

Metals and Mining Note

Rambler Metals & Mining

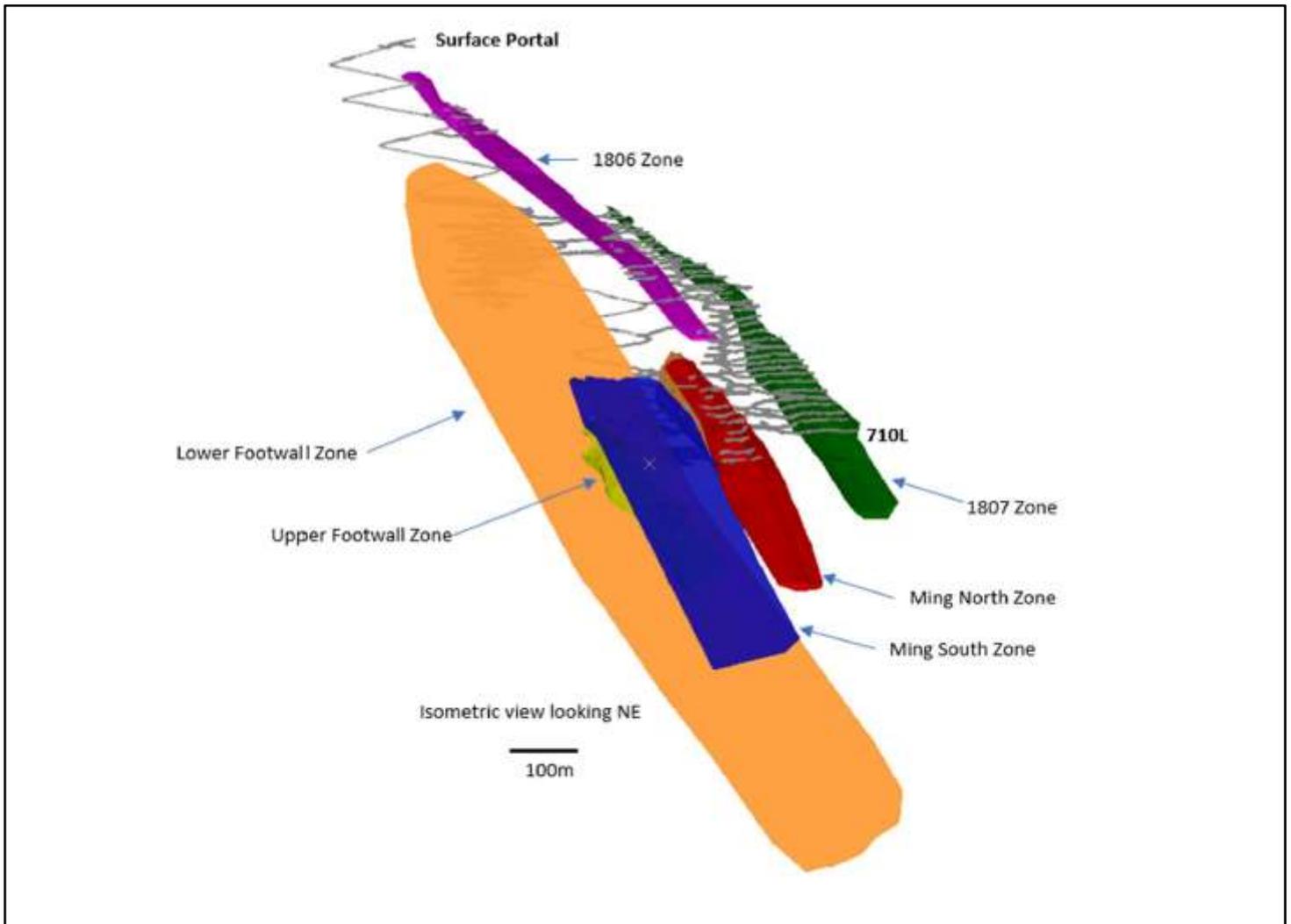
08 February 2022

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The principal mineralised zones at the Ming mine

