



# **2022 RENISON ORE RESERVE UPDATE**

Metals X Limited (**Metals X** or the **Company**) is pleased to provide its update of the Ore Reserve estimate for the Renison Tin Operations (**Renison**) in Tasmania. Renison is 50%-owned by Metals X through the Bluestone Mines Tasmania Joint Venture (**BMTJV**).

## **HIGHLIGHTS (100% basis)**

Total Renison Bell Proved and Probable Reserve increased to 8.8 Mt at 1.46% Sn for 128,900 tonnes of contained tin (taking into account depletion over the past 12 months):

- o Reduction in Cut Off Grade from 0.70% Sn to 0.65% Sn following Life of Mine economic analysis;
- o 13% increase in total Reserve Ore tonnes at Renison underground over the last 12 months;
- o 4% increase in Reserve tin grade at Renison underground over the past 12 months; and
- o 17% increase in Reserve contained tin at Renison underground over the past 12 months.

The 2022 Renison Bell Mineral Resource estimate update for the Renison underground tin mine, on which this Ore Reserve update is based, was announced to ASX on 14 June 2022, and highlighted:

- Total Measured, Indicated and Inferred Resource at Renison Bell is now 19.8 Mt at 1.61% Sn for 319,600 tonnes of contained tin.
- Defined tin in Total Resources has increased by 6% (18.1 Kt Sn Metal) and average tin grades have decreased by 2% (0.04% Sn) when compared to 31 March 2021, including a mining depletion of 12.4 Kt Sn Metal over the previous 12-month period.
- 4% increase (9.2 Kt Sn Metal) in Measured and Indicated Resources at Renison Bell from 262 Kt of contained tin to 272 Kt of contained tin.

#### **Executive Director Mr Brett Smith, commented:**

"Renison continues to outperform our expectations. It is pleasing to see an increase in our Reserves, which is a credit to the Resource Development and Planning team and bodes well to the site's Mission and Values to be a sustainable, efficient, capable, disciplined and respected Tin producer."

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# MINERAL RESOURCE AND ORE RESERVE STATEMENT

TABLE 1. RENISON TIN OPERATIONS ORE RESERVE ESTIMATE AT 31 MARCH 2022 MLX equity share is 50% of the Ore Reserve estimate shown below

		Tin			Copper		
Project	Ore Reserve Category	Ore Kt <sup>3</sup>	Grade % Sn	Tin Tonnes⁴	Ore Kt <sup>3</sup>	Grade % Cu	Copper Tonnes⁴
	Proved	1,596	1.28	20,400	1,596	0.15	2,400
Renison Bell <sup>1</sup>	Probable	7,251	1.50	108,500	7,251	0.16	11,900
	Total	8,848	1.46	128,900	8,848	0.16	14,300
	Proved	-	-	-	-	-	-
Rentails <sup>2</sup>	Probable	22,313	0.44	98,900	22,313	0.23	50,700
	Total	22,313	0.44	98,900	22,313	0.23	50,700
	Proved	1,596	1.28	20,400	1,596	0.15	2,400
TOTAL	Probable	29,564	0.7	207,400	29,564	0.21	62,600
	Total	31,161	0.73	227,800	31,161	0.21	65,000

Notes:

1. The Renison Bell Ore Reserve is based on the Mineral Resource estimate at 31 March 2022 (refer to ASX Announcement of 14 June 2022) with applied modifying factors, at a cut-off grade of 0.65% Sn.

2. The Renison Tailings Retreatment Project (Rentails) Ore Reserve is unchanged from that reported as at 31 March 2017 (refer to ASX Announcement of 28 August 2017), at a cut-off grade of 0.0% Sn.

3. Tonnes are reported as thousand tonnes (Kt) and rounded to the nearest 1,000 tonnes. Rounding may result in some slight apparent discrepancies in totals and grades.

4. Tin and copper tonnes were rounded to the nearest 100 tonnes. Rounding may result in some slight apparent discrepancies in totals and grades.

#### TABLE 2. RENISON TIN OPERATIONS MINERAL RESOURCE ESTIMATE AT 31 MARCH 2022

MLX equity share is 50% of the Mineral Resource estimate shown below

					Contain	ed Metal
Deposit	Mineral Resource Category <sup>1,2</sup>	Tonnes (Mt)	Tin (% Sn)	Copper (% Cu)	Tin (Kt) <sup>6</sup>	Copper (Kt) <sup>6</sup>
	Measured	2.25	1.65	0.22	37.1	4.96
Renison Bell <sup>3</sup>	Indicated	14.6	1.61	0.19	234	27.5
Reflison Dell	Inferred	2.98	1.61	0.24	48	7.17
	Total	19.8	1.61	0.20	320	39.6
D 4 11 45	Measured	23.9	0.44	-	-	-
	Indicated	-	-	-	-	-
Rentails <sup>4,5</sup>	Inferred	-	-	-	-	-
	Total	23.9	0.44	0.22	104	52.7
	Measured	26.2	0.14	0.02	37.1	4.96
	Indicated	14.6	1.61	0.19	234	27.5
TOTAL	Inferred	2.98	1.61	0.24	48	7.17
	Total	43.7	0.97	0.21	424	92.3

#### Notes:

1. Mineral Resources are reported inclusive of Mineral Resources modified to produce the Ore Reserve.

2. Figures are rounded according to JORC Code guidelines and may show apparent addition errors. Contained metal does not imply recoverable metal.

3. Cut-off grade of 0.65% Sn.

4. Cut-off Grade of 0.0% Sn.

5. The Rentails Mineral Resource is at 31 May 2018.

6. Tonnes are reported as thousand tonnes (Kt) and rounded to the nearest 1,000 tonnes. Rounding may result in some slight apparent discrepancies in totals and grades.



## **KEY ASSUMPTIONS AND JORC 2012 REQUIREMENTS**

Mineral Resources are reported inclusive of Ore Reserves. Mining production data up to 31 March 2022 and all exploration information has been included. Mineral Resources have been depleted for mining to 31 March 2022.

The tin price assumption used to estimate Mineral Resources and Ore Reserves was US\$27,500/t Sn at an assumed exchange rate of USD/AUD 0.76 giving a price of AUD \$36,000/t Sn.

The Mineral Resources and Ore Reserves have been classified in accordance with the guidelines set out in the Australasian Code for Reporting Exploration Results, Mineral Resources and Ore Reserves, published by the Joint Ore Reserves Committee (**JORC**), of the Australasian Institute of Mining and Metallurgy, the Australian Institute of Geoscientists and the Minerals Council of Australia, December 2012 (the **JORC Code** or **JORC 2012**).

