Excellent Metallurgical Results from Preliminary Testwork



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Highlights

- Initial metallurgical testwork indicates high recoveries from all concentrates and relatively simple flotation process;
- Initial rougher concentrates from the stringer and massive sulphide mineralisation include:
  - **Stringer**: Copper concentrate with recoveries of **97% copper and 87% gold**, which represents the bulk of the resource;
  - **Massive Sulphide**: Copper-lead concentrate with recoveries of 89% copper, 77% zinc and 43% gold; and
  - **Massive Sulphide**: Zinc concentrate with recoveries of 84% zinc and 43% gold.
- Additional gold recovery from zinc concentrate tail using cyanide leach generated **98.4% total gold recovery**; and
- Further work remains ongoing with significant potential to improve overall recoveries.

Overview

QMines Limited (**ASX:QML**)(**QMines** or **Company**) is pleased to announce excellent preliminary metallurgical testwork results from an initial sighter study completed on its Mt Chalmers copper and gold project, located 17km north-east of Rockhampton, Queensland (Figure 1).

This metallurgical testwork program was designed to establish a preliminary flowsheet and assess the ability to recover these metals into separate flotation concentrates.

The testwork was undertaken by ALS Metallurgy at their laboratory in Balcatta, Western Australia with Como Engineers engaged to supervise the program.

Management Comment

QMines Executive Chairman, Andrew Sparke, comments:

"It is very pleasing to see such excellent results from this initial study for the Mt Chalmers project. Although further work is required, these initial results demonstrate the development potential of the project. I would like to thank Como Engineers and ALS for all their efforts in delivering these results in a timely manner. Further work is now being undertaken to improve overall recoveries, develop a cleaner flotation and improve flowsheet optimisation."

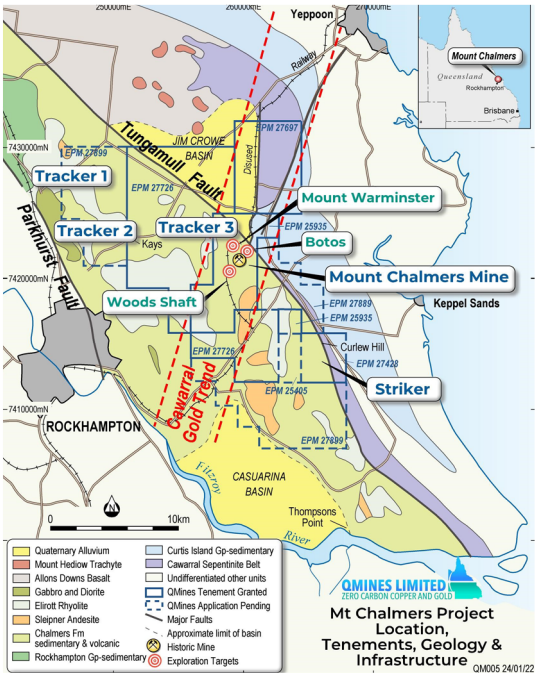


Figure 1: Location of Mt Chalmers Project, tenure, geology and infrastructure.

Stringer Mineralisation

A composite of stringer mineralisation with a head grade of 1.22% Cu, 0.2% Pb, 0.02% Zn and 1.05 g/t Au was subjected to two preliminary open circuit flotation tests. Sequential flotation was successful in producing a copper rougher concentrate. The lead and zinc grade in this composite were low and therefore a copper only circuit flowsheet can be considered for this mineralisation type.