Source: Company

Mining Flash Note

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RMM LN

08 February 2022

Stock Data

| | |
|--------------|--------|
| Ticker (AIM) | RMM LN |
| Share Price | 28.75p |
| Market Cap | £39.5m |

Price Chart



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Ming mine turnaround gathers pace

Highlights

- An accelerating programme of underground development is delivering improvements in tonnages processed, grades, recovery rates and copper production at the Ming mine in Newfoundland.
- The recent discovery of a new mineralised zone near existing underground infrastructure east of the main Lower Footwall Zone highlights the mine's underexplored character.
- Despite relatively low levels of past exploration, the mine has an established history of resource replenishment exceeding mining depletion with recent drilling showing both grades and mineralised widths improving at depth providing a long mine life with expansion potential.
- As drilling ramps up and development accelerates, the turnaround of the Ming mine is now gathering momentum with copper output expected to double the 2021 levels in 2022.
- Rambler Metals operates in an established mining jurisdiction rated among the 10 most attractive places for mining investment globally.
- Based on SP Angel's long term commodity price forecast of US\$10,500/t copper, we estimate an NPV_{6%} of US\$362m or 168p/share.



Figure 1 High Grade Development in the Upper Footwall Zone of Ming Mine

Summary

The turnaround of the Ming mine deposit, one of five mines in the complex in Newfoundland is now gaining momentum as underground mine development accelerates and more production areas become available and risks of disruption to production diminish.

A recently completed 15,000m drilling programme is confirming the mineralised envelope, discovering new mineralised zones and laying the foundations for further mineral resource expansion to expand and/or extend mine life.

In the near term, the implementation of ore-sorting, for which advanced studies have been completed, creates the opportunity for increased underground production and upgrading the plant feed.

Longer term, a potential relocation of processing facilities to the mine site provides a potential saving on current costs of ore transport which is likely to be in conjunction with an expansion of throughput.

Valuation

Our assessment is based on the estimated NPV of the Ming Mine using SP Angel's long term metal price forecast of US\$10,500/t for copper, the company's reported operating projections and our assessment of capital and operating costs. We use a discount rate of 6% which is consistent with the rates for the mining industry published in January 2022 by New York University's Stern Business School.

Valuation Assumptions

Our base case valuation of the Ming mine assumes the extraction of a total of approximately 25mt of ore over a period of approximately 35 years. Mined ore is equivalent to approximately all the measured and indicated tonnage currently in the resources plus around 1.5mt of the current inferred resource tonnage and we assume that post-2022, around 20% of the mined ore is rejected via ore-sorting prior to further processing.

Although the production profile may refine as the mine develops, we believe this to be reasonable in current circumstances. The operating cost history provides a basis for our future assumptions, and we have made a broad assumption that capital costs over the next 2 years could be around US\$20m with sustaining capital of 5% of the cash operating margin thereafter. The main operating assumptions are summarised in the table.

| | 2021 | 2022 | Long Term |
|-------------------------|--------|--------|-----------|
| Mining | | | |
| tpd | | 1,300 | 2,000 |
| ktpa | | 460 | 730 |
| Processing | | | |
| tpd | | 1,200 | 1,200 |
| ktpa | 236 | 438 | 438 |
| Copper Grade | 1.57% | 2.00% | 2.00% |
| Gold Grade g/t | 0.43 | 0.30 | 0.30 |
| Copper Recovery | 95.5% | 95.5% | 95.5% |
| Gold Recovery | 67.5% | 59.7% | 58.2% |
| Concentrate tonnes | 12,874 | 26,812 | 29,250 |
| Metal Production | | | |
| Copper | 3,418 | 7,699 | 8,366 |

| | | | |
|------|-------|-------|-------|
| Gold | 1,804 | 2,310 | 2,450 |
|------|-------|-------|-------|

Table 1 SP Angel’s Operating Assumptions

Based upon historic cost performance we estimate that long-term mining costs will be around US\$57.85/t of ore with treatment costs of approximately US\$14.80/t and administrative costs equivalent to around US\$12.50/t although we expect costs to be higher in 2022 as the mine implements its major development plan and recovers from the Covid19 pandemic. Overall, we expect net cash costs of copper production of approximately US\$2.60/lb.