The Mineral Resource estimate for Renison is in Table 2 and was reported to ASX on 14 June 2022. The 2022 Ore Reserve estimate for Renison is reported in Table 1.

Material Information for the individual deposits, including a summary of material information pursuant to ASX Listing Rule 5.9 and the Assessment and Reporting Criteria in accordance with JORC 2012 requirements, is included in the body of this report and in Appendix A to this announcement.

## MINERAL RESOURCE AND ORE RESERVE GOVERNANCE STATEMENT

In accordance with ASX Listing Rule 5.21.5, governance of the Company's Mineral Resources and Ore Reserves development and management activities are managed through the management team of Renison in Tasmania which is 50%-owned by Metals X through the BMTJV.

Senior geological and mining engineering staff of the BMTJV oversee reviews and technical evaluations of the estimates and evaluates these with reference to actual physical, cost and performance measures. The evaluation process also draws upon internal skill sets in operational and project management, ore processing and commercial/financial areas of the business.

The BMTJV Management Committee of which Metals X has three members is responsible for monitoring the planning, prioritisation and progress of exploratory and resource definition drilling programs across the Company and the estimation and reporting of Mineral Resources. These definition activities are conducted within a framework of quality assurance and quality control protocols covering aspects including drill hole siting, sample collection, sample preparation and analysis as well as sample and data security. The BMTJV Management Committee is responsible for the reporting of Ore Reserves.

A four-level compliance process guides the control and assurance activities by the BMTJV:

- Provision of internal policies, standards, procedures and guidelines;
- Mineral Resource and Ore Reserve reporting based on well-founded geological and mining assumptions and compliance with external standards such as the JORC Code;
- Internal review of process conformance and compliance; and
- Internal assessment of compliance and data veracity.

The BMTJV Management Committee aims to promote the maximum conversion of identified mineralisation into Mineral Resources and Ore Reserves compliant with JORC 2012.

The Company reports its Mineral Resources and Ore Reserves, as a minimum, on an annual basis, in accordance with ASX Listing Rule 5.21 and clause 14 of Appendix 5A (the JORC Code).

Competent Persons named by the Company are members of the Australasian Institute of Mining and Metallurgy (**AusIMM**) and/or the Australian Institute of Geoscientists (AIG) and qualify as Competent Persons as defined in the JORC Code.



# **ORE RESERVE ESTIMATE**

Table 1 shows the updated Ore Reserve estimate for the Renison Tin Operations at 31 March 2022.

#### SUMMARY OF MATERIAL INFORMATION

The updated Renison Bell Ore Reserve estimate reported in Table 1 is based on the updated Mineral Resource estimate (refer to ASX Announcement of 14 June 2022) with modifying factors applied. The modifying factors and associated criteria used in determining the Ore Reserve are summarised below, in accordance with ASX Listing Rule 5.9.1, and detailed in Appendix A:

- Geological models used in the estimation are summarised in Appendix A: Table 1, Section 3: Modelling Techniques;
- Cut-off grade was determined based on actual unit costs currently being experienced at the Renison Tin Operations;
- Tin price assumption of US\$27,500/t at an assumed exchange rate of USD/AUD 0.76 for a price of AUD \$36,000/t Sn;
- The mine predominantly applies an open stoping, backfilled with Cemented Rock Fill (**CRF**) and Loose Rock Fill (**LRF**). A paste plant is currently under construction and will be the primary backfill method in Area 5 and Leatherwood stopes.
- Underground stoping uses a mining recovery factor of between 90% and 97.5% depending on the individual stoping block. Additionally, mining dilution of between 5% and 20% has been applied to individual stopes blocks;
- Metallurgical recoveries applied to produce tin concentrate from ore are based on historical and current recoveries in the operating Renison Tin Concentrator based on a regression analysis of the grade recovery curve; and
- The operation is fully permitted allowing production to continue for the life of mine.

## ANNUAL COMPARISON OF ORE RESERVES

Table 3 compares the 2021 Ore Reserve estimate, as at 31 March 2021, with the updated Ore Reserve estimate as at 31 March 2022 for the Renison Bell and Rentails deposit. The Ore Reserve estimate for Rentails has not been updated since 31 March 2017 (reported on 28 August 2017).

MLX equity share is 50% of the Ore Reserve estimates shown below. Ore Reserves are a subset of the Mineral Resource estimate.

#### TABLE 3. RENISON ORE RESERVE ESTIMATE - DEPLETION & RESERVE ADJUSTMENTS FROM PRIOR YEAR

		Tin			Copper		
Project	Ore Kt	Grade % Sn	Metal Kt Sn	Ore Kt	Grade % Cu	Metal Kt Cu	
31 March 2021							
Renison Bell	7,837	1.41	110	7,837	0.19	16	
Rentails	22,310	0.44	99	22,310	0.23	51	
Total	30,147	0.69	209	30,147	0.22	67	
Mining Depletion							
Renison Bell	(830)	1.50	(12)	(830)	0.17	(1.4)	
Rentails	-	-	-	-	-		
Reserve Adjustments							
Renison Bell	1,840	1.68	31	1,840	(0.02)	(0.4)	
Rentails	-	-	-	- \	-	- \ \	
31 March 2022							
Renison Bell	8,848	1.46	129	8,848	0.16	14	
Rentails	22,310	0.44	99	22,310	0.23	51	
Total	31,158	0.73	228	31,158	0.21	65	

Note: Rounding may result in apparent discrepancies in totals and grades.



The difference between the 2022 Renison Ore Reserve estimate and 2021 Ore Reserve estimate include the following modifications:

- Update of reserve position based on new drilling, face sampling and sludge data incorporated with stope shape estimations in each mine area;
- All dilution and recovery factors updated as appropriate; and
- Inclusion of new mining areas that have been found to be economically extractable.

#### TABLE 4. RENISON ORE RESERVE ESTIMATE - ANNUAL

MLX equity share is 50% of the Ore Reserve estimates shown below

		Tin			Copper		
Ore Reserve Reporting Date	Ore Reserve Category <sup>1</sup>	Ore Kt <sup>2</sup>	Grade % Sn	Tin Tonnes <sup>3</sup>	Ore Kt <sup>2</sup>	Grade % Cu	Copper Tonnes <sup>3</sup>
31 March 2022 <sup>1</sup>	Proved	1,596	1.28	20,400	1,596	0.15	2,400
	Probable	7,251	1.50	108,500	7,251	0.16	11,900
	Total	8,848	1.46	128,900	8,848	0.16	14,300

Notes:

1. Ore Reserves as calculated at 31 March 2022 by Metals X, adjusted for depletion to 31 March 2022, based on the Mineral Resource estimate of 31 March 2022 (refer to ASX Announcement, 2022 Renison Mineral Resource Update, dated 14 June 2022).

