

## ASX Release

11 November 2024

# Excellent Gold and Copper Recoveries from Liontown

### Highlights

- Preliminary metallurgical test work has been completed on copper and gold mineralised core from the Gap Zone and the Au-rich panel at Liontown. The intervals selected are representative of Au-Cu rich mineralisation along the broader Liontown Footwall.
- **Gold recoveries to 97.4%** were achieved from conventional cyanide leaching (106µm grind size) from Au in the Liontown Footwall. **Furthermore, gold recoveries to 99.4%** were achieved when the sample was ground to 38µm, as per the toll treating Pajingo Gold Operation (~25km away).
- **Copper recoveries to 95.2%** at a concentrate grade of 13% Cu (complete) & a cumulate Au grade of 55.1 g/t Au (at Cleaner 1 & 2) were returned from flotation of the Gap Zone samples. Rougher tails were treated with conventional leaching and returned **gold recoveries to 92.6%**.
- The sighter test work program is a significant improvement on historical metallurgical results where recoveries of 65% for gold were achieved.
- Metallurgical test work is ongoing with the next update due in December 2024.
- Results from this ongoing metallurgical test work program will be applied to a Resource update/upgrade scheduled for December 2024.

**Sunshine Metals Limited** (ASX:SHN, “Sunshine”) is pleased to announce excellent results from preliminary metallurgical test work at Liontown (100%), part of the Ravenswood Consolidated Project.

**Sunshine Managing Director, Dr Damien Keys**, commented “The impressive results from metallurgical test work further underpin the significance of the gold-copper rich Liontown Footwall.

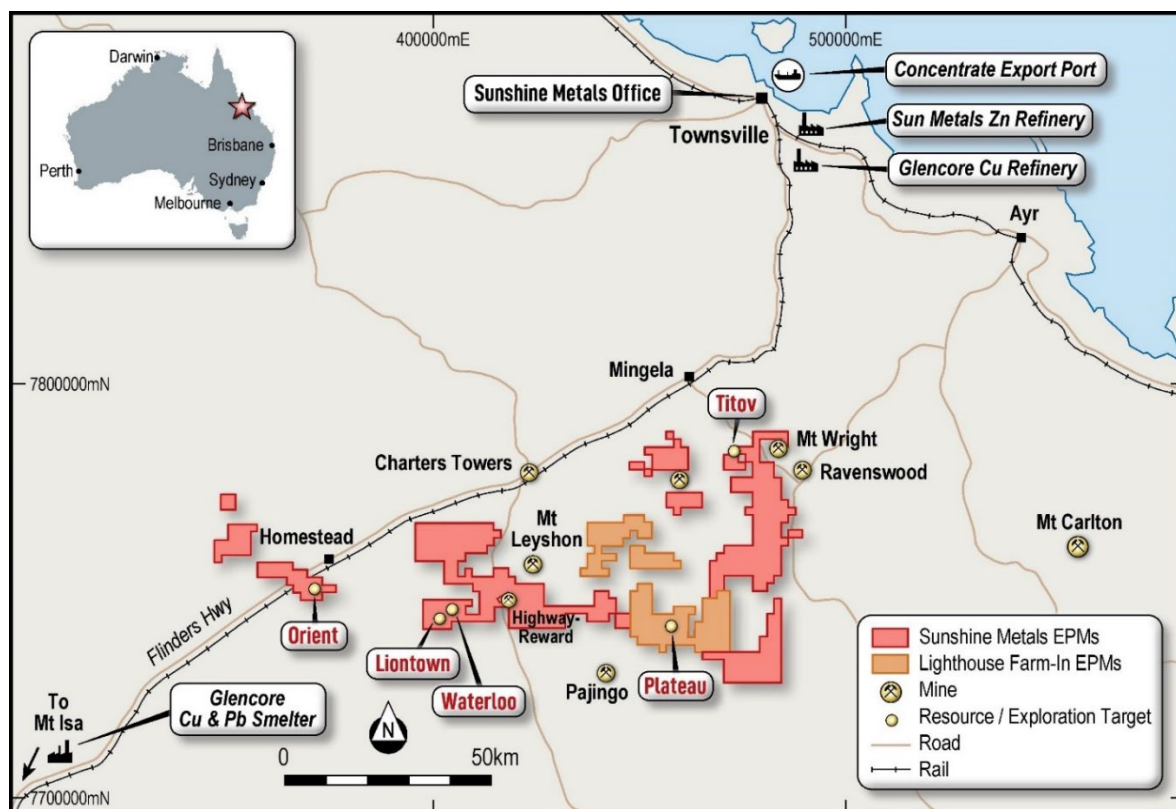
*These results are a significant step forward and with further refinement, will provide valuable input into a planned scoping study in 2025.*