In the absence of more detailed information, we have *assumed* a capital cost profile at the upper end of the company’s indicated range of US\$10-15m expenditure in 2022 and thereafter an average of approximately US\$8.7mpa thereafter. In view of the nature of these assumptions, we have tested the NPV impact across a range of potential capital and throughput profiles.

Valuation Sensitivity & Conclusions

Our modelling shows an NPV_(6%) of US\$362m for the Ming mine equivalent to £267m or 168p/share based on the enlarged share capital following the funding announced on 3rd February.

In common with other mining projects, the valuation is most sensitive to changes in forecast commodity prices with a 10% variation from our base case assumptions generating a 32.5% change in NPV equivalent to US\$118m. Similar 10% changes to assumed operating and capital costs trigger variations of 20% (US\$73m) and 2% (US\$8m) respectively as illustrated graphically in Figures 2 and 3.

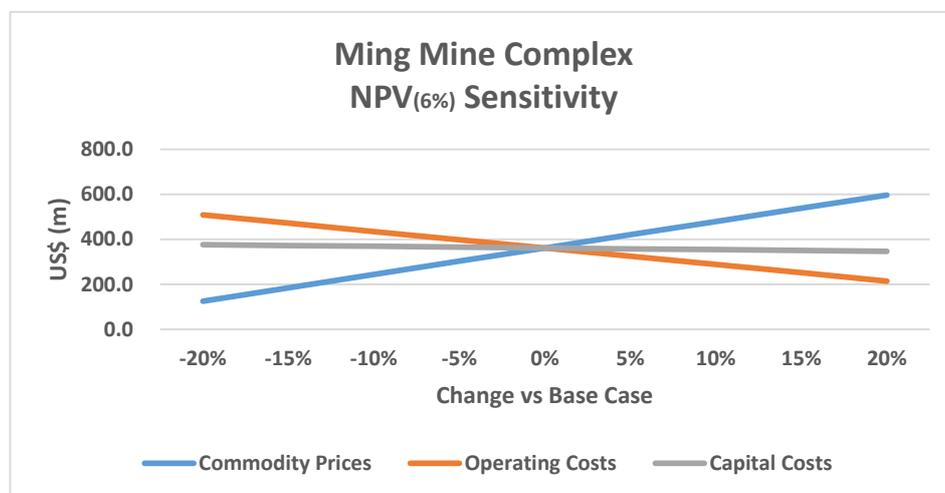


Figure 2 Ming Mine - NPV Sensitivity

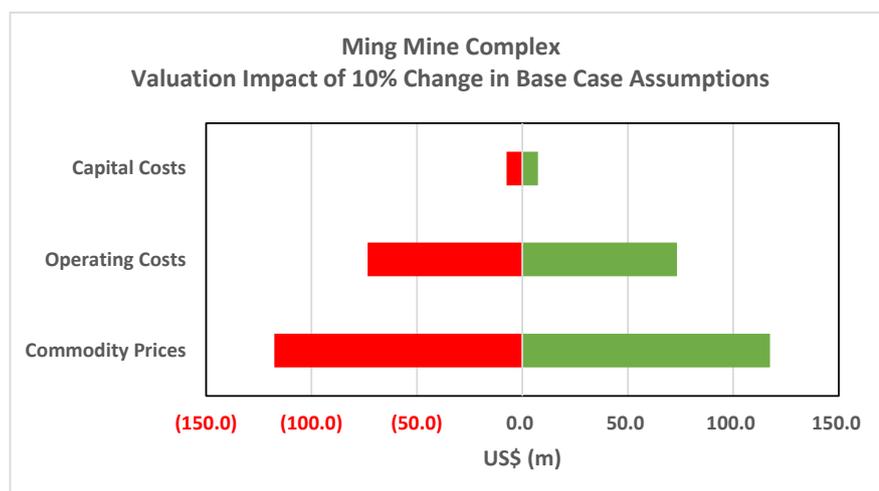


Figure 3 Ming Mine - Valuation Sensitivity to Base Case Assumptions

The NPV impact of changes in capital costs and processing rate are summarised in the following table.

| Ming Mine NPV Sensitivity to Capital Costs & Throughput | | |
|--|----------------------|-----------------------|
| | 20% Lower Throughput | 20% Higher Throughput |
| 20% Lower Capex | US\$202m | US\$595m |
| 20% Higher Capex | US\$172m | US\$565m |

Table 2 NPV Sensitivity To Capital Costs and Throughput

Operations

Rambler’s operational focus is its Ming mine in Newfoundland and the associated Nugget Pond plant site located some 40km to the east of the mine. Copper concentrate is exported via a dedicated port facility at Goodyear’s Cove approximately 140km south-west, by road, of Nugget Pond.