- 2. Tonnes are reported as thousand tonnes (Kt) and rounded to the nearest 1,000 tonnes. Rounding may result in some slight apparent discrepancies in totals and grades.
- 3. Tin and copper tonnes were rounded to the nearest 100 tonnes. Rounding may result in some slight apparent discrepancies in totals and grades.

#### **COMPETENT PERSONS STATEMENTS**

The information in this report that relates to Mineral Resources has been compiled by Bluestone Mines Tasmania Joint Venture Pty Ltd technical employees under the supervision of Mr Colin Carter B.Sc. (Hons), M.Sc. (Econ. Geol), AusIMM. Mr Carter is a full-time employee of the Bluestone Mines Tasmania Joint Venture Pty Ltd and has sufficient experience which is relevant to the style of mineralisation and types of deposit under consideration and to the activities 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 Carter consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to Ore Reserves has been compiled by Bluestone Mines Tasmania Joint Venture technical employees under the supervision of Mr Philip Bremner, B Engineering (Mining Engineering), AusIMM. Mr. Bremner is a principal mining consultant at Oreteck Mining Solutions. Mr Bremner has sufficient experience which is relevant to the style of mineralisation and types of deposit under consideration and to the activities 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 Bremner consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

This announcement has been authorised by the Board of Directors of MetalsX Limited.

#### **ENQUIRIES**

Mr Brett Smith Executive Director E: <u>brett.smith@metalsx.com.au</u>



# INFORMATION MATERIAL TO UNDERSTANDING THE MINERAL RESOURCES AND ORE RESERVES

#### JORC CODE, 2012 EDITION

JORC TABLE 1: THE INFORMATION IN THIS TABLE REFERS TO THE FOLLOWING PROJECTS AT THE RENISON TIN OPERATIONS: RENISON AND RENTAILS

### SECTION 1: SAMPLING TECHNIQUES AND DATA

(Criteria in this section apply to all succeeding sections)

Criteria	JORC Code Explanation	Commentary
Sampling techniques	<ul> <li>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.</li> </ul>	<ul> <li>Diamond Drilling</li> <li>The bulk of the data used in resource calculations at Renison has been gathered from diamond core. Three sizes have been used historically NQ2 (45.1mm nominal core diameter), LTK60 (45.2mm nominal core diameter) and LTK48 (36.1mm nominal core diameter), with NQ2 currently in use. This core is geologically logged and subsequently halved for sampling. Grade control holes may be whole-cored to streamline the core handling process if required.</li> </ul>
	<ul> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> </ul>	<ul> <li>NQ and HQ core sizes have been recorded as being used at Mount Bischoff. This core is geologically logged and subsequently halved for sampling.</li> <li>There is no diamond drilling for the Rentails Project. Face Sampling</li> <li>Each development face / round is horizontally chip sampled at Renison. The sampling</li> </ul>
Drilling techniques Drill sample recovery	<ul> <li>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</li> </ul>	<ul> <li>intervals are domained by geological constraints (e.g. rock type, veining and alteration / sulphidation etc.). Samples are taken in a range from 0.3m up to 1.2m in waste. All exposures within the orebody are sampled. A similar process would have been followed for historical Mount Bischoff face sampling.</li> <li>There is no face sampling for the Rentails Project. Sludge Drilling</li> <li>Sludge drilling at Renison is performed with an underground production drill rig. It is an open</li> </ul>
	<ul> <li>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.).</li> </ul>	<ul> <li>hole drilling method using water as the flushing medium, with a 64-89mm (nominal) hole diameter. Sample intervals are ostensibly the length of the drill steel. Holes are drilled at sufficient angles to allow flushing of the hole with water following each interval to prevent contamination.</li> <li>There is no sludge drilling for the Mount Bischoff Project.</li> <li>There is no sludge drilling for the Rentails Project.</li> </ul>
	<ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> </ul>	<ul> <li>RC Drilling</li> <li>RC drilling has been utilised at Mount Bischoff.</li> </ul>
	<ul> <li>Measures taken to maximise sample recovery and ensure</li> </ul>	Drill cuttings are extracted from the RC return via cyclone. The underflow from each interval is



Criteria	JORC Code Explanation	Commentary
	<ul> <li>representative nature of the samples.</li> <li>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.</li> </ul>	transferred via bucket to a four tiered riffle splitter, delivering approximately three kilograms of the recovered material into calico bags for analysis. The residual material is retained on the ground near the hole. Composite samples are obtained from the residue material for initial analysis, with the split samples remaining with the individual residual piles until required for re- split analysis or eventual disposal.
		There is no RC drilling for the Renison Project.
		<ul> <li>There is no RC drilling for the Rentails Project.</li> <li>Percussion Drilling</li> </ul>
		<ul> <li>This drilling method was used for the Rentails project and uses a rotary tubular drilling cutter which was driven percussively into the tailings. The head of the cutting tube consisted of a 50mm diameter hard tipped cutting head inside which were fitted 4 spring steel fingers which allowed the core sample to enter and then prevented it from falling out as the drill tube was withdrawn from the drill hole.</li> </ul>
		There is no percussion drilling for the Renison Project.
		There is no percussion drilling for the Mount Bischoff Project.
		<ul> <li>All geology input is logged and validated by the relevant area geologists, incorporated into this is assessment of sample recovery. No defined relationship exists between sample recovery and grade. Nor has sample bias due to preferential loss or gain of fine or coarse material been noted.</li> </ul>
Logging	<ul> <li>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.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul> <li>Diamond core is logged geologically and geotechnically.</li> <li>RC chips are logged geologically.</li> <li>Development faces are mapped geologically.</li> <li>Logging is qualitative in nature.</li> <li>All holes are logged completely, all faces are mapped completely.</li> </ul>



