EXCELLENT RESULTS FROM FIRST-PASS METALLURGICAL TESTWORK AT MT HARDY COPPER-ZINC PROJECT, NT

Testwork results from EM1 show ability to produce excellent quality concentrates and recoveries from first bulk composite sample; 2019 exploration program begins with diamond drilling underway

- Three separate high quality concentrates produced – copper, zinc and lead
- Recoveries exceeding 85% with significant potential for improvement through flowsheet optimisation
- Zinc concentrate values indicate a premium product with low impurities
- No significant quantities of deleterious elements detected in the concentrates produced
- Future work, following the completion of the first 2019 drilling campaign, will focus on improving overall recovery, concentrate grades and deportment of metal in the cleaner tail
- Drilling set to re-commence this week at Mt Hardy initially targeting extensions of the high-grade EM1 mineralisation down-plunge and along strike

Todd River Resources Limited (ASX: TRT; "Todd River" or "the Company") is pleased to advise that it has received highly encouraging results from the initial metallurgical testwork program conducted on the EM1 Prospect at its 100%-owned **Mt Hardy Copper-Zinc Project** in the Northern Territory (Figure 1).

Initial drilling, reported throughout 2018, has returned high grade drill intercepts of massive copper-lead-zinc sulphide minerals from EM1. No prior metallurgical testing has been conducted on samples from the Mount Hardy Project, making it strategically important for the Company to obtain some initial baseline information on the metallurgical characteristics of the discovery at the earliest opportunity.

Separate high quality copper, lead and zinc concentrates were generated via conventional sequential flotation processes, which are used to treat poly-metallic base metal ores with mineralisation such as that seen at Mt Hardy.

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 Strategic Metallurgy at their laboratory in Belmont with analytical work completed by NAGROM and ALS Laboratories.

A composite with a head grade of 0.92% Cu, 3.96% Pb, 17.8% Zn and 67.6 g/t Ag was subjected to six preliminary open circuit flotation tests. Sequential flotation was successful in producing high-grade concentrates of copper, lead and zinc. **Intermediate grades of up to 22.9% Cu, 74% Pb and 55.6% Zn were produced to their respective concentrates** albeit at lower recoveries to the final concentrate grades. **Final concentrate grades of 18.8% Cu, 64.0% Pb and 54.6% Zn were achieved.** Silver predominantly reported to the copper concentrate, grading as high as 800g/t silver. Rougher recoveries of up to 84.6% for copper, 85.6% for lead and 85.5% for zinc were achieved during this program with opportunity to further improve recoveries in subsequent testwork programs. Subject to sufficient mineralisation being identified to underpin a mining operation, all three concentrates are expected to be sought after products.