*The substantially improved recoveries of gold and copper will be applicable to specific zones in the Liontown Resource, in particular the Au-rich panel where intersections of 17m @ 22.1g/t Au and 20m @18.2g/t Au were intersected.*

*All bodes well for a significant Resource update/upgrade in December 2024.”*



**Figure 1.** Rougher flotation test work.



**Figure 2.** Sunshine's Ravenswood Consolidated Project is near the mining hub of Charters Towers in Queensland. This map shows the easily accessed Liontown district.

### **Preliminary Metallurgical Test Work, Liontown Footwall**

Preliminary metallurgical test work on samples from the Au rich Liontown Footwall (Composite 1, 17.1kg: from hole LTDD22055<sup>1</sup>) and the gold-copper rich Gap Zone (Composite 2, 28.9 kg: single composite from holes 24LTDD011 & 24LTDD024<sup>2</sup>). Testing was conducted by Independent Metallurgical Operations (IMO).

The intervals selected for test work were considered representative of gold dominant mineralisation and gold-copper rich mineralisation from the broader Liontown Footwall. Drill assay results for the samples were:

- 8.1m @ 10.65 g/t Au, 0.2% Cu from 152.2m (LTDD22055) Composite 1
- 16.2m @ 4.54g/t Au, 1.11% Cu (from 319m, 24LTDD024) Composite 2  
Including 6.2m @ 9.00g/t Au, 2.52% Cu (from 329m, 24LTDD024)
- 16.7m @ 3.73g/t Au, 0.53% Cu (from 229m, 24LTDD011) Composite 2  
Including 7.7m @ 6.43g/t Au, 0.85% Cu (from 238m, 24LTDD011)

Historical metallurgical samples from Liontown were gathered primarily from the zinc-rich Main Lode and new Queen Lode. Recoveries achieved were 80% for copper and 65% for gold.

Optical mineralogy results indicated that gold occurs on the margins of chalcopyrite and within quartz veining. Gold appears to be liberated at >50µm.

### **Gold Recovery Test work, Bottle Roll Cyanide Leach**

Both Composite 1 (Au-panel) and Composite 2 (Gap Zone) were tested to assess the recovery of gold using gravity separation followed by a bottle roll leach test. The samples were crushed and ground to P<sub>80</sub> 38µm (as per fine grind size parameters at the nearby Pajingo Gold Operation) in LT01 and LT02. A second round of leaches were conducted at a conventional grind size P<sub>80</sub> 106 µm.

Both grind size tests displayed rapid leach kinetics, with > 90% of the gold recovered in the first 2 hours and used standard lime and cyanide consumptions. The samples returned 48-hour leach extractions of 99.4% and 98.4% when ground to the finer 38µm and 97.4% and 95.0% at the coarser 106µm grind size.

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<sup>1</sup> Refer to ASX release dated 8 May 2023, "Fully Funded Acquisition of Greater Liontown"

<sup>2</sup> Refer to ASX release dated 4 June 2024, "Step out holes hit thick, high-grade gold-copper, Liontown"

Sample ID	Units	Composite 1	Composite 2	Composite 1	Composite 2
Test Number		LT01	LT02	LT03	LT04
Grind Size (P <sub>80</sub> )	µm	38 µm	38 µm	106 µm	106 µm
% NaCN (Init/Mtn)	%	0.1 / 0.05	0.1 / 0.05	0.05 / 0.03	0.05 / 0.03
O <sub>2</sub> /Air Sparge		O <sub>2</sub>	O <sub>2</sub>	O <sub>2</sub>	O <sub>2</sub>
Calc'd Head Grade	g/t	11.6	6.55	12.7	6.51
Gravity Recovery	%	21.6%	29.6%	19.9%	29.9%
Overall Recovery	%	<b>99.4%</b>	<b>98.4%</b>	<b>97.4%</b>	<b>95.0%</b>
Residue Grade	g/t	0.06	0.10	0.32	0.33
Lime Consumption	kg/t	0.32	0.55	0.94	0.37
Cyanide Consumption	kg/t	1.02	0.46	0.20	0.36

**Table 1.** Table of test results for bottle roll leach test work.

### Copper and Gold Recovery Test work, Rougher Flotation - Bottle Roll Cyanide Leach

The test work was also extended to determine copper, gold, zinc, and lead recoveries via rougher flotation.