Criteria	JORC Code Explanation	Commentary
Sub-sampling techniques and sample preparation	<ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>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.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul> <li>Generally, drill core is sampled whole-core to streamline the handling process and ensure a larger more representative sample is obtained. For selected drill holes where representative core is required to be kept, core is cut and half sampled. If a field duplicate is required, the core is quarter cored and sampled.</li> <li>Samples are dried at 90°C, then crushed to &lt;3mm. Samples are then riffle split to obtain a sub-sample of approximately 100g which is then pulverized to 90% passing 75um. 2g of the pulp sample is then weighed with 12g of reagents including a binding agent, the weighed sample is then pulverised again for one minute. The sample is then compressed into a pressed powder tablet for introduction to the XRF. This preparation has been proven to be appropriate for the style of mineralisation being considered.</li> <li>QA/QC is ensured during the sub-sampling stages process via the use of the systems of an independent NATA / ISO accredited laboratory contractor.</li> <li>The sample size is considered appropriate for the grain size of the material being sampled.</li> <li>For half cut core the un-sampled half of diamond core is retained for check sampling if required.</li> <li>For RC chips regular field duplicates are collected and analysed for significant variance to primary results.</li> </ul>
Quality of assay data and laboratory tests	<ul> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>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.</li> <li>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.</li> </ul>	<ul> <li>Assaying is undertaken via the pressed powder XRF technique. Sn, As and Cu have a detection limit 0.01%, Fe and S detection limits are 0.1%. These assay methodologies are appropriate for the resource in question.</li> <li>All assay data has built in quality control checks. Each XRF batch of twenty consists of one blank, one internal standard, one duplicate and a replicate, anomalies are re-assayed to ensure quality control.</li> <li>Bluestone Mines matrix matched standard reference materials are inserted into each sample batch at a rate of 1 in every 25<sup>th</sup> sample.</li> <li>Two samples of Bluestone Mines blank material are inserted in every drill hole after significant mineralisation.</li> <li>Specific gravity / density values for individual areas are routinely sampled during all diamond drilling where material is competent enough to do so.</li> <li>The assay laboratory conducts umpire checks reported on a 10-month basis for their own external checks.</li> <li>XRF calibration and servicing is conducted on a regular basis.</li> </ul>
Verification of sampling and assaying	<ul> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<ul> <li>Anomalous intervals as well as random intervals are routinely check assayed as part of the internal QA/QC process.</li> <li>Virtual twinned holes have been drilled in several instances across all sites with no significant issues highlighted. Drillhole data is also routinely confirmed by development assay data in the operating environment.</li> <li>Primary data is loaded into the drillhole database system and then archived for reference.</li> <li>All data used in the calculation of resources and reserves are compiled in databases</li> </ul>



CriteriaJORC Code ExplanationCommentary(underground and open pit) which are overseen and validated by s• The lab results are received electronically in .csv file format. No pri in any way. If any error is noted, including transcription errors, the la corrections are requested prior to importing data into database.• An electronic copy of the internal lab monthly report is also filed aw folder.• No primary assays data is modified in any way.• Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings• All data is spatially oriented by survey controls via direct pickups by Drillholes are all surveyed downhole, currently with a GyroSmart to	imary assay data is modified ab is informed and immediate way in Renison QAQC by the survey department. bool in the underground short surface diamond holes. If at the various sites.
<ul> <li>The lab results are received electronically in .csv file format. No pri in any way. If any error is noted, including transcription errors, the lai corrections are requested prior to importing data into database.</li> <li>An electronic copy of the internal lab monthly report is also filed aw folder.</li> <li>No primary assays data is modified in any way.</li> <li>Accuracy and quality of surveys used to locate drill holes</li> <li>All data is spatially oriented by survey controls via direct pickups by</li> </ul>	imary assay data is modified ab is informed and immediate way in Renison QAQC by the survey department. bool in the underground short surface diamond holes. If at the various sites.
<ul> <li>in any way. If any error is noted, including transcription errors, the la corrections are requested prior to importing data into database.</li> <li>An electronic copy of the internal lab monthly report is also filed aw folder.</li> <li>No primary assays data is modified in any way.</li> </ul>	ab is informed and immediate way in Renison QAQC by the survey department. bool in the underground short surface diamond holes. If at the various sites.
Location of       • Accuracy and quality of surveys used to locate drill holes       • All data is spatially oriented by survey controls via direct pickups by	by the survey department. bol in the underground short surface diamond holes. If at the various sites.
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- The data is spatially of salveys used to locate and holes - The data is spatially offended by salvey controls via an expension by	ool in the underground short surface diamond holes. I at the various sites.
<ul> <li><i>and other locations used in Mineral Resource estimation.</i></li> <li><i>Specification of the grid system used.</i></li> <li><i>Limitation and a multishot camera for the typically sl</i></li> <li>All drilling and resource estimation is undertaken in local mine grid</li> </ul>	we we want to difference on the set
<ul> <li>Quality and adequacy of topographic control.</li> <li>Topographic control is generated from remote sensing methods in surveys undertaken where additional detail is required. This methor resource in question.</li> </ul>	
<ul> <li>Data spacing and and and a spacing for reporting of Exploration Results.</li> <li>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.</li> <li>Whether sample compositing has been applied.</li> <li>Whether sample compositing has been applied.</li> <li>Drilling in the underground environment at Renison is nominally can spacing in the south of the mine and 25m, x 25m spacing in the nomining occurring. A lengthy history of mining has shown that this data spacing in the south of the mine and 25m, x 25m spacing in the nomining occurring. A lengthy history of mining has shown that this data spacing is appropriate for the Mineral Resource estimation procedure (s) and classifications applied.</li> <li>Whether sample compositing has been applied.</li> <li>Drilling at Mount Bischoff is variably spaced. A lengthy history of mining has spacing is appropriate for the Mineral resource estimation procedure estimation procedure (s) and classifications applied.</li> <li>Drilling at Mount Bischoff is variably spaced. A lengthy history of mining has spacing is appropriate for the Mineral resource estimation procedure estimation procedure estimation procedure estimation procedure (s) and classifications applied.</li> <li>Drilling at Mount Bischoff is variably spaced. A lengthy history of mining has spacing is appropriate for the Mineral resource estimation procedure estimation proced</li></ul>	orth of the mine prior to lata spacing is appropriate ification of the resource as it nining has shown that this
<ul> <li>Drilling at Rentails is usually carried out on a 100m centres. This is resource estimation process and to allow for classification of the re</li> </ul>	
Compositing is carried out based upon the modal sample length of	f each individual domain.
<ul> <li>Orientation of data in relation to</li> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>Drilling intersections are nominally designed to be normal to the orientation of underground infrastructure constraints / topography allows.</li> <li>Development sampling is nominally undertaken normal to the varion of the varion o</li></ul>	
<ul> <li>this is known, considering the deposit type.</li> <li>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.</li> <li>Development sampling is nominally undertaken normal to the vario.</li> <li>It is not considered that drilling orientation has introduced an apprentiation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed</li> </ul>	
• The measures taken to ensure sample security. • At Renison, Mount Bischoff and Rentails samples are delivered dir laboratory by the geotechnical crew where they are taken into cust laboratory contractor.	
Audits or reviews       The results of any audits or reviews of sampling techniques and data.       Site generated resources and reserves and the parent geological or the Metals X Corporate technical team.	data is routinely reviewed by