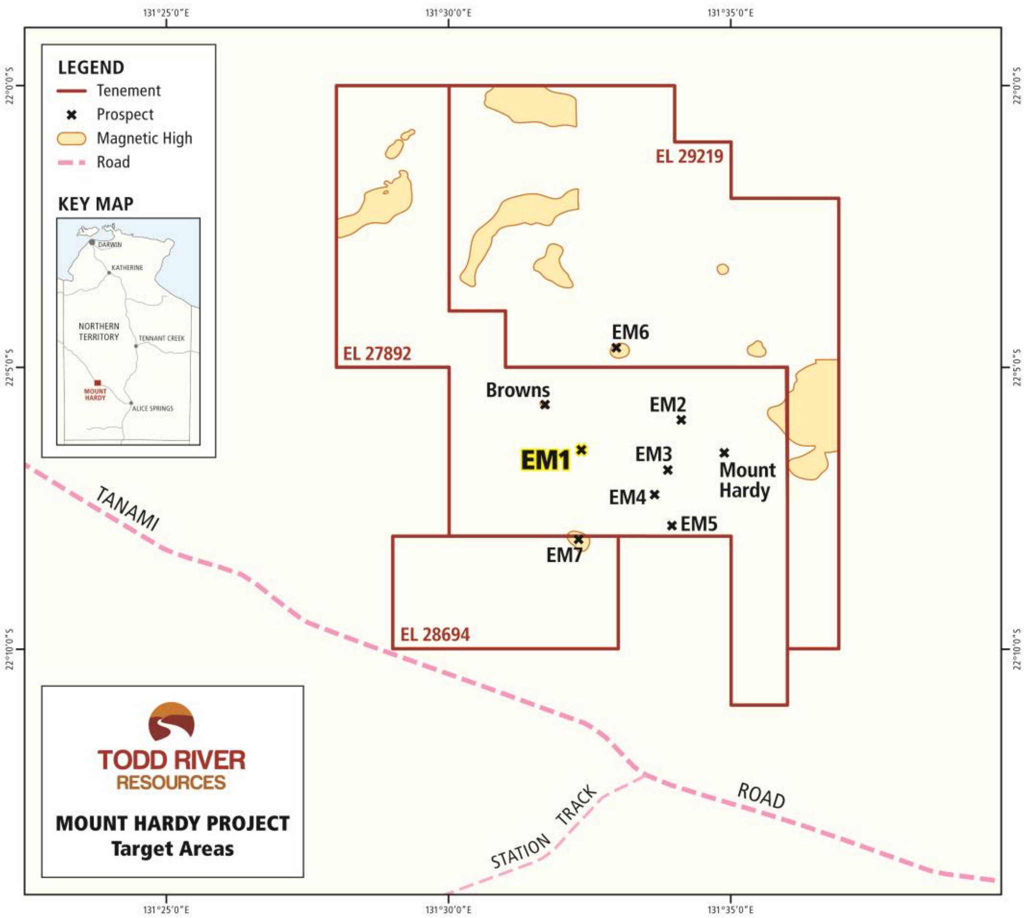

Figure 1 – Mt Hardy Project showing the location of the main drill target area, EM1 and additional prospects in the project area.

Commenting on the initial testwork results, Todd River's Managing Director, Will Dix, said:

"This is a significant box ticked for the potential of the Mt Hardy Project. While we still have lots of drilling to do in order to unlock the full potential of this discovery – and we are very conscious of not putting the cart before the horse – we wanted to give ourselves some comfort around the metallurgy at the earliest possible opportunity, and we have done that. We were confident from the observations made in the field and the assay results received to date that we would be able to produce a quality zinc concentrate. We have been able to confirm this and also to deliver high-quality copper and lead concentrates with attractive overall recoveries for all three metals without significant optimisation at this point.

"We are about to kick off our 2019 exploration field season with diamond drilling resuming at EM1 later this week, and we expect the mineralisation to continue to grow. At the appropriate time, we will instigate further metallurgical studies and also look at characterisation testwork and optimising the flotation for copper, lead and zinc."

TESTWORK DETAILS

Sample and Assay

One composite was prepared from select drill core intervals that represent the known mineralisation drilled to date (Table 1). The samples represent the different domains of the mineralisation at their relative proportions within the mineralised zone by volume.

The composite head grade (Table 2), determined by Inductively Coupled Plasma (ICP), is representative of the average grade of the mineralisation intersected in the drill-holes completed to date.

Table 1: Metallurgical composite core selection

Hole ID	From	To	Mass (kg)
MHRCDD021A	358	366	10.0
MHRCDD021A	366	373	7.71
18MHRCDD34	189	190	1.30
MHDD0043	433.6	438.5	8.13
MHDD0043	438.5	442	6.18
		Total	**33.31**

Table 2: Composite J000153-JR002 head assay

Metallurgical Composite	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)	Fe (%)	S (%)	Si (%)
J000153-JR002	67.6	0.92	3.96	17.8	9.63	14.7	21.3
Back calculated (testwork)	66.1	0.94	3.81	17.0	9.73	14.1	21.7
Size by assay	76.7	0.94	4.14	17.5	10.3	13.2	21.2

Flotation Summary

A total of six flotation tests have been conducted on the composite core selection to date. All tests were conducted on 1kg or 2kg batch flotation tests. All tests were conducted using Perth tap water at a primary grind size of P_{80} 75µm.