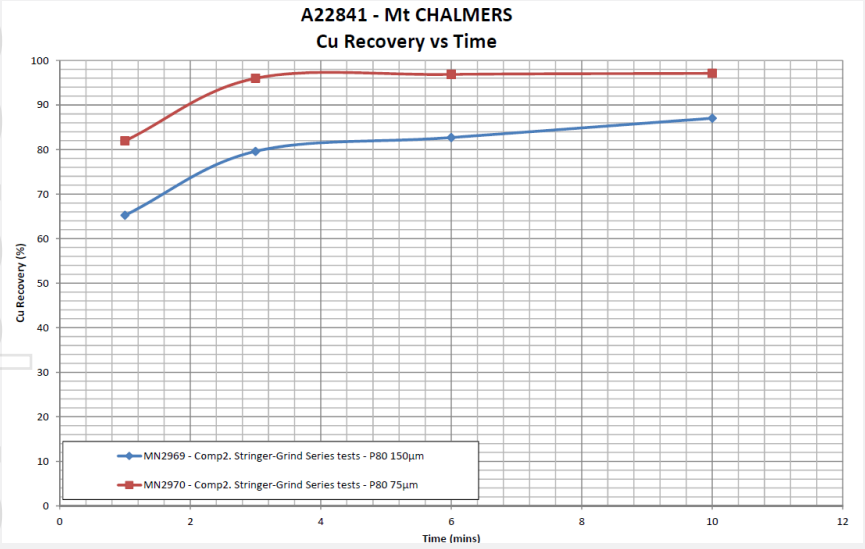


Figure 2: Copper recovery from stringer mineralisation vs time at Mt Chalmers.

Rougher grades of up to 12.3% Cu and 4.6g/t Au were produced with excellent recoveries of **97.1% copper and less than 0.14% lead and zinc**, see figure 2. Gold predominantly reported to the copper concentrate, grading as high as 4.6g/t gold. There is an opportunity to further improve recoveries in subsequent testwork programs.

These results were particularly encouraging as lithologically, the stringer mineralisation makes up the bulk of the resource.

Massive Sulphide Mineralisation

A composite of massive sulphide (copper, lead and zinc exhalite) with a head grade of 1.28% Cu, 1.42% Pb, 3.51% Zn and 4.31 g/t Au was subjected to ten preliminary open circuit flotation tests. Sequential flotation was successful in producing rougher concentrates of copper/lead and zinc.

Rougher grades of up to 15.6% Cu, 15.1% Pb and 16.6% Zn were produced with acceptable recoveries of **88.8% copper, 76.6% lead and 83.6% zinc**. Gold predominantly reported to the copper/lead concentrate, grading as high as 46.9g/t gold. There is an opportunity to further improve recoveries in subsequent testwork programs.

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Figure 3: Location of diamond drill hole MCDD017 which was used for the testwork.

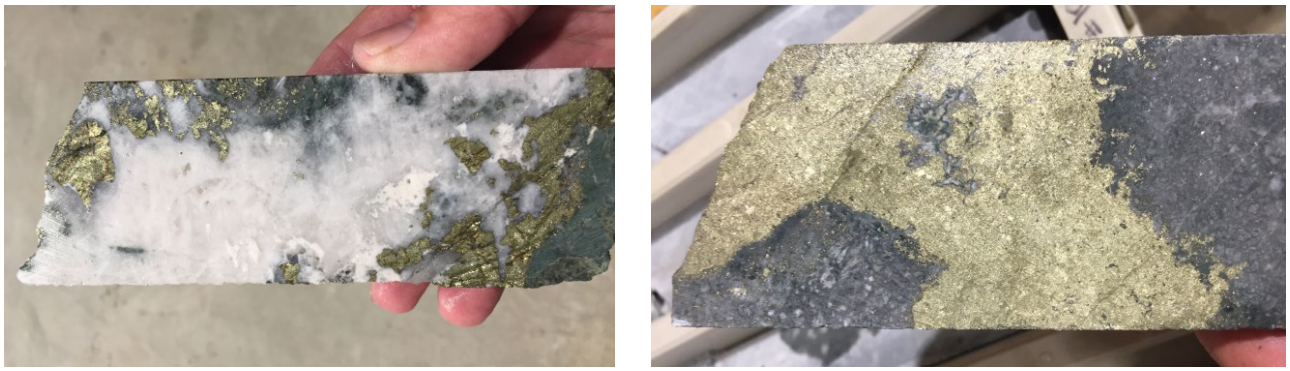


Figure 4: Selected pieces of diamond drill core used for the metallurgical testwork at Mt Chalmers.