## SECTION 2: REPORTING OF EXPLORATION RESULTS

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

Criteria	JORC Code Explanation	Commentary
<i>Mineral tenement and land tenure status</i>	<ul> <li>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.</li> <li>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.</li> </ul>	<ul> <li>All Tasmania resources are hosted within 12M1995 and 12M2006. Both tenements are standard Tasmanian Mining Leases.</li> <li>No native title interests are recorded against the Tasmanian tenements.</li> <li>Tasmanian tenements are held by the Bluestone Mines Tasmania Joint Venture of which Metals X has 50% ownership.</li> <li>No royalties above legislated state royalties apply for the Tasmanian tenements.</li> <li>Bluestone Mines Tasmania Joint Venture operates in accordance with all environmental conditions set down as conditions for grant of the Mining Leases.</li> <li>There are no known issues regarding security of tenure.</li> </ul>
Exploration done by other parties	<ul> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<ul> <li>The Renison and Mount Bischoff areas have an exploration and production history in excess of 100 years.</li> <li>Bluestone Mines Tasmania Joint Venture work has generally confirmed the veracity of historic exploration data.</li> </ul>
Geology	• Deposit type, geological setting and style of mineralisation.	<ul> <li>Renison is one of the world's largest operating underground tin mines and Australia's largest primary tin producer. Renison is the largest of three major Skarn, carbonate replacement, pyrrhotite-cassiterite deposits within western Tasmania. The Renison Mine area is situated in the Dundas Trough, a province underlain by a thick sequence of Neoproterozoic-Cambrian siliciclastic and volcaniclastic rocks. At Renison there are three shallow-dipping dolomite horizons which host replacement mineralisation.</li> </ul>
		• Mount Bischoff is the second of three major Skarn, carbonate replacement, pyrrhotite- cassiterite deposits within western Tasmania. The Mount Bischoff Mine area is situated within the Dundas Trough, a province underlain by a thick sequence of Neoproterozoic- Cambrian siliciclastic and volcaniclastic rocks. At Mount Bischoff folded and faulted shallow- dipping dolomite horizons host replacement mineralisation with fluid interpreted to be sourced from the forceful emplacement of a granite ridge and associated porphyry intrusions associated with the Devonian Meredith Granite, which resulted in the complex brittle / ductile deformation of the host rocks. Lithologies outside the current mining area are almost exclusively metamorphosed siltstones. Major porphyry dykes and faults such as the Giblin and Queen provided the major focus for ascending hydrothermal fluids from a buried ridge of the Meredith Granite. Mineralisation has resulted in tin-rich sulphide replacement in the dolomite lodes, greisen and sulphide lodes in the porphyry and fault / vein lodes in the major faults. All lodes contain tin as cassiterite within sulphide mineralisation with some coarse cassiterite as veins throughout the lodes.
		<ul> <li>The Rentails Mineral Resource is contained within three Tailing Storage Facilities (TSF's) that have been built up from the processing of tin ore at the Renison Bell mine over the period 1968 to 2013.</li> </ul>



Criteria	JORC Code Explanation	Commentary
Drill hole Information	<ul> <li>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:         <ul> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> </ul>	<ul> <li>No exploration results are reported as part of this release, results relating to the deposits have been previously released.</li> </ul>
	<ul> <li>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 of the report, the Competent Person should clearly explain why this is the case.</li> </ul>	
Data aggregation methods	<ul> <li>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.</li> </ul>	<ul> <li>No exploration results are reported as part of this release, results relating to the deposits have been previously released.</li> </ul>
	<ul> <li>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.</li> </ul>	
	<ul> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	
Relationship between mineralisation widths and intercept	<ul> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> </ul>	<ul> <li>No exploration results are reported as part of this release, results relating to the deposits have been previously released.</li> </ul>
lengths	<ul> <li>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').</li> </ul>	
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.	<ul> <li>No exploration results are reported as part of this release, results relating to the deposits have been previously released.</li> </ul>





Criteria	JORC Code Explanation	Commentary
Balanced reporting	<ul> <li>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.</li> </ul>	<ul> <li>No exploration results are reported as part of this release, results relating to the deposits have been previously released.</li> </ul>
Other substantive exploration data	<ul> <li>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.</li> </ul>	No relevant information to be presented.
Further work	<ul> <li>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale stepout drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	<ul> <li>Exploration assessment and normal mine extensional drilling continues to take place at Renison.</li> <li>Exploration assessment continues to progress at Mount Bischoff.</li> <li>Project assessment continues to progress at Rentails.</li> </ul>



## SECTION 3: ESTIMATION AND REPORTING OF MINERAL RESOURCES

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code Explanation	Commentary
Database integrity	<ul> <li>Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.</li> <li>Data validation procedures used.</li> </ul>	<ul> <li>Drillhole data is stored in a Maxwell's DataShed system based on the Sequel Server platform which is currently considered "industry standard".</li> <li>As new data is acquired it passes through a validation approval system designed to pick-up any significant errors before the information is loaded into the master database. The information is uploaded by a series of Sequel routines and is performed as required. The database contains diamond drilling (including geotechnical and specific gravity data), face chip and sludge drilling data and some associated metadata. By its nature this database is large in size, and therefore exports from the main database are undertaken (with or without the application of spatial and various other filters) to create a database of workable size, preserve a snapshot of the database at the time of orebody modelling and interpretation and preserve the integrity of the master database.</li> <li>A random check of 20 original assay files against database records is performed before the estimation as part of validation, for any transcription errors or for any incorrect assignment to drillholes.</li> <li>A "resvalid code" of zero is assigned to drillhole data deemed reliable and trustworthy. A "resvalid code" of 1 is assigned as invalid and flagged for further investigation and not used in</li> </ul>
Site visits	<ul> <li>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> <li>If no site visits have been undertaken indicate why this is the</li> </ul>	
Geological interpretation	<ul> <li>case.</li> <li>Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.</li> <li>Nature of the data used and of any assumptions made.</li> </ul>	<ul> <li>senior resource geologists.</li> <li>Mining has occurred since 1800's providing significant confidence in the currently geological interpretation across all projects.</li> <li>No alternative interpretations are currently considered viable.</li> </ul>
	<ul> <li>The effect, if any, of alternative interpretations on Mineral Resource estimation.</li> <li>The use of geology in guiding and controlling Mineral Resource estimation.</li> </ul>	• Geological interpretation of the deposit was carried out using a systematic approach to ensure that the resultant estimated Mineral Resource figure was both sufficiently constrained, and representative of the expected sub-surface conditions. In all aspects of resource estimation the factual and interpreted geology was used to guide the development of the interpretation.
	• The factors affecting continuity both of grade and geology.	<ul> <li>Independent evaluations, underground structural and geological mapping has been verified by an external consultant geologist.</li> <li>The architecture of the Renison horst / graben system is the dominant control on geological and grade continuity.</li> <li>Similarly at Mount Bischoff the extent of intrusive felsic dykes in proximity to carbonate horizons control the continuity of grade within the system.</li> <li>The depositional history of Rentails is well documented.</li> </ul>