The flotation reagents utilised in this program of work are potassium amyl xanthate (PAX) and copper sulfate to activate and float zinc sulphides. The precious metal promoter 3418A is used to selectivity recover the copper. Polyfroth W22 (W22) was used as a frother (where required) for all flotation tests, with Polyfroth H57 (H57) also trialled on one test. Sodium metabisulfite (SMBS) was used as a lead depressant. S7621A is also an organic reagent used to depress iron sulphide minerals.
Both sodium cyanide and zinc sulfate were used as zinc depressants. Lime and sulfuric acid was used to modify the pH, aiding in the activation and/or depression of sulphide minerals.

Considering this phase of work was only a preliminary testwork program focused on producing separate concentrates, some excellent results were produced. A summary of the key results is provided in Table 33:

Table 3: Recovery to Final Concentrate Results

	Copper*		Silver*		Lead*		Zinc*	
	%Grade	%Recovery	g/pt	%Recovery	%Grade	%Recovery	%Grade	%Recovery
Copper Con								
Rougher	9.63	84.6	394	52.3				
Cleaner	**18.8**	**71.0**	627	34.5				
Lead Con								
Rougher			314	33.8	45.1	85.6		
Cleaner			421	23.2	**64.0**	**62.2**		
Zinc Con								
Rougher							46.6	85.5
Cleaner							**54.6**	**79.5**

***%Grade indicates final concentrate grade achieved and %Recovery indicates the recovery to final concentrate**

Rougher recovery to respective concentrates was moderately high. Subsequent cleaning resulted in a lower final recovery; however, further increases in recovery are expected when intermediate concentrate streams are reincorporated into the circuit.

High quality concentrate grades were achieved for copper, lead and zinc. The copper concentrate grade requires further work to optimise concentrate specification. It is likely that re-grinding will be required to achieve this.

Higher intermediate concentrates were achieved, namely copper (22.9%), lead (74%) and zinc (55.6%) however at lower recoveries, indicating the potential to achieve grade improvements through further flowsheet optimisation.

Recovery to final concentrates is expected to improve with further flowsheet optimisation including:

- Optimization of zinc depression in copper and lead circuits;
- Pyrrhotite depression, a diluent reporting to the concentrates; and
- Slowing zinc flotation kinetics.

Flowsheet

A high-level process flowsheet based on the testwork program has been developed (see Figure 2). Intermediate concentrate streams (including cleaner and re-cleaner tails) are likely to be reincorporated into the existing flowsheet; however, these have been left open until locked cycle testwork can be completed at a future date.

The recoveries reported exclude metal values in these intermediate streams. Subsequent closing of the flowsheet should improve flotation recoveries.

Although copper re-grinding has not been tested to date, a contingency for copper re-grinding has been included as testwork indicates this may be required.

