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EQ Resources

COMPANY SNAPSHOT

Reuters/Bloomberg:	EQR.AX / EQR AU
Market cap:	US\$37.5m A\$49.3m
Current price:	A3.8cps
Average daily turnover:	US\$81k A\$106k
Current shares o/s	1,297.7m
Free float:	66%

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Analyst(s) own shares in the following stock(s) mentioned in this report:

– EQR

Re-starting Tungsten production

EQ Resources, in conjunction with German-headquartered metals producer/recycler/trader CRONIMET Group, is recommissioning the tungsten mine at Mt Carbine, 50km north of Mareeba, north Queensland, where all infrastructure is in place. Tungsten is a strategic and critical mineral with production dominated (+80% of supply) by China.

A pilot X-ray transmission (XRT) sorter is currently operating ahead of conventional gravity processing to re-treat tailings, supplemented by feed from the 12Mt stockpile at Mt Carbine. CRONIMET has installed and operated similar sorters in Europe and Africa.

Our expectation is that the ore sorter operation and processing will be optimised treating the stockpile at up to 1.0Mtpy, prior to the resumption of mining, where a resource to JORC Code (2012) standards of 47Mt @ 0.13% WO₃ was reported in 2013.

Mt Carbine operated profitably with well-established mining and processing operations producing high quality tungsten concentrates. A positive cashflow is anticipated from by-product quarry aggregate and tungsten concentrate sales with improved performance using XRT sorters. Upside is from the resumption of hard-rock mining and tungsten concentrate production, with enhanced performance from the XRT sorters.

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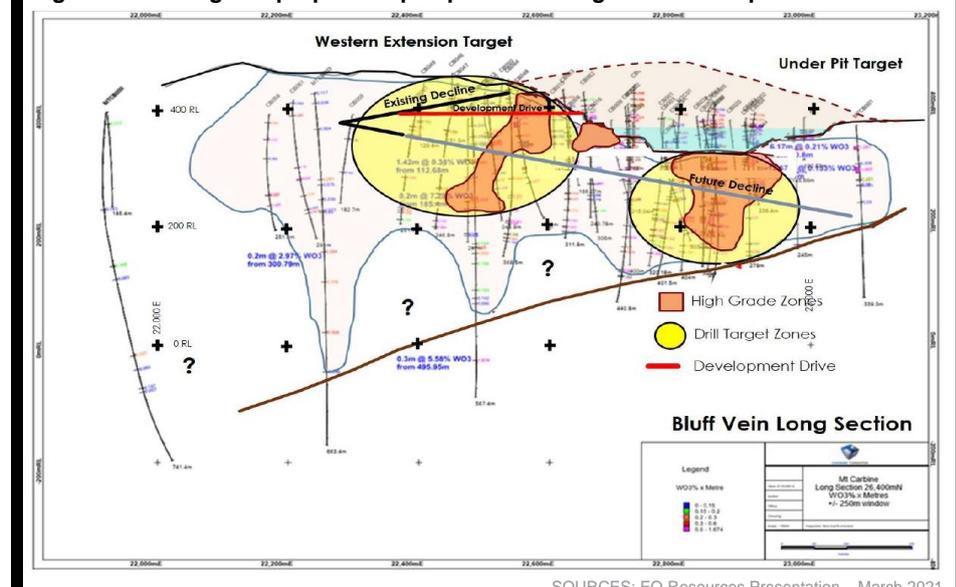
Mt Carbine tungsten production

Production in the 1971-1986 phase used a primitive photometric ore sorter to increase process plant feed grade by a factor of 3 to 4. Conventional processing generated 2Mt of tailings with a grade of 0.1% WO₃ and a 12Mt stockpile at 0.075% WO₃. Mt Carbine closed with the tungsten price around US\$30 per metric tonne unit (1 mtu = 10kg of ammonium paratungstate, APT), currently +US\$270/mtu. An unmined hard rock resource of 47Mt at 0.13% WO₃ was defined to JORC Code (2012) standards by previous operators, with 2 open pit benches defined, and a decline commenced for underground operations.