Criteria		JORC Code Explanation		Commentary
Dimensions	•	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	•	Renison has currently been mined over a strike length of >1,950m, a lateral extent of >1,250r and a depth of over 1,100m. Mount Bischoff mineralisation has currently been defined over a strike length of >600m, a lateral extent of >250m and a depth of >250m. Rentails is deposited in three adjacent TSFs which have and aggregate length of approximately 1.8km and a width at the widest point of circa 1km. Maximum depth is in excess of 20m.
Estimation and modelling techniques	•	The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used. The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data. The assumptions made regarding recovery of by-products. Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation). In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed. Any assumptions behind modelling of selective mining units. Any assumptions about correlation between variables. Description of how the geological interpretation was used to control the resource estimates. Discussion of basis for using or not using grade cutting or capping. The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	· · · ·	All modelling and estimation work undertaken by BMTJV is carried out in three dimensions via Leapfrog and Surpac Vision. After validating the drillhole data to be used in the estimation, interpretation of the orebody is undertaken in sectional (Surpac) or on a three dimensional point basis (Leapfrog). Wireframing is then carried out using a combination of manual triangulation or automated stitching algorithms to create an accurate three dimensional representation of the sub-surface mineralised body. In all aspects of resource estimation the factual and interpreted geology was used to guide the development of the interpretation. Drillhole intersections within the mineralised body are defined, these intersections are then used to flag the appropriate sections of the drillhole database tables for compositing purposes. Drillholes are subsequently composited to allow for grade estimation. Once the sample data has been composited, a statistical analysis is undertaken to assist with determining estimation search parameters, top-cuts etc. Variographic analysis of individual domains is undertaken to assist with determining appropriate search parameters, which are then incorporated with observed geological and geometrical features to determine the most appropriate search parameters. An empty block model is then created for the area of interest. This model contains attributes set at background values for the various elements of interest and density. The block sizes used in the model will vary depending on orebody geometry, minimum mining units, estimation parameters and levels of informing data available. Grade estimation is then undertaken, with ordinary kriging estimation method is considered as standard, although in some circumstances where sample populations are small, or domains are unable to be accurately defined, inverse distance weighting estimation techniques will be used. Both by-product and deleterious elements are estimated at the time of primary grade estimation. It is assumed that by-products correlate well
			•	Estimation results are routinely validated against primary input data, previous estimates and mining output.



Criteria	JORC Code Explanation	Commentary
Moisture	<ul> <li>Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.</li> </ul>	<ul> <li>Good reconciliation between mine claimed figures and milled figures is routinely achieved.</li> <li>Tonnage estimates are dry tonnes.</li> </ul>
Cut-off parameters Mining factors or assumptions	<ul> <li>The basis of the adopted cut-off grade(s) or quality parameters applied.</li> <li>Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.</li> </ul>	<ul> <li>The resource reporting cut-off grade is 0.65% Sn at Renison.</li> <li>There is no lower reporting cut-off grade for Rentails.</li> <li>The Renison mine predominantly applies up-hole benching and open stoping with in some cases post fill and cemented rock fill to fill voids. The mining method has been successfully applied over the past decade with small tweaks and geotechnical considerations progressively applied.</li> <li>A minimum mining width of underground development is 4.5m and for underground stoping a minimum width of 2.0 m. Resource models are diluted to these limits before dilution is applied.</li> <li>Mining recoveries vary depending upon the stopes physical shape, geological setting and size between 75% and 98%.</li> </ul>
<i>Metallurgical factors or assumptions</i>	• The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	<ul> <li>The Renison mine produces a tin concentrate of grade varying between 50- 60 % Sn with internal process designed to reduce penalty metals such as iron, sulphur, tungsten and copper.</li> <li>The metallurgical process is complex and applies several stages of gravity-type concentration as well as sulphide and oxide flotation, regrinding and acid leach methods. The method is proved and has successfully operated for over 50 years.</li> <li>The metallurgical recovery is estimated based on regression analysis of grade recovery curves from the actual processing of ores in the plant.</li> <li>Metallurgical recoveries on the various ore types and grades were considered as part of the cutoff grade analysis.</li> </ul>
Environmental factors or assumptions	<ul> <li>Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.</li> </ul>	Bluestone Mines Tasmania Joint Venture operates in accordance with all environmental conditions set down as conditions for grant of the respective mining leases.



Criteria	JORC Code Explanation	Commentary
Bulk density	<ul> <li>Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.</li> <li>The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.</li> <li>Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</li> </ul>	<ul> <li>Bulk density of the mineralisation at Renison and Mount Bischoff is variable. Bulk density sampling is undertaken via assessments of drill core (BMTJV practice is to undertake bulk density determinations on a representative selection of drill core sent for assay), and are reviewed constantly (BMTJV practice is to collect check SG samples as a regular part of the mining cycle). Where no drill core or other direct measurements are available, SG factors have been assumed based on similarities to other zones of mineralisation.</li> <li>The comprehensive density dataset available to Renison has allowed the stoichiometric calculation of density based on dominant mineral species. This stoichiometric function is then uses ordinary kriged block grades to calculate density into each block in the block model. The current calculation is as follows: 2.61+(0.0159*Cu)+(0.0349*Sn)+(0.0339*Fe)+(0.0339*As)+(0.0089*MgO).</li> <li>As a check to the calculation archimedes method data continues to be collected for half cut core.</li> <li>No measures of moisture have been incorporated into the resource model, therefore all estimated tonnes are assumed to be dry tonnes.</li> <li>Given the volume of the TSF's are known, and the tonnage of tailings material deposited into the dams was recorded, the insitu bulk density of the Rentails resource has been back-calculated.</li> </ul>
Classification	<ul> <li>The basis for the classification of the Mineral Resources into varying confidence categories.</li> <li>Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).</li> <li>Whether the result appropriately reflects the Competent Person's view of the deposit.</li> </ul>	<ul> <li>Resources are classified in line with JORC guidelines utilising a combination of various estimation derived parameters, the input data and geological / mining knowledge. This approach considers all relevant factors and reflects the Competent Person's view of the deposit.</li> <li>At Renison classification utilises a combination of wireframes for Measured and inverse distance estimations for Indicated and Inferred classifications. The Measured wireframes enforce the Bluestone Mines Tasmania JV requirement that only those areas with ore development may be classified as Measured such that the wireframes only exist 20m above existing development. The inverse distance estimations use a combination of search size and sample selection to allow zones of coherent classification related to drilling density.</li> <li>A final validation step makes a comparison from previous resource classifications, so that both a visual check and block model outputs can be objectively examined, reflecting changes in input data, confidence of geology and metal values. Variations such as average distance of informing samples, kriging variance and slope of regression values for each resource category, domain and pass number can be appropriately assessed, so that the level of subjectivity when undertaking classification can be minimised.</li> </ul>