The company’s current objective is the restoration of a 1,350tpd processing rate for the Nugget Pond mill following a period of underdevelopment at the mine which has constrained the volume of ore available for processing.

In the longer term, despite the recent decision to shelve the acquisition of the larger, Duck Pond mill, Rambler Metals plans to evaluate further expansion of the Ming mine and to expand the resource base of its wholly-owned Little Deer complex located some 150km to the south.

Geology

Volcanogenic massive sulphide (VMS) copper mineralisation at the Ming mine is contained within felsic volcanic rocks of the Rambler Sequence of the early Ordovician age Pacquet Harbour Group which consists of a moderate to steep north dipping sequence of deformed and metamorphosed mafic volcanic rocks, lesser felsic volcanic rocks, mixed mafic and felsic volcanoclastics rocks, and shallow level intrusive rocks. Structures are complex and exhibit multiple phases of deformation.

Banded massive sulphides of the Ming Massive Sulphide (MMS) Horizon occur in a zone from 1m to 20m thick and over around 100m of strike length directly below the sheared contact separating the flow basalts and associated volcanic ash and sediments of the Hanging Wall Sequence and the underlying altered felsic rocks of the Mineralised Sequence.

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The Lower Footwall Zone (LFZ) of mineralisation, which consists of chalcopyrite stringers and comprises around 90% of the mine's mineral resources, lies around 115-120m below the massive sulphides and extends over approximately 1,700m of plunge length beneath an intervening zone comprising a 15-20m thick chloritised felsic unit underlain by around 100m of sericitised felsic volcanic rocks. The more disseminated nature of the LFZ suggests that it represents a feeder zone for the overlying massive mineralisation.

Typically, the massive sulphides show precious metals enrichment of around 2g/t gold and 10g/t silver.

Exploration Potential & Mineral Resources

The 15,000m drilling programme in 2021 resulted in an updated mineral resources estimate in December 2021 which shows an overall measured and indicated resource of 23.7mt at an average grade of 1.8% copper. Approximately 90% of the tonnage(20.7mt) is derived from the LFZ. In addition, a further 5.6mt, of which 80% is LFZ ore, is classed as inferred at an average grade of 1.6% copper.

| Classification | Quantity | | | |
|------------------------|---------------|-------------|------------|----------------|
| | (000't) | Copper | | |
| | | % | M lbs | tonnes |
| Measured Total | 7,850 | 1.73 | 300 | 136,166 |
| Indicated Total | 15,813 | 1.85 | 644 | 291,947 |
| M&I Total | 23,663 | 1.81 | 944 | 428,113 |
| Inferred Total | 6,395 | 1.70 | 239 | 108,411 |

Table 3 Ming Mine Mineral Resource Estimate December 2021

Drilling is demonstrating that the LFZ contains a central core of mineralisation up to around 80m wide grading over 2% copper within a wider zone of mineralisation grading over 1.6% copper over 150m wide. At lower copper prices even though the entire zone may not exhibit ore-grade mineralisation throughout, the presence of a coherent body offers the scope for resource expansion and possibly also the simplification of mining methods in the longer term. We note that recent exploration drilling has returned a number of apparently significant drilling intercepts lying beyond the margins of the main LFZ zone, as currently modelled, suggesting that there may be scope to expand the mineralised envelope further if sufficient supporting drilling evidence is generated as the programme proceeds.