Testwork Details

Sample Assay[1]

Two composites were prepared from select drill core intervals from MCDD017 (Table 1 and 2). The samples represent the different domains of mineralisation encountered at Mt Chalmers.

The composite head grade (Table 3), determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS), is representative of the average grade of the mineralisation expected in the mineral resource.

Hole ID	From (m)	To (m)	Mass (kg)
MCDD017	60.85	62.29	2
MCDD017	62.29	63.00	2
MCDD017	63.00	64.00	2
MCDD017	64.00	65.00	2
MCDD017	65.00	65.90	2
MCDD017	65.90	67.00	2
MCDD017	67.00	68.00	2
MCDD017	68.00	69.00	2
MCDD017	69.00	69.65	2
Total:			**18**

Table 1: Metallurgical composite core selection, stringer mineralisation composite.

[1] ASX Announcement – Multiple Wide High-Grade Intersections Outside Resource, 6 October 2021.

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Hole ID	From (m)	To (m)	Mass (kg)
MCDD017	22.00	23.40	0.50
MCDD017	23.40	24.40	2.60
MCDD017	24.40	25.40	1.50
MCDD017	25.40	26.40	1.50
MCDD017	26.40	27.30	1.50
MCDD017	27.30	28.30	0.50
MCDD017	28.30	29.30	1.50
MCDD017	29.30	30.30	1.20
MCDD017	30.30	31.50	1.28
MCDD017	31.50	32.30	1.28
MCDD017	32.30	33.00	1.28
MCDD017	33.00	33.80	1.28
MCDD017	33.80	35.00	1.28
MCDD017	35.00	36.00	0.50
MCDD017	36.00	37.30	0.50
MCDD017	37.30	38.00	0.50
MCDD017	38.00	39.00	0.50
MCDD017	39.00	40.00	0.50
MCDD017	40.00	41.00	0.50
MCDD017	41.00	42.00	0.50
MCDD017	42.00	43.00	0.50
MCDD017	43.00	43.80	0.50
MCDD017	23.40	24.40	0.80
MCDD017	39.00	40.00	0.50
MCDD017	40.00	41.00	0.50
MCDD017	41.00	42.00	0.50
MCDD017	42.00	43.00	0.50
MCDD017	43.00	43.80	0.50
MCDD017	43.80	45.00	1.00
MCDD017	45.00	46.00	1.00
MCDD017	46.00	47.00	1.00
MCDD017	47.00	48.46	1.00
MCDD017	48.46	49.20	3.62
MCDD017	49.20	50.00	1.00
MCDD017	52.00	52.65	1.00
MCDD017	52.65	53.50	1.00
MCDD017	53.50	54.50	1.00
MCDD017	54.50	55.50	1.00
MCDD017	55.50	56.50	1.00
MCDD017	56.50	57.50	1.00
MCDD017	58.67	60.00	1.00
MCDD017	60.00	60.85	1.00
MCDD017	69.65	70.10	1.00
MCDD017	70.10	71.00	1.00
MCDD017	71.00	72.00	1.00
MCDD017	75.00	76.35	1.00
MCDD017	76.36	76.80	1.00
MCDD017	76.80	78.00	1.00
Total:			**50.42**

Table 2: Metallurgical composite core selection, massive sulphide mineralisation composite.

Metallurgical Composite	Cu (%)	Pb (%)	Zn (%)	Fe (%)	S (%)	Si (%)	Au (g/t)
Massive Sulphide Mineralisation	1.28	1.72	3.51	8.55	9.48	49.2	4.31
Stringer Mineralisation	1.22	0.02	0.02	6.58	3.66	75.6	1.05

Table 3: Composite head grade.

Stringer Flotation Summary

A total of two flotation tests have been conducted on the stringer composite core selection to date. All tests were conducted on 1kg batch flotation tests. Tests were conducted using Perth tap water at a primary grind size of P80 150 and 75µm.

Results from tests on the two grind sizes showed improved copper recovery was achieved from the finer grind composite.

Considering this phase of work was only a preliminary testwork program focused on producing a copper rougher concentrate, some excellent results were produced (refer Table 4).

