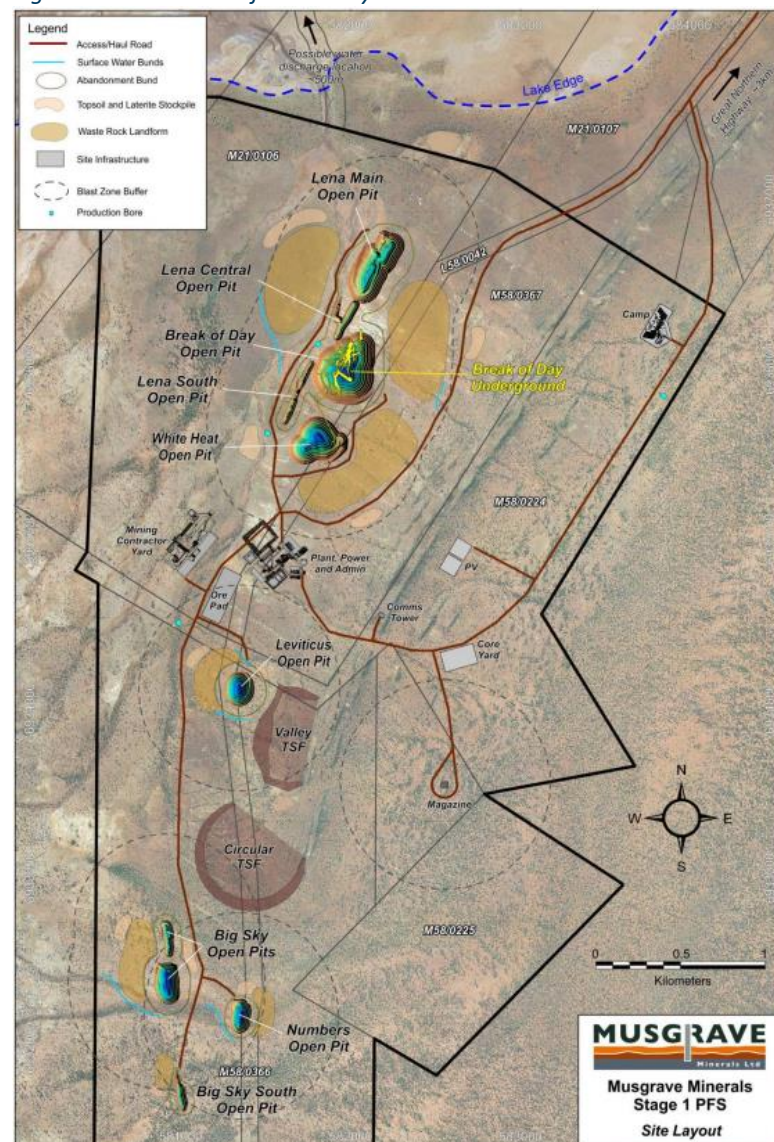
MRE update planned for the end of CY23, with a stage 2 PFS planned for early CY24

Musgrave plans to release an updated MRE at the end of CY23, which will feed into a stage 2 PFS, planned for early CY24. The stage 2 PFS is planned to extend the current stage 1 life of mine, and will consider alternative development options, including toll processing, ore sales, plant lease and different site processing solutions.

All stage 1 PFS deposits are located on 100% MGCV owned ground and are on granted mining leases. Mining approvals and permits that are still in progress include:

- Mine Proposal and Mine Closure Plan
- Native Vegetation Clearing Permit
- Premises licenses for dewatering discharge and process plant tailings
- Updated ground water license
- Discharge license for excess water into Lake Austin
- Cultural Heritage Management Plan and Relationship Agreement with BLAC and BBBAC

Figure 4: Cue Gold Project site layout



MGVs site project layout

Source: MGCV

Argonaut's Mining Scenario and Valuation

Following the release of MGV's PFS, we have updated our modelled mining scenario as a basis for our valuation. Given the breakdown of financial data available in MGV's PFS, we were able to compare previous costs assumptions and calibrate our model to cost estimates provided. In back analysis, MGV's released costs represent an approximate 12% increase on our previous modelled assumptions, which we consider in line with industry costs movements.

Gold price of US\$1850/oz with an exchange rate of \$0.70.

We have updated our internal gold price estimates which average to US\$1850/oz Au across the life of the project. Our AUD to USD currency conversion remains unchanged at \$0.70. This results in an average gold price of A\$2640/oz in comparison to MGV's assumed \$2600/oz.

Assumed real discount rate of 7%

We have decreased our real discount rate to 7% (prior 8%), which we consider more appropriate as we foresee little risk due to the basic operational nature, high grade mineralisation, and tier 1 jurisdiction in which the project is located.

Revised base case model Cue Gold Project as stand-alone project

In our revised base case mining scenario, we have re-modelled MGV as a stand-alone operation, in line with MGV's PFS stage 1. While this does provide a base case for our valuation, we do model additional scenarios to determine project value impact.

Our modelled inventory has been adjusted to reflect the inventory MGV has released in the stage 1 PFS. In comparison to our previous model, this includes the addition of Leviticus and Numbers open pits, as well as the addition of the Break of Day underground. This represents a conversion of 37% of MGV's Resource ounces to our modelled mining inventory (previously 43%), or 55koz less when compared to our previous model.

With respect to our previous modelled scenario, we have delayed construction commencement from Q4 CY23 to Q4 CY24.