Figure 4 Lower Footwall Zone Grade/Tonnage Distribution

The LFZ mineralisation is relatively sensitive to the cut-off grade applied, which, for planning purposes, is currently ~1.5% copper – equivalent to around US\$148/t at current copper prices. Reduction of the cut-off grade of the LFZ to 1.2% copper adds approximately 5.7mt to the overall resource base and increases the contained copper content by around 38% to 274,000t despite reducing the average copper grade from 2.1% to 1.8%.

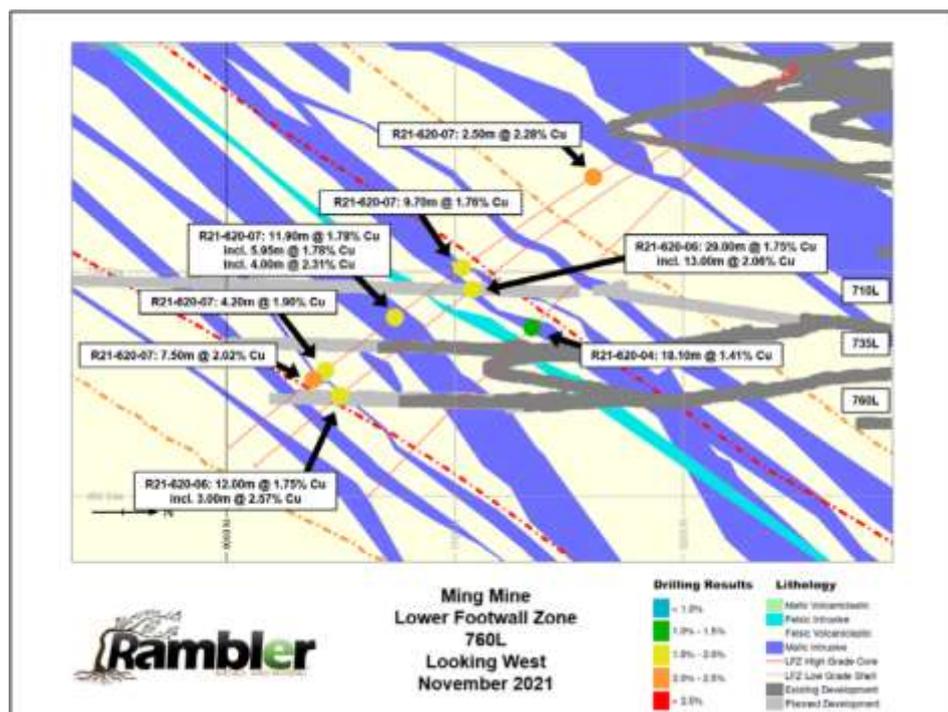


Figure 5 Lower Footwall Zone Cross Section

The announcement, in January 2022, of the discovery of a new zone of high-grade mineralisation known as the LP East Zone to the east of the main LFZ underlines the relatively underexplored character of the Ming mine and the potential for additional mineralisation beyond current models.

The LP East Zone yielded a discovery hole intersection of 42m averaging 2.07% copper between 33m and 75m in hole R21-510-01 and includes a 7m wide section between 33-40m at an average grade of 4.64% copper and is currently defined over a “vertical height of approximately 100 meters (“m”) and a horizontal width of approximately 80 m”

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although the “recent drilling has shown significant potential to continue expanding the zone both up and down plunge”.

The August 2010 feasibility study for the reopening of the mine reported a measured and indicated resource of 10.7mt at an average grade of 1.7% copper, 0.61g/t gold and 3.85g/t silver and since then the mine’s resource inventory has been on an upward trajectory.

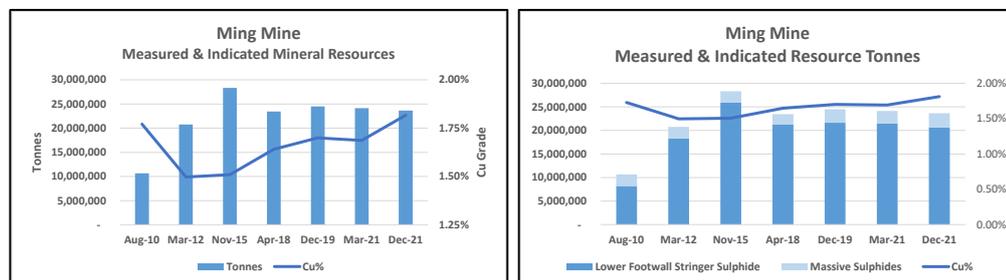


Figure 6 Ming Mine Mineral Resource Development

More recently, comparing the published resources of April 2018 and those of December 2021 against the production statistics over the intervening period we estimate that the Ming mine more that replaced the 1.2mt it milled at an average grade of 1.45 copper by adding an additional 1.4mt of resources at a higher average grade of almost 4.5% copper as shown in the following table:

| | Tonnes | Cu% | Contained Cu |
|------------------------|------------|-------|--------------|
| M&I B/Fwd 1st Apr 2018 | 23,448,000 | 1.64% | 384,644 |
| Milled Balance 2018 | 281,160 | 1.30% | 3,655 |
| Milled 2019 | 406,298 | 1.45% | 5,891 |
| Milled 2020 | 263,230 | 1.63% | 4,291 |
| Milled 2021 | 239,503 | 1.57% | 3,760 |
| Total Milled | 1,190,191 | 1.48% | 17,597 |
| M&I C/Fwd Dec 2021 | 23,663,000 | 1.81% | 428,113 |
| Resource Addition | 1,405,191 | 4.35% | 61,066 |

Table 4 Ming Mine Mineral Resource Replenishment & Depletion

or graphically in Figure 7 below.

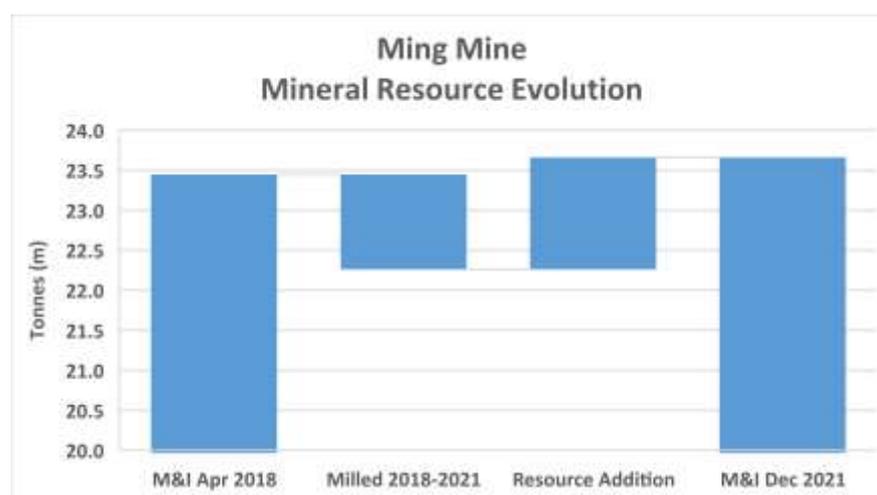


Figure 7 Ming Mine - Mineral Resource Replenishment

This mirrors a similar resource expansion when resources grew by an additional 1.9mt between September 2017 and April 2018 more than replacing the 868,000t milled.

Recent drilling results provide support for the improvement of grade and widening of the LFZ mineralisation at depth. Intersections reported in November 2021 include;

Target 2: Lower Footwall Zone (“LFZ”) Drilling Program Targeting 735-760L

- R21-620-16
 - 9.45m @ 3.54% Cu – Ming North (“MNZ”) Icing Zone
 - 12.00m @ 2.41% Cu, incl 3.45m @ 5.83% Cu
- R21-620-15
 - 11.67m @ 2.26% Cu
 - 3.94m @ 4.16% Cu – MNZ Icing Zone
 - 15.82m @ 1.87% Cu, incl 5.82m @ 2.48% Cu
- R21-620-04
 - 18.10m @ 1.41% Cu
- R21-620-06
 - 29.00m @ 1.75% Cu, incl 13.00m @ 2.06% Cu
 - 12.00m @ 1.75% Cu, incl 3.00m @ 2.57% Cu
- R21-620-07
 - 11.90m @ 1.78% Cu, incl 4.00m @ 2.31% Cu
 - 7.50m @ 2.02% Cu

and:

Target 3: Ming North Zone Drilling Program Targeting 785 Level and Below

- R21-785-05
 - 12.45m @ 2.62% Cu – Icing Zone
 - 2.25m @ 1.79% Cu
- R21-785-06
 - 4.61m @ 3.75% Cu – Icing Zone
- R21-785-09
 - 11.69m @ 1.38% Cu
- R21-785-16
 - 7.20m @ 7.01 % Cu
 - 4.71m @ 2.57% Cu
 - 3.48m @ 7.85% Cu

Mining

The Ming mine is located in an area with an extensive mining history dating back to the mid-1800s and current phase of operations started with de-watering of the historic mine workings and production of gold-rich ore from the 1806 zone between November 2011 and May 2012.

Run-of-mine ore is trucked to the surface via the main decline at an 18% gradient and stockpiled and blended for trucking to the Nugget Pond plant site in a fleet of sub-contracted 30-tonne trucks. Production levels within the mine are spaced at 25m (nominal) vertical intervals.

The current mine-development emphasis is on regaining the planned 1,350tpd mining rate required by the mill on a sustainable basis and on increasing the number of available operating production areas to allow flexibility in ore sourcing and to defray the inherent vulnerability of production from only a limited number of production areas.

As the chart below illustrates, although grades have been on an upward trajectory since early 2018, quarterly production volumes have declined noticeably since depletion of developed reserves in Q4 2019.

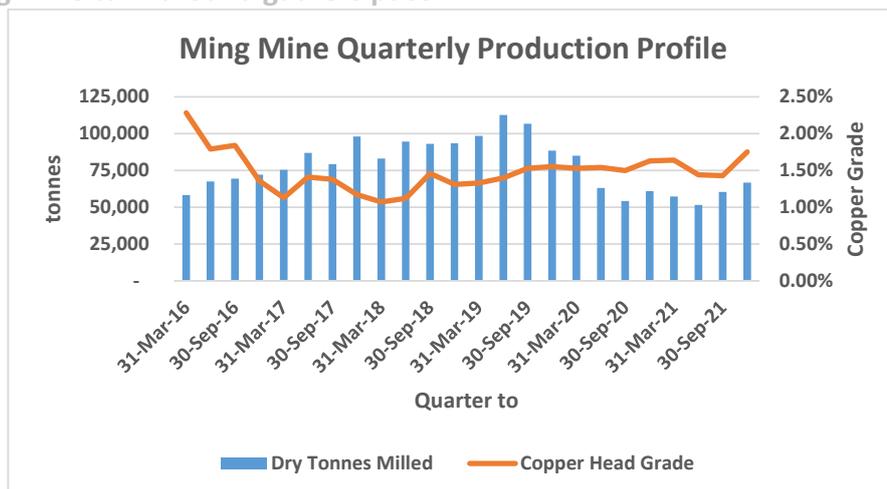


Figure 8 Ming Mine Quarterly Production Profile

Processing

When the 1,350tpd mining target can be sustained, Rambler plans to increase mine production to 2,000tpd in order to feed a mine-based ore-sorter which should reject around 30% of coarse (+12mm) low-grade material and upgrade the ROM feed to over 2.4% copper at the 1,350tpd capacity of the Nugget Pond mill.