Criteria	JORC Code Explanation	Commentary
Audits or reviews	<ul> <li>The results of any audits or reviews of Mineral Resource estimates.</li> </ul>	<ul> <li>Resource estimates are peer reviewed by the site technical team as well as Metals X's Corporate technical team.</li> </ul>
Discussion of relative accuracy/ confidence	<ul> <li>Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.</li> <li>The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.</li> <li>These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</li> </ul>	<ul> <li>All currently reported resources estimates are considered robust, and representative on both a global and local scale.</li> <li>A continuing history of mining with good reconciliation of mine claimed to mill recovered provides confidence in the accuracy of the estimate for Renison and Mount Bischoff.</li> <li>The application of geostatistical analysis and procedures through Snowden's Supervisor v8.2 software is used to quantify and validate the resource estimate. Currently, it is peer reviewed onsite by experienced senior resource geologists prior to releasing the final resource statement and prior to the final report approved by the Competent Person.</li> <li>A detailed set of production records provides confidence in the accuracy of the estimate for Rentails.</li> </ul>



## SECTION 4: ESTIMATION AND REPORTING OF ORE RESERVES

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria		JORC Code Explanation		Commentary		
Mineral Resource estimate for conversion to Ore	•	Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.	•	Mineral Resources that have been converted to Ore Reserve are classified as either an Indicated or Measured Resources.		
Reserves	•	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	•	Indicated Resources are converted to Probable Ore Reserves by applying appropriate mining factors.		
			٠	Measured Resource are converted as Proven Ore Reserves by applying appropriate mining factors.		
			٠	Mineral Resources are inclusive of Ore Reserves		
Site visits	٠	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	•	Phil Bremner, the Competent Person for the Renison Ore Reserve visited the site during		
	•	If no site visits have been undertaken indicate why this is the case.		the 2022 reporting period in February & August 2022. While on site Phil inspected the Renison underground and surface installations associated with the operation.		
			•	Communication with site has been via video conferencing and email as required.		
Study status	•	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	•	Mining is in progress at Renison and has occurred for nearly 50 years.		
	•	The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral	•	The current mine design, mining method, operating parameters, modifying factors, actual costs and knowledge gained from Renison operation are used in the Ore Reserve estimate.		
		Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	•	A LOM study has been completed to optimise the ore resource in Area 5 and Leatherwood and this information has been used to define the down dip extensions to these two areas.		
Cut-off parameters	•	The basis of the cut-off grade(s) or quality parameters applied.	•	The operating cut-off grades vary between areas of the mine due to a range of mill recoveries. The resultant cutoff grades are either 0.65% or 0.75% Sn. These have been estimated on 2021/22 actual mining costs and budget mill recoveries, off site costs and market parameters as determined by the Bluestone Tin board.		
			•	Cutoff grades are reduced by 0.1% Sn for stopes which don't require development. A cutoff grade of 0.4% Sn is applied to essential development.		
			•	Economic analysis is carried out for each planned stope and only stopes with a positive return are included in the Ore Reserve estimate.		



Criteria	JORC Code Explanation		Cor	nmentary		
		<ul> <li>No consideration is given mining and recovery of t tin.</li> </ul>				
Mining factors or assumptions	• The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of	<ul> <li>The Renison mine predo Fill (CRF) and Loose Ro over 10 years</li> </ul>				
	appropriate factors by optimisation or by preliminary or detailed design).	<ul> <li>A paste plant is currently Area 5 and Leatherwood</li> </ul>				
	<ul> <li>The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.</li> </ul>	<ul> <li>Detailed stope designs a stope designs are used.</li> </ul>	are used where	access has b	een developed othe	rwise prelimina
		A seismic monitoring and	d management	system is in pla	ace.	
	<ul> <li>The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control and pre-production drilling.</li> </ul>	<ul> <li>Stress and structural momentum mining sequences, stope</li> </ul>	odels have bee	en developed	and are used to ide	entify appropria
		<ul> <li>Ore development is routinely mapped and sampled, stope production is routinely sample and monthly mine production is reconciled to milled tonnes and grade.</li> </ul>				
	<ul> <li>The mining dilution factors used.</li> <li>The mining recovery factors used.</li> </ul>	<ul> <li>A minimum mining width a minimum width of 3.0 n</li> </ul>		d development	is 4.5m and for unc	lerground stop
	<ul> <li>Any minimum mining widths used.</li> <li>The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.</li> <li>The infrastructure requirements of the selected mining methods.</li> </ul>	<ul> <li>Stope reconciliations are generated in MSO. Man applicable to the specific</li> </ul>	ually designed			
		<ul> <li>Mining dilution and recover below:</li> </ul>	very factors are	applied to de	velopment and stop	e designs as p
		Ore Zone	ELOS HW (m)	ELOS FW (m)	Dilution %	Recovery %
		Lower Federal			15%	90%
		Upper Federal	0.59	0.59	20%	90%
		Huon North	0.24	0.24	20%	95%
		Central Federal Bassett	0.5	0.25	20%	97.5%
		Lower Central Federal Bassett	0.5	0.25	20%	90%
						0.001