EQ Resources and CRONIMET

While EQR holds a 100% interest in the Mt Carbine tenements, under the 50/50 joint venture (JV) agreement CRONIMET has commissioned a XRT pilot plant to upgrade the stockpile material for further processing at the JV's tailings retreatment plant. A 2.5% royalty to EQR is being paid on the value of minerals extracted from the mine leases. The royalty and JV only apply to tailings and stockpile treatment, with hard rock mining and processing entirely to EQR's account, with the JV operation to optimise the sorting and processing operations. The value lies in the re-start of hard rock mining and processing.

Figure 1: Existing and proposed open pit and underground development



SOURCES: EQ Resources Presentation – March 2021

Mt Carbine

Production 1974-86

During the 13 years of production Mt Carbine operated with a nominal mining capacity of approximately 2Mtpy, with all material mined classified as either **Ore** or **Low Grade Stockpile** material by the plant operator, based on the level of quartz veining. The ore was upgraded through an Optical Ore Sorter which operated at a nominal rate of 1Mtpy, with rejection of over 70% of the feed to an Optical Ore Sorter Reject stockpile. The accepted feed was processed through the Mt Carbine process plant, which reported an average recovery of 74% of the contained WO_3 from the Ore Sorter feed. The Head Grade was not sampled and analysed, although the tonnage fed to the Optical Ore Sorter was measured by weightometer. The Head Grade of the ROM feed to the Ore Sorter was back-calculated based on the tonnage of ore presented to the Ore Sorter, the tonnage and WO_3 grade of concentrate produced and the tonnage and WO_3 grade of tailings. The tailings grade was measured by XRF machines which were calibrated for Concentrate grade measurement - $\approx 70\% WO_3$ - and the accuracy of the reported grade of the tailings is questionable. The grades of the Low Grade Stockpile and the Ore Sorter Reject were not analysed at the time of production.

Saleable output was at a nominal rate of 150,000mtu per year of product. A Wolframite concentrate was produced at a grade of +68% WO_3 , and a Scheelite concentrate at $\approx 72\% WO_3$. Production was at a ratio of 4:1 for Wolframite concentrate to Scheelite concentrate. This was compared to an in-situ ratio for the 0.115% estimated Head Grade of 3:1, with poorer recovery of Scheelite to concentrate.

Upside from CRONIMET's XRT ore sorting experience

The photometric sorter employed in the 1974-86 campaign effectively operated on the level of abundance of quartz veining, accepting light-coloured material for further processing. Wolframite particles - black in colour - were rejected, and while Scheelite is off-white in colour and likely to have been selected, subsequent studies indicate that it may not have been liberated effectively at the particle size presented to the sorter.

EQR's processing to date confirms that an XRT sorter performs better than the photometric sorter with the determining characteristic radiation absorption, rather than colour, and the dramatic advance in computing power since the mid-1970s. Processing by EQR delivered an upgrade of up to X 28 under test conditions, and a tenfold upgrade (X 10) in plant feed grade could be conservatively anticipated in commercial operation, compared with the 3-4 times upgrade historically. An increase in contained WO_3 fed into the process plant is also modelled, with the plant feed containing 90% of the mined WO_3 .

Board & Management

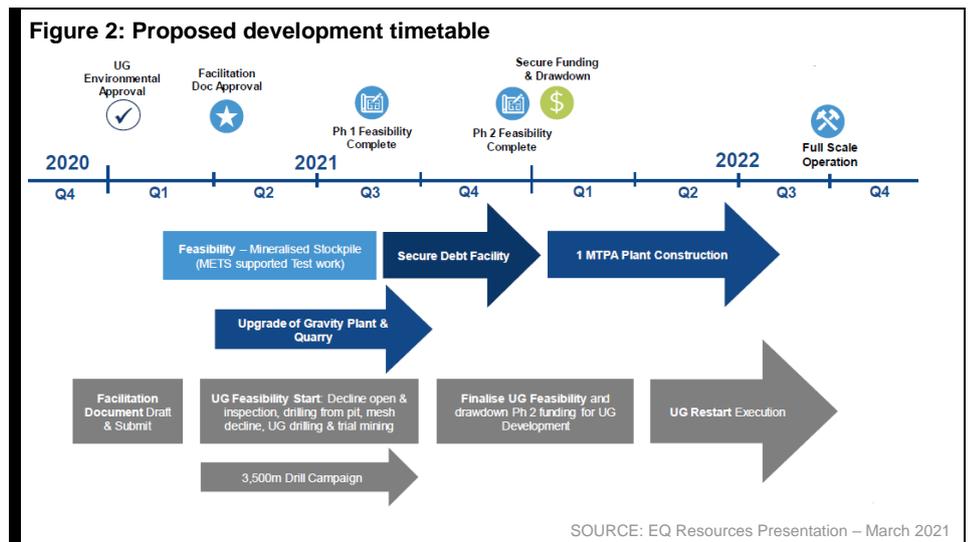
CEO Kevin MacNeill has a 33 year history in project development, specialty metals and mining waste processing, and in XRT sorter development. He has re-located to Australia for the Mt Carbine re-development. Chairman Oliver Kleinhempel, formerly with Outotec and Ferrostaal Group, is currently an Executive Director of CRONIMET Holding GmbH and has experience in project development financing and commodity trading. Both have direct shareholdings in EQR.