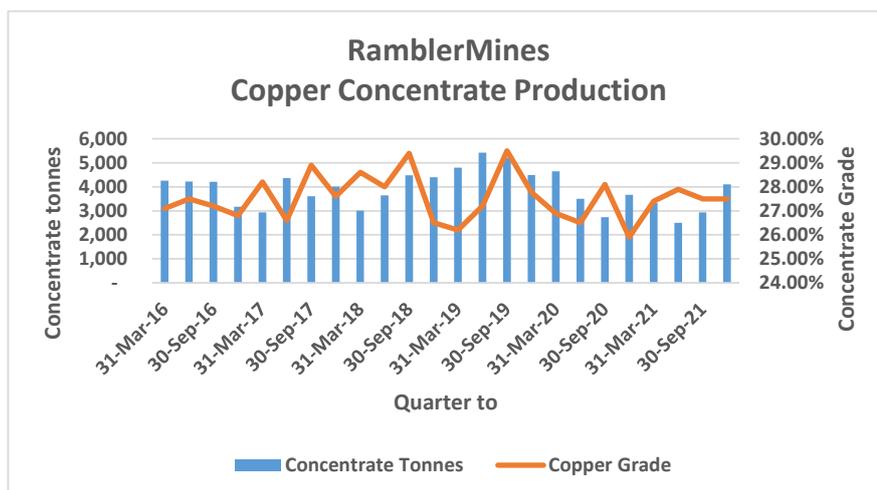


Figure 9 Ming Mine - Copper Concentrate production

In the longer term, Rambler Metals says that once the 1,350tpd target is fully established it will “evaluate expansion opportunities from that base”.

Operating Costs

| Ming Mine Production Cost History US\$/t | | | | | |
|--|--------------------|--------|---------|-------|--------|
| | Milled tonnes '000 | Mining | Milling | G&A | Total |
| 2016 | 241 | 70.52 | 21.98 | 13.12 | 92.68 |
| 2017 | 340 | 61.24 | 16.49 | 10.13 | 77.86 |
| 2018 | 364 | 68.37 | 17.30 | 15.99 | 85.68 |
| 2019 | 406 | 68.42 | 16.49 | 11.03 | 84.82 |
| 2020 | 263 | 86.24 | 20.51 | 18.34 | 106.80 |

Table 5 Ming Mine Production Cost History



Figure 10 Rambler Metals & Mining - Annual Production Costs

Costs in 2020 reflect the impact of reduced production arising from shortages of available ore and are likely to show similar pressures in 2021. As Rambler implements its new mine plan and spreads fixed costs over a larger annual tonnage, we believe there are grounds to expect costs to revert towards the levels seen previously.

Risk Assessment

Technical risks

The Ming mine has been in operation for a number of years and is addressing a legacy of past under-investment. As a result, technical risks are well-understood and as described above, the resource base of the mine is currently expanding and underpins a potential operating life in excess of thirty years.

Shorter term risks stemming from the mine's history are being addressed through the accelerating programme of increased underground development initiated in mid-2021, although short-term setbacks cannot be ruled out, particularly during the global pandemic which could restrict access to equipment, supplies and suitably experienced personnel.

Longer term plans which may involve the construction of a new processing facility at the Ming mine site. The engineering and operational aspects are commonly understood within the industry and on the positive side such a decision would eliminate ore haulage costs of over US\$5mpa and provide an opportunity to upgrade and possibly expand treatment capacity.

Commodity price risk

As our analysis demonstrates, in common with most mining projects, the economic return of the project is most sensitive to changes in commodity prices. In our opinion, the operation remains profitable at copper prices as low as around US\$7,500/t (US\$3.40/lb) or around 25% below current levels.

In an environment of potential structural supply shortages of copper and rising copper demand to advance the world's electrification programme, we do not see even a short term price drop to levels that would threaten the viability of the Ming mine as a likely or sustainable risk.

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A sustained decline in copper prices could, however, be addressed by increasing copper cut-off grades and redesigning the mining plan, albeit at the sacrifice of a reduced mine life.

Geopolitical risks

Newfoundland and Canada more generally have an established and well regarded legislative, tax and financial structure and a deep understanding of the benefits and risks of mining operations to mine operators, investors communities and wider society. The prestigious Fraser Institute Annual Survey of Mining Companies, 2020, rates Newfoundland / Labrador 8th of the 77 world jurisdictions surveyed in terms of its overall Investment Attractiveness.

The Survey said that *“This year, miners expressed decreased concern over ... [Newfoundland / Labrador’s] ...taxation regime (-39 points), socioeconomic agreements and community development conditions (-26 points), and trade barriers (-17 points). Respondents expressed increased concern over the administration and enforcement of existing regulations”*.

Respondents to Fraser Institute Survey said that Newfoundland / Labrador offers *“Clear rules and regulations in the permitting process”*, and also that it has a *“Very efficient and user-friendly permitting user system and mineral claims management program”*.

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