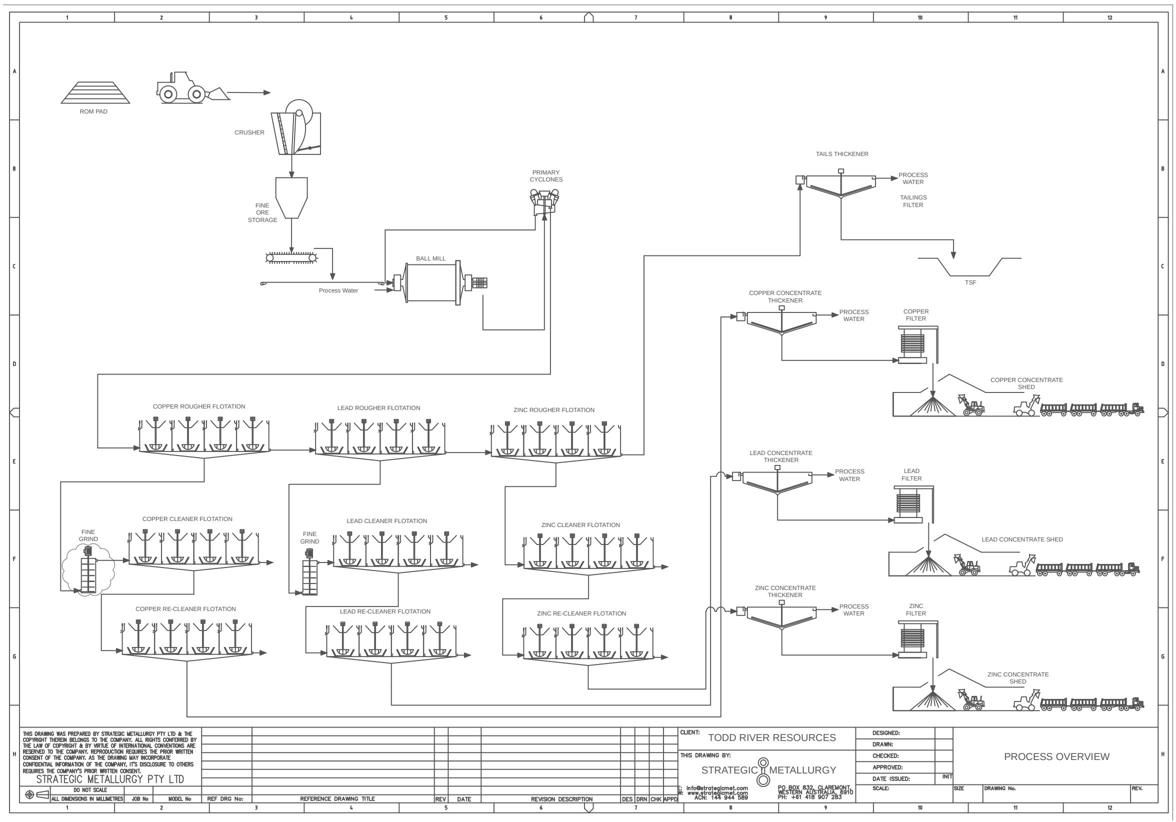

Figure 2: Process flowsheet

Future Work

At an appropriate time in the future, the Company plans to undertake additional metallurgical testwork on samples from EM1. A number of opportunities have been identified to improve both concentrate grade and recovery of copper, lead and zinc.

A summary of anticipated future work is as follows:

- Comminution test work:
- Mineralogy
- Flotation Optimisation
  - Pyrrhotite depression optimisation
  - Zinc depression optimisation
  - Lead depression optimisation
  - Investigate the need for a re-grind stage
  - Determine effects of site water on flotation

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Competent Person Statements

The metallurgical information in this report is based on, and fairly represents, information and supporting documentation compiled by Chief Metallurgist Mr Nick Vines B.Sc. Mr Vines is a member of the Australian Institute of Mining and Metallurgy, and a Director of Strategic Metallurgy Pty Ltd. Mr Vines has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which 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'. Mr Vines consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

About Todd River Resources

Todd River Resources (ASX: TRT) is an Australian-based resources company that has recently announced a zinc-copper discovery, EM1, at its 100% owned Mt Hardy Project, located 300km north west of Alice Springs.

With a strong management team, tight capital structure and fully funded for exploration in 2019, Todd River is well placed to pursue additional base metal mineralisation at Mt Hardy and progress exploration activities across its exploration portfolio.

While Todd River's main focus is at Mt Hardy, the Company holds an extensive precious and base metal project portfolio which includes the Rover gold project, the McArthur Copper-Zinc project and the large Manbarrum Zinc resource.

Appendix A JORC Table One – Section One. Sampling Techniques and Data
Mount Hardy Drilling – Reverse Circulation and Diamond Drilling – assay and pXRF Results

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (eg 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.	Reverse Circulation (RC) drill samples were taken from the rotary splitter mounted on the rig cyclone. Diamond drill samples were half core cut and sampled on 1m intervals. All samples from 2018 drilling have been submitted to Genalysis/Intertek Laboratories for industry standard preparation (whole sample crushed to >85% <75um) and analysis by both ICP for base metals and Fire Assay for precious metals.
Drilling techniques	Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg 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).	Reverse Circulation (RC) drilling of pre-collars with NQ sized diamond drill tails. Most intervals has been oriented, except where broken ground in encountered.
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.	Average of >90% recovery in all intervals. No issues of fines loss were observed. No issues relating to preferential loss/gain of grade material have been noted.
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.	RC chips and core was geologically logged for lithology, mineralogy, colour, weathering, alteration, structure and mineralisation. All holes were logged in full.
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.	All RC holes were sampled from the rotating splitter under the drill cyclone, taking a 2-4kg split from the bulk 15-25kg 1m interval. All sampled core was sawn and half core submitted. The sample preparation for all samples follows industry best practice, with oven drying of samples prior to coarse crushing and pulverization (to >85% passing 75 microns) of the entire sample Field duplicates have been taken every 50th sample. Further sampling (second half, lab umpire assay) will be conducted if it is considered necessary. The sample size (2-5 kg) is considered to be adequate for the material and grainsize being sampled and the style of mineralisation being drilled.
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.	Three certified base metal standards and a certified blank sample were analysed during sampling, at a rate of 1 in 25 samples. Standards were GBM399-7, GBM399-2, and GBM908-10 – low, medium and high grade for base metal respectively. Blank GLG312-2 was used. Results for the standards and the blank

	Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.	were acceptable, and no calibration factors have been applied. All samples reported here have been analysed at Genalysis Intertek by ICP technique, lab codes 4A/MS60 and FA25/MS. The four acid digest for the ICP data is considered a "total" result. Base metal standards and Blanks were inserted into the laboratory batch. Analytical results for the standards and the blank were acceptable, and no calibration factors have been applied.
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.	Sampling was conducted by the field geologist and verified by the Exploration Manager on site prior to cutting/dispatch. All data was entered into standardized spreadsheets on field laptops and uploaded into the company database. No adjustments have been made to the primary assay data
Locations 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 drilling collars were located up using a standard GPS unit with accuracy of ca. 5m for Easting, Northing and RL All coordinate data for the Mount Hardy project are in MGA_GDA94 Zone 52.
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.	At this early stage of exploration hole spacings vary as dictated by target size and position. No compositing has been applied to the exploration results. Sampling was of an exploratory and reconnaissance nature and spacings are insufficient to establish continuity or define Resources.
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 and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	Drilling intersections at Mount Hardy vary in the relationship to the mineralisation orientation. All holes were designed to give the best possible (as close to perpendicular) intersection, however as so few holes have been drilled the orientation is not well defined. In practise the intersections are at worst oriented at 45 degrees to the plane of the mineralisation (when it is known).
Sample security	The measures taken to ensure sample security.	All core and samples were under company supervision at all times prior to delivering to Intertek laboratories in Alice Springs
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	No sampling audits have been conducted at Mount Hardy

Section 2 Reporting of Exploration Results

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.	The Em1 prospect at Mount Hardy is located on tenement EL 27892 held by Todd River Metals Pty Ltd, which is wholly-owned by Todd River Resources Limited. All tenements are in good standing with no know impediments
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Between 2012 and 2016 significant work was conducted by TNG Limited, and has been reported to the ASX in several ASX Releases. In 2017 and 2018 Todd River completed two

		drilling programs and has reported results in several ASX releases.
Geology	Deposit type, geological setting and style of mineralisation.	Exploration at Mount Hardy conducted by Todd River Resources has aimed to identify structurally controlled base metal mineralisation, similar to that already outlined at Mount Hardy and elsewhere in the Arunta at Jervois or Barrow Creek. Both areas are underlain by the Paleoproterozoic Lander Rock Beds schists and gneisses and have been intruded by Mesoproterozoic granites and are cut be major shear zones.
Drill hole Information	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: ○ Easting and northing of the drill collar ○ Elevation of RL (Reduced Level – elevation above sea level in metres) of the drill collar ○ Dip and azimuth of the hole ○ Down hole length and interception depth ○ Hole length	Drillholes completed at Mount Hardy have been reported in numerous announcements through 2018. Interval and grade values reported here have been determined from length weighted averages of multiple results
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg 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.	Length weighted averaging has been used in the reporting of intervals in this release. No maximum or minimum cuts have been applied.
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 (eg 'down hole length, true width not known').	Orientation not well defined. Expected true thickness ca. 60-80% or drill/intercept interval.
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.	See Figures 2 and 3.
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 Exploration Results.	Relevant assay information is included in the report.
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.	No substantial new information is available other than that reported above.
Further work	The nature and scale of planned further work (eg 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.	Drilling will continue at EM1 at Mount Hardy over the coming few weeks, with sample submission and analytical results reported as available.