IMO's preliminary test work involved four-stage "rougher" flotation (FT01), the inclusion of cleaner flotation (FT02) and then the addition of lime (to increase pH) to preferentially float copper and improve concentrate grade (FT03). Rougher tails were subjected to bottle roll cyanide leaching, to optimise gold recoveries in the gold-copper rich mineralisation.

The best performing test, FT03, returned a copper recovery of 95.2% and a cleaner concentrate copper grade of 13.0%. Cumulative gold grade was 55.1 g/t, however due to insufficient mass generated in concentrates 3 and 4 the gold recovery was not reported.

Rougher tails were cyanide leached (via bottle roll leaching) yielding a leached gold recovery of 92.6%.

Product	Mass	Cu		Au		Ag	
	%	Cum Cu Grade (%)	Cum Cu Rec	Cum Au Grade (g/t)	Cum Au Rec	Cum Ag Grade (g/t)	Cum Ag Rec
Cleaner Con 1	3.88%	13.4	53.6%	60.2	-	93.3	49.6%
Cleaner Con 1-2	5.82%	13.3	79.4%	55.1	-	91.1	72.6%
Cleaner Con 1-3	6.83%	13.1	91.7%	-	-	89.3	83.6%
<b>Cleaner Con 1-4</b>	<b>7.15%</b>	<b>13.0</b>	<b>95.2%</b>	<b>-</b>	<b>-</b>	<b>88.8</b>	<b>86.9%</b>
Rougher Con	10.3%	9.2	98.2%	-	-	64.4	91.2%
Calculated Grade	10.3%	0.97	100%	-	-	7.30	100%
Assayed Grade		0.97		11.8		7.40	

**Table 2.** Table of test results optimal flotation test (FT03).

Sample ID	Units	Composite 2
Test Number		FT03
Grind Size (P <sub>80</sub> )	µm	65 µm
% NaCN (Init/Mtn)	%	0.1 / 0.05
O <sub>2</sub> /Air Sparge		O <sub>2</sub>
Calc'd Head Grade	g/t	1.57
0 Hour Extracted Au	%	0.0%
2 Hour Extracted Au	%	50.8%
4 Hour Extracted Au	%	68.4%
48 Hour Extracted Au	%	92.6%
Gravity Recovery	%	0.0%
<b>Overall Recovery</b>	<b>%</b>	<b>92.6%</b>
Residue Grade	g/t	0.12
Lime Consumption	kg/t	0.64
Cyanide Consumption	kg/t	0.31

**Table 3.** Table of test results for the bottle roll leaching of the rougher tail from flotation test.

### Further Planned Metallurgical Work

Further work is ongoing, incorporating a regrind stage to further liberate the copper and improve overall concentrate copper grades. Also, gold recovery to copper concentrate will be reported in the next metallurgical test work update due in December 2024.

Metallurgical studies will also consider options for optimising gold recoveries from the zinc rich contact mineralisation at Liontown.

## Planned activities

The Company has a busy period ahead including the following key activities and milestones:

- November 2024: RC drilling results Highway East and Truncheon
- 13-15 November 2024: Noosa Mining Conference Presentation
- November 2024: Remaining diamond drilling results for the Gap Zone
- November 2024: Geophys surveys commence: Liontown EM and Coronation IP
- 29 November 2024: Annual General Meeting
- December 2024: Liontown Resource Update

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**Sunshine's Board has authorised the release of this announcement to the market.**

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## Competent Person's Statement

*The information in this report that relates to Exploration Results is based on, and fairly represents, information compiled by Mr Matt Price, a Competent Person who is a Member of the Australian Institute of Geoscientists (AIG) and the Australian Institute of Mining and Metallurgy (AusIMM). Mr Price has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration, and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the JORC Code. Mr Price consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.*

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## About Sunshine Metals

### Big System Potential.

**Ravenswood Consolidated Project (Zn-Cu-Pb-Au-Ag-Mo):** Located in the Charters Towers-Ravenswood district which has produced over 20Moz Au and 14mt of VMS Zn-Cu-Pb-Au ore. The project comprises:

- a Zn-Cu-Pb-Au VMS Resource of 5.45mt @ 12.0% ZnEq (47% Indicated, 53% Inferred<sup>3</sup>);
- 26 drill ready VMS Zn-Cu-Pb-Au IP geophysical targets where testing of a similar target has already led to the Lioneville East discovery (1.47mt @ 11.0% ZnEq, 100% Inferred);
- the under-drilled Lioneville Au-rich footwall with significant intersections including:
  - **5.0m @ 27.9g/t Au, 1.7% Cu** (20m, LRC018)
  - **2.0m @ 68.6g/t Au** (24m, LRC0043)
  - **20.0m @ 18.2g/t Au** (109m, 24LTRC005)
  - **17.0m @ 22.1g/t Au** (67m, 23LTRC002)
  - **8.0m @ 11.7g/t Au & 0.9% Cu** (115m, LLRC184)
  - **8.1m @ 10.7g/t Au** (154m, LTDD22055)
  - **16.2m @ 4.54g/t Au, 1.11% Cu** (from 319m, 24LTDD024)
- advanced Au-Cu VMS targets at Coronation and Highway East, analogous to the nearby Highway-Reward Mine (4mt @ 6.2% Cu & 1.0g/t Au mined);
- overlooked orogenic, epithermal and intrusion related Au potential with numerous historic gold workings and drill ready targets; and
- a Mo-Cu Exploration Target at Titov of 5-8mt @ 0.07-0.12% Mo & 0.28-0.44% Cu<sup>4</sup>.

**\*Investigator Project (Cu):** Located 100km north of the Mt Isa, home to rich copper-lead-zinc mines that have been worked for almost a century. Investigator is hosted in the same stratigraphy and similar fault architecture as the Capricorn Copper Mine, located 12km north.

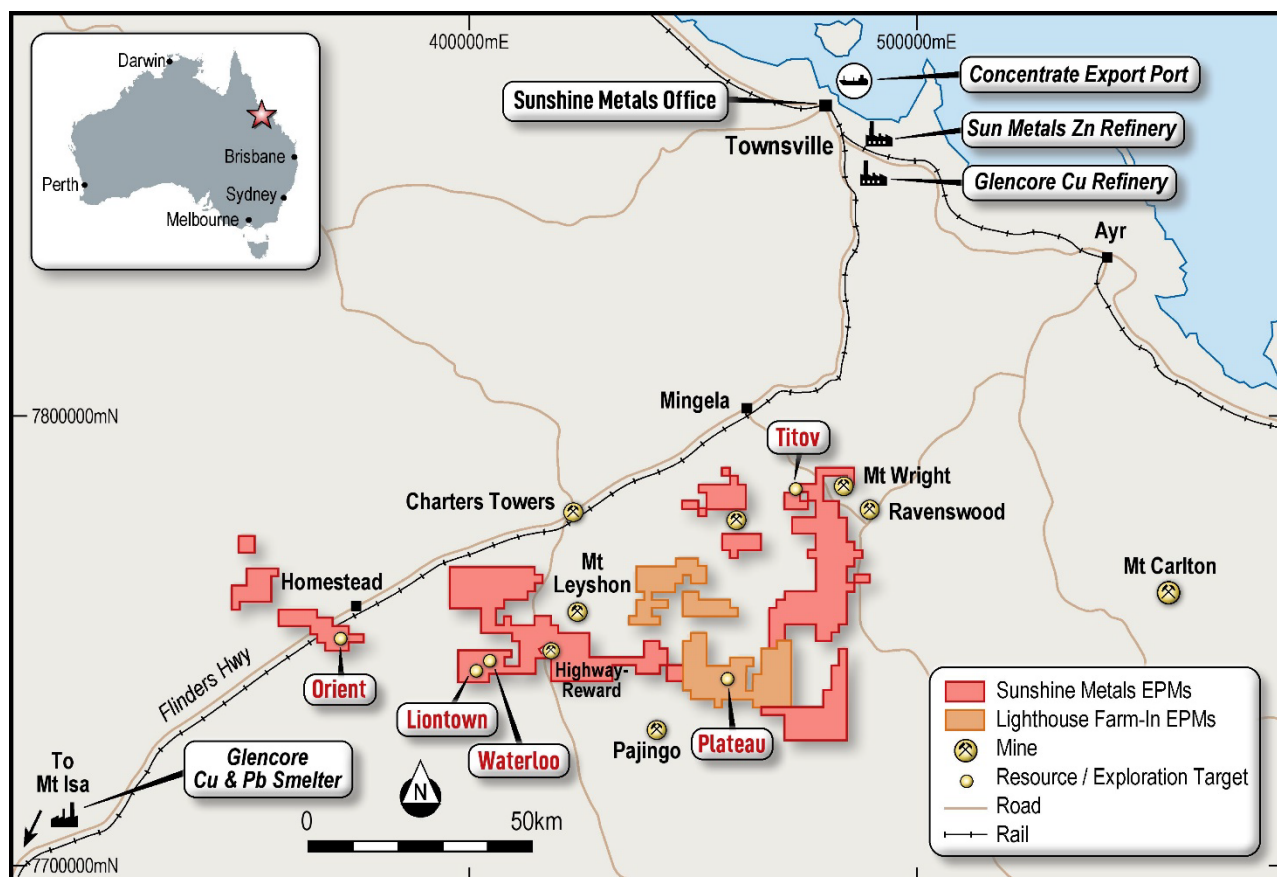
**\*Hodgkinson Project (Au-W):** Located between the Palmer River alluvial gold field (1.35 Moz Au) and the historic Hodgkinson gold field (0.3 Moz Au) and incorporates the Elephant Creek Gold, Peninsula Gold-Copper and Campbell Creek Gold prospects.