Current operations

Current production from treating the tailings and stockpile is a concentrate grading $\approx 50\% WO_3$. Processing effectively recovers WO_3 from the $>45\mu$ fraction, with poor to nil recovery from finer material. With historic production of concentrate at a +68% grade, Arsenic and Pyrite were removed by a small flotation cell, but processing to 50% the penalty doesn't warrant further processing. The current - and proposed - processing uses only process water, and doesn't create any acid-forming waste.

The Stockpile forms a Resource defined to JORC Code (2012) standards of 12Mt at 0.075% WO₃. EQR is currently processing stockpile material to better understand the grade distribution within the resource and to optimise sorter and processing options. Reject material from the stockpile is sold as aggregate and used extensively in road construction in the region, generating a positive cashflow and significantly reducing the site's environmental footprint.

Concentrate grade and consistency is critical, and product is currently sold on commercial terms to CRONIMET Group, and sold to major producers in Europe, Asia and the Americas. The proposed timetable for the re-development of Mt Carbine is below.



Hard rock mining – EQR 100%

EQR is completing a Feasibility Study into re-development of the hard rock mining operation. The 13 years of the operating history of the plant, EQR's current tailings re-treatment and the results from evaluation of the Stockpile are being incorporated into the study.

The Mt Carbine resource incorporates mineralisation in the open pit, open along strike and at depth, and likely amenable to underground extraction. It excludes the Iron Duke mineralisation which is within a formerly proposed open cut envelope. The conversion of existing resources to reserves is anticipated.

The Environmental Permit for underground exploration is granted, and the Safety Permit this half year. The first step will be to re-open and inspect the existing 430m decline.

Exploration – ML and regional upside

The Iron Duke lies within the envelope of the proposed hard rock development. It was not explored by the previous operators as it has a higher proportion of scheelite than the open pit ore, and was not amenable to upgrade with the Photometric ore sorter. The 6 holes drilled into Iron Duke average 8m in width over a strike length of approximately 250m at an average grade of 0.32% WO₃, while the surface expression of the Iron Duke extends over 2.2km.

Figure 3: Mt Carbine operations

The Petersen's lodes are 2km southeast from the Mt Carbine open pit. Historic production at a grade of 0.6% WO_3 resulted in production of 950t – 95,000 MTU – of scheelite concentrate. The mineralised zone is approximately 10m wide, and extends 1.3km along strike at surface.

Outlook

EQR has a Market Capitalisation of A\$51.9m at A3.8cps, and recently completed an A\$6.5m equity raising at A3.2cps to fund the Mt Carbine feasibility study and for additional drilling to plan underground development. EQR generates some operational cashflow from the aggregate business, and from tungsten concentrate sales.

In terms of significant risk exposure, the Mt Carbine project is exposed to commodity price risk and A\$/US\$ exchange rate risk, with tungsten concentrate commonly sold in US dollars. Funding the projected expansion will be another risk, although an estimated cost of US\$50-100m would be comfortably within EQR's funding envelope.

Given the production and processing history, coupled with the current tailings re-treatment results and relative simplicity of the plant we see little risk in plant construction, commissioning and operation, and little risk in product quality and market risk, other than price risk. Given that the current leases supported an open pit operation for 13 years at a rate up to 2Mtpy, and EQR has now received approval to lift production from 100,000tpy to 1Mtpy, we see little risk with securing administrative, development and operating approvals.

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