Test Number	Wt (%)	Copper		Lead		Zinc		Gold	
		Grade (%)	Recovery (%)	Grade (%)	Recovery (%)	Grade (%)	Recovery (%)	Grade (%)	Recovery (%)
Copper Rougher Concentrate 1-4									
MN2967	8.22	8.84	54.20	11.20	64.00	16.40	38.30	35.00	45.50
MN2968	14.10	9.18	96.60	8.99	85.10	19.60	77.10	30.00	80.20
Zinc Rougher Concentrate 1-4									
MN2967	24.10	2.48	44.70	1.97	33.20	8.65	59.40	12.00	43.70
MN2968	17.90	0.18	2.41	1.01	12.10	4.25	21..20	3.30	11.20

Table 4: Flotation summary data – stringer sulphide mineralisation

Massive Flotation Summary

A total of ten flotation tests have been conducted on the composite core selection to date. All tests were conducted on 1kg batch flotation tests. Tests were conducted using Perth tap water at a primary grind size of P80 150 and 75µm.

The overall copper and zinc performance of both tests were marginally different at the grind sizes tested. Based on results achieved, a primary grind size of P80 75µm was chosen as the preferred grind size for the majority of the testwork.

Considering this phase of work was only a preliminary testwork program focused on producing separate rougher concentrates, some excellent results were produced (refer Table 5).

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Test Number	Wt (%)	Copper		Lead		Zinc		Gold	
		Grade (%)	Recovery (%)	Grade (%)	Recovery (%)	Grade (%)	Recovery (%)	Grade (%)	Recovery (%)
Copper Rougher Concentrate									
MN2974	20.90	6.08	98.90	6.62	95.90	15.90	96.70	15.80	59.80
MN2975	15.40	8.07	97.00	8.97	94.40	22.00	96.90	40.00	79.80
MN2998	7.64	7.03	41.60	16.50	85.80	9.67	21.30	56.50	67.00
MN2999	8.23	8.98	56.60	16.10	89.00	9.82	22.70	53.40	60.20
MN3045	17.00	7.45	98.10	8.13	94.60	18.90	93.60	23.30	48.20
MN3058	17.40	7.29	97.60	8.14	95.70	20.10	96.90	29.80	77.60
MN3060	16.00	8.09	97.70	8.82	94.40	21.00	94.30	25.60	69.10
MN3061	7.58	15.60	88.80	15.10	76.60	6.13	13.20	46.90	42.70
Zinc Rougher Concentrate									
MN2974	7.93	0.13	0.78	0.30	1.62	0.36	0.84	18.10	26.10
MN2975	8.22	0.19	1.25	0.45	2.51	0.39	0.91	10.90	11.70
MN2998	11.40	6.45	57.10	1.32	10.30	23.20	76.20	11.00	19.50
MN2999	9.34	5.88	42.10	1.14	7.17	28.20	74.20	29.60	37.80
MN3045	11.20	0.15	1.31	0.38	2.93	1.33	4.34	30.70	42.00
MN3058	7.63	0.12	0.71	0.25	1.29	0.40	0.86	8.46	9.68
MN3060	3.98	0.15	0.45	0.48	1.28	1.63	1.83	30.90	20.80
MN3061	17.60	0.76	10.10	1.64	19.40	16.60	83.60	20.20	42.70

Table 5: Flotation summary data – massive sulphide mineralisation.

Cyanide Leach Summary

The zinc flotation tail from the sequential float MN2974 (massive sulphide mineralisation) was submitted for cyanide leaching to target additional gold recovery.

An agitated leach at constant cyanide concentration was selected for this round of investigative testing.

The residue sample was repulped and transferred to a vessel where the cyanide and lime were added to achieve the required pH (10) and cyanide tenor (300ppm). Oxygen was sparged through the slurry to mininise impact of any base metals present in the sample.

The leach extraction and associated consumptions are shown below in Table 6.

Sample	Grind Size P_{80} (µm)	Calc'd Head Au Grade (g/t)	Percentage Au Extraction @ Hours (%)				Leach Residue Au Grade (g/t)	Consumption (kg/t)	
			2	8	24	48		Lime	NaCN
MN2974	75	0.75	52.60	76.20	81.80	84.00	0.12	0.39	0.55

Table 6: Kinetic Cyanide Leach Data.