Flinders

North King

0.26

0.21

0.26

0.21

15%

15%

90%

90%



Criteria	JORC Code Explanation			Commentary			
		Leatherwood	0.78	0.28	19.2%	95%	
		Blackwoods	0.18	0.18	10%	90%	
		Area 5 Quad 1	0.49	0.75	9.7%	90%	
		Area 5 Quad 2	0.67	0.62	10.7%	90%	
		Area 5 Quad 3	1.14	1.0	17.8%	90%	
		Area 5 Quad 4	0.99	1.05	17.7%	90%	
		Development			15%-20%	100%	
		Sill Pillar Stopes			10-20%	50-75%	
		<ul> <li>or Probable stopes ar</li> <li>A new exhaust airway</li> <li>Backfill facilities are to stopes in Area 5.</li> <li>Other Infrastructure re mining method are es</li> </ul>	v is to be establis be established equirements (oth	shed from surfa to manufactur	ace to 1020mRL (Are e the engineered fill	ea 5); materials for	
Metallurgical factors or assumptions	<ul> <li>The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.</li> </ul>	<ul> <li>The Renison mine p internal process des copper.</li> </ul>					
	<ul> <li>Whether the metallurgical process is well-tested technology or novel in nature.</li> <li>The nature, amount and representativeness of</li> </ul>	<ul> <li>Processing of ore in flotation and cassiter been successfully op</li> </ul>	ite flotation in ad	ddition to conce			
	metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	<ul> <li>The metallurgical re- based on historical p</li> </ul>	covery is estimation	ated from plan			
	Any assumptions or allowances made for deleterious	<ul> <li>Metallurgical recover</li> </ul>	Metallurgical recovery factors have been applied to different orebody domains.				
	<ul> <li>elements.</li> <li>The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.</li> </ul>	• The Ore Reserve es factors to meet the e				y and metallurgio	
	<ul> <li>For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?</li> </ul>						
Environmental	• The status of studies of potential environmental impacts	Renison operates un	ider the conditio	ns set out by a	n environmental lice	nse to operate.	
	of the mining and processing operation. Details of waste	<ul> <li>Waste generated fro</li> </ul>	m Underground	mining is kept	in underground and	used as backfill i	



Criteria	JORC Code Explanation	Commentary
	rock characterisation and the consideration of potential	the mined voids.
	sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	<ul> <li>Once the Paste Fill plant is commissioned in 2022, tailings will be utilised to generate a paste backfill product which will be pumped underground to fill stopes in Area 5 and Leatherwood mine areas.</li> </ul>
Infrastructure	• The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.	• The Renison mine is currently active and has substantial infrastructure in place including a large amount of mine infrastructure, major electrical and pumping networks, and underground primary crusher and automated shaft hoist system, a 1,000,000tpa tim processing plant, a fully equipped laboratory, extensive workshop, administration facilities tailing storage facilities and a 100 person single person quarters nearby.
Costs	<ul> <li>The derivation of, or assumptions made, regarding projected capital costs in the study.</li> </ul>	<ul> <li>Costs for the Renison mine are based on historical actual site costs and future budge estimates for all functions at the existing mine.</li> </ul>
	<ul><li>The methodology used to estimate operating costs.</li><li>Allowances made for the content of deleterious elements.</li></ul>	<ul> <li>Capital underground development costs are derived from the LOM plan and actual costs a per above.</li> </ul>
	<ul><li>The source of exchange rates used in the study.</li><li>Derivation of transportation charges.</li></ul>	<ul> <li>Other capital costs are related to planned equipment and infrastructure costs and are base on quotes or historical actual costs.</li> </ul>
	• The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification,	Closure costs are included in the LOM plan.
	<ul> <li>etc.</li> <li>The allowances made for royalties payable, both Government and private.</li> </ul>	Tasmania government royalties are included
Revenue factors	• The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges,	<ul> <li>Revenue factors are based on metal production in concentrate from the LOM plan, a long- term tin price of Au\$ 36,000 / tonne and USD/AUD exchange rate of 0.76 has been used to estimate the Ore reserves.</li> </ul>
	<ul> <li>penalties, net smelter returns, etc.</li> <li>The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.</li> </ul>	• TC's, RC's, transport and marketing costs are based on current contracts with port and
Market assessment	<ul> <li>The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.</li> </ul>	• The move towards renewable energy and battery technology is set to increase the demand on Tin. Limited supply and high demand will support a long-term elevation in the price of Tin.
	<ul> <li>A customer and competitor analysis along with the identification of likely market windows for the product.</li> </ul>	
	<ul> <li>Price and volume forecasts and the basis for these forecasts.</li> </ul>	



Criteria	JORC Code Explanation	Commentary
	<ul> <li>For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.</li> </ul>	
Economic	<ul> <li>The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.</li> <li>NPV ranges and sensitivity to variations in the significant assumptions and inputs.</li> </ul>	<ul> <li>As an operating mine, internal cash flow estimates apply an implied 8% real discount rate for NPV analysis and only economically viable ores are considered for mining. The mine is operated in a JV and carries limited debt, exclusive to financed equipment.</li> <li>Sensitivity analysis of projected tin prices up to -15% estimate positive cash flow</li> </ul>
Social	• The status of agreements with key stakeholders and matters leading to social licence to operate.	• The Renison mine is fully permitted and a major contributor to the local and regional economy. It has no external pressures that impact its operation or which could potentially jeopardise its continuous operation.
Other	• To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	Renison is an active mining project.
	<ul> <li>Any identified material naturally occurring risks.</li> </ul>	
	<ul> <li>The status of material legal agreements and marketing arrangements.</li> </ul>	
	• The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	The classification adopted is based on the level of confidence as set out in the 2012 JORC guidelines
	Whether the result appropriately reflects the Competent	<ul> <li>Proven Ore Reserves are based on Measured Resources subject to economic viability.</li> </ul>
	Person's view of the deposit.	Probable Ore Reserves are based on Indicated Resources subject to the economic viability.
	<ul> <li>The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).</li> </ul>	• The estimate appropriately reflects the view of the competent person. Inferred Resources are included in the Ore Reserve estimate at zero grade where they are mined as a result of mining predominantly Measured or Indicated stopes and development.
Audits or reviews	<ul> <li>The results of any audits or reviews of Ore Reserve estimates.</li> </ul>	• Site generated reserves and the parent data and economic evaluation data is routinely reviewed by the Metals X Corporate technical team. Resources and Reserves have in the past been subjected to external expert reviews, which have ratified them with no issues. The mine planning is currently under review by an independent consultant.





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Discussion of relative accuracy / confidence	<ul> <li>Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.</li> </ul>	The relative accuracy of the Ore Reserve estimate is considered robust as it is based on the knowledge gained from extensive operational history of the mine. All currently reported reserve estimations are considered representative on a local scale. Regular mine reconciliations occur to validate and test the accuracy of the estimates at Renison.
	• The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	
	<ul> <li>Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.</li> </ul>	
	<ul> <li>It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</li> </ul>	