Assumed 50:50 debt to equity ratio to finance \$120M pre-production capex

Our financing requirements have also been adjusted. We model an assumed \$10M equity raise (at \$0.20) in Q4 CY23 to see the project through to an FID. Upon FID, we model a further \$60M equity raise (at \$0.20) in addition to an assumed \$60M in debt financing (50:50 debt to equity) to fund the project.

Our exploration upside has increased slightly to 25% (prior 20%). We still see this as conservative given the scheduled Amarillo and Waratah MRE updates, in conjunction with other prospective tenements held by MGV.

We have been slightly more conservative with recoveries than MGV, using an average of 96% across the project (MGV PFS1 = 97.8%). It is worth noting that this has a net zero impact when increasing an assumed gold price from \$2600 to \$2640/oz.

Our base case valuation of the Cue Gold Project is \$205M

Our valuation of the Cue gold project is \$205M. As a sum of parts, Argonaut values MGV at \$194M, or \$0.33 per share, including a nominal exploration value of \$54M, corporate overheads, equity dilution and current cash and equivalents.

Figure 5: Argonauts MGValuation Summary

Valuation summary	A\$M	A\$/sh
Cue Gold Project 7% real after tax	205	0.35
Exploration - 25%	51	0.09
Corporate Overheads	-25	-0.04
Cash and bullion	9	0.01
Debt	0	0.00
Tax benefit	0	0.00
Hedging	0	0.00
Option/equity dilution	-45	-0.08
NAV	194	0.33

Source: Argonaut

Our sum of the parts base case valuation for MGValuation is \$0.33 per share

At spot prices, our modelled valuation increases to \$0.42.

If we use the current spot price of US\$2022/oz for gold at an exchange rate of 0.68, our valuation of the Cue Gold Project improves to A\$263M, and our MGValuation increases to \$0.40. A sensitivity analysis of the current gold price ($\pm 10\%$) and USD to AUD exchange rate ($\pm 7\%$) is shown below.

Figure 6: Argonauts Cue Gold project level valuation under varying gold price and exchange rate assumptions.

		Gold Price (US\$)				
		-10%	-5%	Base	+5%	+10%
		1665	1757.5	1850	1942.5	2035
AUD:USD	0.75	128	150	173	195	218
	0.725	142	165	188	212	235
	0.70	157	181	205	229	252
	0.675	173	198	223	247	271
	0.65	190	216	241	266	291

Source: Argonaut

We model a theoretical scenario where no Underground mining is undertaken, our Cue Gold Project valuation decreases to \$173M, and our MGValuation decrease to \$0.29 per share

Modified Scenarios

While we expected that Break of Day carried sufficient grade to support an Underground operation, we were curious to see how the project stacks up if no underground mining were to occur. Assuming no reschedule of open pits, and that processing ceases after 4 years, we approximate the Cue Gold Project to be worth \$177M, or \$32M less than our base case. In this scenario, a sum of the parts valuation for MGValuation results in \$171M, or \$0.29 per share.

Figure 7: Argonauts Scenario Valuation Summary - No UG Mining

Valuation summary - No underground mining	A\$M	A\$/sh
Cue Gold Project 7% real after tax	173	0.29
Exploration - 25%	43	0.07
Corporate Overheads	-25	-0.04
Cash and bullion	9	0.01
Debt	0	0.00
Tax benefit	0	0.00
Hedging	0	0.00
Option/equity dilution	-29	-0.05
NAV	170	0.29

Source: Argonaut

We model an alternate scenario where we consider a toll treatment arrangement. Our Cue Gold Project valuation in this scenario increases to \$219M, with our MGV valuation increasing to \$0.38 per share

We also considered a toll treat arrangement. In this scenario, we remove \$80M from pre-production capex requirements, and adjust financing requirements accordingly while maintaining a 50:50 debt to equity ratio. We add an additional 23% to the treatment cost, which may be considered high, but we prefer conservatism given the potential unknown circumstances and risks associated with a toll treatment agreement. We also include surface haulage distances of 150km at a cost of 14c/t/km. Under this scenario, we value the Cue gold project at \$219M (\$14M / 7% more than our base case scenario), with the MGV valuation increasing to \$227M (\$0.38 per share). This valuation remains in line with our previous valuation that modelled toll treating options.

Figure 8: Argonauts Scenario Valuation Summary - Toll treat arrangement

Valuation summary - Toll treat	A\$M	A\$/sh
Cue Gold Project 7% real after tax	219	0.37
Exploration - 25%	55	0.09
Corporate Overheads	-25	-0.04
Cash and bullion	9	0.01
Debt	0	0.00
Tax benefit	0	0.00
Hedging	0	0.00
Option/equity dilution	-30	-0.05
NAV	227	0.38

Source: Argonaut

Key Risks to Valuation

While we consider MGVs optionality with respect to its high-grade deposit located centrally to 3 mills as advantageous, it also has potential to present risk. There is sufficient processing capacity in the area that another, comparatively small mill, should not be required. However, toll treating arrangements, depending on the circumstances in which they are negotiated, are not necessarily favourable, and reconciliation of grade has potential to be at the mercy of the plant operator. While the shallow and high-grade nature of MGVs Cue Gold project may interest nearby parties for a takeover as a quick win to fill their own mill on their own terms, if these parties are in no rush to make a deal, then MGVs optionality may be limited to build, or potentially end up in a holding pattern. To this, the decision for an explorer to transition to a miner should be well considered and a strategised accordingly. Once a miner, expectations turn that a producer needs to continue producing, and to renew depleted reserves. This potentially presents a trap for MGv, with a small mine life and a small mill, centrally located between 3 mills.

As with all new projects, licensing and permitting risks are present. At this stage we foresee minimal risk here given the current project status and time to project commencement.

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