The result indicates the following:

- Excellent overall gold recovery (see Table 7);
- Gold leach kinetics was reasonable with recovery of 76% in eight hours. Final residue grade of 0.12g/t gave an overall recovery of 84% after 48 hours leaching; and
- Cyanide and lime consumption were low.

Table 7 below shows the overall gold extraction after flotation and cyanidation of flotation tailings for MN2974. It should be noted that the gold recovered (98.4%) in the table includes the gold recovered to float concentrate.

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	Flotation Con		Floatation Tail Leach				Overall			
		Au (g/t)		Au (g/t)				Au (g/t)		
Feed Mass	Mass (g)	Feed	Mass (g)	Feed	Tail	Extr'n (%)	Assay Head	Calc'd Head	Tail	Extr'n (%)
1004	289.30	16.43	714.55	0.85	0.12	85.90	4.31	5.34	0.09	**98.40**

Table 7: Massive whole of mineralisation gold recovery.

Bond Work Index

Massive Sulphide and Stringer comminution composites were tested using a standardised procedure[1] to determine their Bond Work Index (BWi). All samples were tested at a closing screen of 106 µm. Grindability test data and the calculated work index values are presented in Table 8 below.

Sample Identity	Micrometres		Gbp (g/rev)	Test Aperture Pi (µm)	Bond BWi (kWh/t)
	F_{80}	P_{80}			
Comp 1. Massive Sulphide	2219	68	1.973	106	9.63
Comp 2. Stringer	2644	77	0.835		20.60

Table 8: Bond ball mill work index.

[1] Bond, F.C. "Crushing and Grinding Calculations" (1961) British Chemical Engineering, Vol 6, Nos 6, 8.

What's Next?

- Ongoing drilling results from the planned +30,000m drilling program;
- Drilling to commence at the Woods Shaft prospect, the first of three Exploration Targets (JORC 2012);
- Preparations underway to drill Tracker 3, the first of four large copper and zinc soil anomalies;
- Planned 1,800-line kilometre Heli-EM survey expected to commence in H1-2022 to identify further drill targets; and
- **Third resource upgrade expected in H1-2022.**

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Competent Person Statement

Exploration

The information in this document that relates to mineral exploration is based on work compiled under the supervision of Mr Glenn Whalan, a member of the Australian Institute of Geoscientists (AIG). Mr Whalan is QMines' principal geologist and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity that he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' (JORC 2012 Mineral Code). Mr Whalan consents to the inclusion in this document of the exploration information in the form and context in which it appears.

Competent Person Statement

Metallurgy

The information in this announcement that relates to Metallurgical Test Results was based on work designer and supervised by Mr Richard Ladyman, a Competent Person who is a fellow of the Australasian Institute of Mining and Metallurgy. Mr Ladyman is a consultant to QMines Limited and the Chairman of Como Engineers and has relevant experience in the style of mineralization and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Ladyman consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

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About QMines

QMines Limited (**ASX:QML**) is a Queensland based copper and gold exploration and development company. **QMines vision is to become Australia's first zero carbon copper and gold developer**. The Company owns 100% of four advanced projects covering a total area of 1,096km². The Company's flagship project, Mt Chalmers, is located 17km North East of Rockhampton.

Mt Chalmers is a high-grade historic mine that produced 1.2Mt @ 2.0% Cu, 3.6g/t Au and 19g/t Ag between 1898-1982. Mt Chalmers has a Measured, Indicated and Inferred Resource (JORC 2012) of 5.8Mt @ 1.7% CuEq for 101,000t CuEq[1].

QMines' objective is to grow its Resource base, consolidate assets in the region and assess commercialisation options. The Company has commenced an aggressive exploration program (+30,000m) providing shareholders with significant leverage to a growing Resource and exploration success.

Projects & Ownership

Mt Chalmers (100%)

Silverwood (100%)

Warroo (100%)

Herries Range (100%)

QMines Limited

ACN 643 212 104

Directors & Management

ANDREW SPARKE
Executive Chairman

ELISSA HANSEN (Independent)
Non-Executive Director & Company Secretary

PETER CARISTO (Independent)
Non-Executive Director (Technical)

JAMES ANDERSON
General Manager Operations

GLENN WHALAN
Exploration Geologist
(Competent Person – Exploration)

Shares on Issue

113,672,748

Unlisted Options

4,200,000 ($0.375 strike, 3 year term)

Compliance Statement

With reference to previously reported Exploration results and mineral resources, the Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and, in the case of estimates of Mineral Resources or Ore Reserves that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

This announcement has been approved and authorised by the Board of QMines Limited.

Contact

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[1] ASX Announcement - Mt Chalmers Resource Upgrade, 1 December 2021.

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JORC Code, 2012 Edition – Table 1 Mt Chalmers Mineral Resources

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.*	• Samples for metallurgical testing were taken from drill core. • The company drilled HQ triple tube with diamond core sampling consisting of between 300 mm and 1.5 metre intervals of core. • The core was sawn in half lengthways (parallel to long core axis) using a Sandvik wet core saw yielding 1-5 kg core samples into calico sampling bags. 4 individual calicos are placed in polyweave bags and sealed for delivery to the assay lab. • Samples are sent by road to ALS Laboratories in Brisbane, crushed, pulverised and riffle split delivering 200 gm pulp for base metal and precious metal assay. • Half core from hole MCDD017 was initially sent to ALS for standard geochemical analysis with results used for resource estimation with results previously reported to the ASX on 6 October 2021. • The remaining half core from MCDD017 was submitted to ALS Metallurgy for preliminary metallurgical testing. • Three composite samples were prepared: Comp 1 (Cu/Pb/Zn Comminution), Comp 1 (Cu/Pb/Zn), and Comp 2 (stringer) • The first Comp 1 sample was used in comminution tests • The composites represented examples of massive sulphide mineralisation (Comp 1) and stringer style mineralisation (Comp 2) • Each prepared composite was then control-crushed to <3.35 mm, blended, and homogenised via a rotary sample

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Criteria	JORC Code explanation	Commentary
		divider (RSD) before 1 kg charges were split for further testing. Comp 1 Cu/Pb/Zn Comminution Comp, as well as a sub-sample of Comp 2 Stringer was used for Bond ball mill work index (BWi) determination. Comp 1 Cu/Pb/Zn and Comp 2 Stringer was utilised for flotation testing.
Drilling techniques	• *Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	• Drilling was undertaken using a multi-purpose UDR 650 track mounted rig, and a Hydco 1000 Dual purpose truck mounted rig. RC pre-collar drilling utilised 114.5 mm diameter RC rods and 140 mm percussion face-sampling hammer with auxiliary air packs with onboard air. Diamond tails being drilled by a track mounted Hyundai Dasco 7000 diamond core rig. • Coring was HQ triple tube with the core sample being orientated using REFLECX ACT111 core orientation tool.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• diamond drilling core recovery was excellent with 95.2% of the metallurgical sample interval recovered. RC sampling recovered dry samples every metre drilled with each metre rock chipped logged and collected in chip trays. • Drilling method is consistent with current industry practices with no sample bias and is representative in nature.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• The drill hole was competently logged by Company geologists with all logging data digitised electronically into Panansonic Toughbook. • Logging codes were established prior to commencement of drilling operations by H & S Consultants and were a mixture of quantitative and qualitative data. • Geological information originally consisted of lithology descriptions, alteration, mineralisation and oxidation levels. All data is available in a digital format. • All core trays have been digitally photographed and stored in the Company NAS drive. • Geological logging is qualitative in nature.

Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• Core was sawn in half lengthways. Half core was initially assayed for use in resource estimation. The second half of the core was submitted for metallurgical testing. • A continuous section of half-core from 21.95 m to 82.6 m was submitted representing the two main mineralisation types on the project (massive sulphide and stringer mineralisation). • Sub-samples for comminution testing were taken at approximately 1 m lengths (~0.5 kg each). Samples for the metallurgical testing were taken over 0.8 to 1.4 m lengths generally representing 1 – 2 kg each. • Each prepared composite was then control-crushed to <3.35 mm, blended, and homogenised via a rotary sample divider (RSD) before 1 kg charges were split for further testing. Comp 1 Cu/Pb/Zn Comminution Comp, as well as a sub-sample of Comp 2 Stringer was used for Bond ball mill work index (BWi) determination. Comp 1 Cu/Pb/Zn was utilised for flotation testing. • The sample sizes are considered appropriate for the stage of testing and representative of the materials to be tested.
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.*	<u>Metallurgy</u> • All samples were analysed at ALS Laboratories which is a commercial ISO accredited laboratory • QMines used a variety of QAQC control CRM's and blanks on initial assaying • Internal laboratory QAQC samples were used • The following analytical methods were employed for the metallurgical testing:

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Criteria	JORC Code explanation	Commentary
		<table><tr><th>Element/Output</th><th>Method</th></tr><tr><td>Gold in ores and leach residues:</td><td>Fire assay/ICP-MS</td></tr><tr><td>Gold in solution:</td><td>Direct ICP-MS</td></tr><tr><td>Arsenic:</td><td>Arsenic digest/ICP-OES finish</td></tr><tr><td>Sulphur speciation:</td><td>Sherritt method Labfit CS2000 analyser</td></tr><tr><td>General element scan:</td><td>Mixed acid digestion/ICP-OES finish</td></tr><tr><td>Antimony:</td><td>Antimony digest/ICP-OES finish</td></tr><tr><td>Fluorine:</td><td>ISE</td></tr><tr><td>True SG:</td><td>Helium pycnometer</td></tr></table>
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• No adjustments have been made to the data • Company personnel have reviewed headgrade results from the metallurgical testing against the original assay data. Intervals wre not identical from the original data so a direct comparison cannot be made. • All analytical data is stored in a drill hole database on a company managed cloud-drive.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• All drill hole collars are picked up by and validated by the site surveyors using sub cm accurate differential GPS. • Vertical control is via a Company acquired Digital Terrain Model (DTM) using drone survey technology to deliver the survey. • The quality and accuracy of the DTM has been validated and processed independently of the data capture by MINECOP Surveying. • All drill collars are located using GDA94 MGA94 Zone 56
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• Data spacing not applicable for this release • Sample compositing has been undertaken using cri=ushing, blending and then homogenising
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation*	• The hole was drilled at a dip of -56° through a generally flat-lying mineralised zone • The drill intercept is not considered true width (true width is approximately 105% of the drill intercept • The hole was designed to increase the mineralised

Criteria	JORC Code explanation	Commentary
	and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	interval for the purposes of obtaining sufficient material for metallurgical testing
Sample security	• *The measures taken to ensure sample security.*	• Core samples from Hole MCDD017 were taken from the drill site in HQ core trays to core yard wrapped in cling wrap, sealed with core tray lids, stacked on pallets then delivered by Company staff to Centurion Freight Rockhampton and shipped directly to ALS Laboratory Brisbane Laboratory for delivery to ALS Balcatta.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No audits or reviews have taken place.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• QMines Pty Ltd has two 100% owned subsidiaries, Dynasty Gold Pty Ltd and Rocky Copper Pty Ltd, through which the Company has a 100% beneficial interest in the Mt Chalmers Project. The Mt Chalmers Project is held in EPM 25935, EPM 27428 and EPM 27726 located 25 kilometres east of the City of Rockhampton in coastal central Queensland, Australia. The project covers an area of historic gold and copper mining, which comprises an area of 198 km2. • The Mt Chalmers resource is held in EPM 25935. • The Project is free and unencumbered by either joint ventures or any other equity participation of the tenement. • QMines has yet to negotiate any landowner provisions or Government royalties or yet to commence environmental studies within the project area. Currently the Queensland Department of Natural Resources & Mines is conducting remediation works on minor acid mine waste draining from a mineralised mullock dump.

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Criteria	JORC Code explanation	Commentary
		• All the tenements are for “all minerals” excepting coal. • Note that the granted tenements allow QMines to carry out many of their planned drilling programs under relevant access procedures applying to each tenement. • All the EPMs are subject to the Native Title Protection Conditions with respect to Native Title. • Declared Irrigation Areas, Declared Catchment Areas, Declared Drainage Areas, Fossicking areas and State Forest, are all land classifications that restrict exploration activity. These are not affecting QMines’ main prospects but may have impact on regional programs in places. • All annual rents and expenditure conditions have been paid and fully compliant.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• See the Independent Geologists’ report in the company’s prospectus for full details. • CEC and Peko are generally recognised as competent companies using appropriate techniques for the time. Written logs and hardcopy sections are considered good. Federation was a small explorer that was entirely focussed on defining the Mt Chalmers resource. They used a very competent geologist, Alex Taube, for the drilling programme. Alex Taube is widely respected for his knowledge about VHMS deposits in North Queensland.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The Mt Chalmers mineralisation is situated in the early Permian Berserker Beds, which occur in the fault-bounded Berserker Graben, a structure 120 km long and up to 15 km wide. The graben is juxtaposed along its eastern margin with the Tungamull Fault and in the west, with the Parkhurst Fault. • The Berserker Beds lithology consists mainly of acid to intermediate volcanics, tuffaceous sandstone and mudstone, (Kirkegaard and Murray 1970). The strata are generally flat lying, but locally folded. Most common are rhyolitic and andesitic lavas, ignimbrites or ash flow tuffs with numerous breccia zones. Rocks of the Berserker Beds

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<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td></td><td>are weakly metamorphosed and, for the most part, have not been subjected to major tectonic disturbance, except for normal faults that are interpreted to have developed during and after basin formation.
• Late Permian to early Triassic gabbroic and dioritic intrusions occur parallel to the Parkhurst Fault. Smaller dolerite sills and dykes are common throughout the region and the Berserker Beds.
• Researchers have shown that the Mt Chalmers mineralisation is a well-preserved, volcanic-hosted massive-sulphide (“VHMS – Kuroko style”) mineralised system containing zinc, copper, lead, gold and silver. Mineral deposits of this type are syngenetic and formed contemporaneously on, or close to, the sea floor during the deposition of the host-rock units deposited from hydrothermal fumaroles, direct chemical sediments or replacements (massive sulphides), together with disseminated and stringer zones within these host rocks.
• Insufficient work has been completed at the Tracker 3 Target to understand the geology and mineralisation of the area, but it is considered to be similar in style to the Mt Chalmers deposit.</td></tr>
<tr><td>Drill hole Information</td><td>• A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:
o easting and northing of the drill hole collar
o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar
o dip and azimuth of the hole
o down hole length and interception depth
o hole length.
• If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding</td><td><table><tr><th>Hole Id</th><th>Easting (m)</th><th>Northing (m)</th><th>RL (m)</th><th>MGA Azimuth</th><th>Dip</th><th>EOH (m)</th></tr><tr><td>MCDD017</td><td>259731</td><td>7421239</td><td>91</td><td>94</td><td>-56</td><td>93.1</td></tr></table></td></tr>
</table>

Criteria	JORC Code explanation	Commentary
	of the report, the Competent Person should clearly explain why this is the case.	
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• Results reported in the metallurgical testing represent samples that have been physically composited (i.e. no mathematical compositing has taken place) • No cutting of high-grades has been undertaken • Metal equivalents have not been used.
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').*	• Metallurgical test results relate to percentage recovered and/or concentrate grades and do not reflect down-hole intercepts
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• Maps, sections, mineralised intersections, plans and drill collar locations are included in the body of the relevant announcement.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of*	• This release reports a summary of all tests completed in the preliminary metallurgical testing of mineralized samples submitted. • No results have been withheld

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Criteria	JORC Code explanation	Commentary
	Exploration Results.	
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• This release refers to recent metallurgical testing of drill core samples from the Mt Chalmers resource. See the body of the release for details.
Further work	• *The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• The company plans to undertake further infill and extensional drilling on the Mt Chalmers deposit. • Further metallurgical testing will be undertaken.

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