**Dart Mining NL: The Triumph Gold Project was divested to Dart in August 2024. Upon completion, Sunshine will own ~14% of Dart's issued capital.**

*\*A number of parties have expressed interest in our other quality projects. These projects will be divested in an orderly manner in due course.*

<sup>3</sup> SHN ASX Release, 7 February 2024, "Significant Increase in Lioneville Resource".

<sup>4</sup> Cautionary statement: The Exploration Target has been prepared and reported in accordance with the 2012 edition of the JORC Code. The potential quantity and grade of the Exploration target is conceptual in nature. There has been insufficient exploration to estimate a Mineral Resource. It is uncertain if further exploration will result in the estimation of a Mineral Resource. Exploration Target for Titov based on several factors discussed in the corresponding Table 1 which can be found with the original ASX release 21 March 2023 "Shallow High Grade Titov Cu-Mo Exploration Target".





**Table 1, Section 1 - Sampling Techniques and Data**

Criteria	Explanation	Commentary
Sampling techniques	<p><i>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.</i></p> <p><i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i></p> <p><i>Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.</i></p>	<p><b>DRILLING</b></p> <p><b>SHN</b> – RC drill holes were sampled as individual, 1 m length samples from the rig split. Individual metre samples were collected as a 12.5% split collected from the drill rig. Individual RC samples were collected in calico sample bags and grouped into green plastic bags for dispatch (approximately five per plastic bag).</p> <p>Diamond holes were pre-collared as open-hole 8" PCD through the cover sequence before casing off and drilling as HQ3 for completion of the hole. The hole was sampled in full as half core, with sample intervals selected by the SHN Geologist. The samples were sawn longitudinally in half using the onsite core saw.</p> <p>SHN samples are analysed at Australian Laboratory Services (ALS) in Townsville (Prep &amp; Au) and Brisbane (ME) where samples were crushed to sub 6mm, split and pulverised to sub 75µm. A sub sample was collected for a four-acid digest and ICP-OES/MS analysis of 48 elements, including Ag, Cu, Pb and Zn. Samples were assayed for Au using a 30g or 50g Fire Assay technique. Assays over 100g Au using this technique were re-assayed using gravimetric analysis. Ba over 1% was re-analysed using XRF.</p> <p><b>Historic</b> – Diamond core holes were sampled as half core. The sample intervals were selected by the company geologists based on visual mineralisation and geological boundaries and could range from 0.20m to 1.50m. Samples were sawn longitudinally in half using an onsite core saw and dispatched to Intertek Townsville for analysis. Samples were crushed to sub-6mm, split and pulverised to sub-75µm to produce a representative sub-sample for analysis. Analysis consisted of 30g fire assay with AAS finish for Au and 4-acid digest with ICP-OES analysis all other elements.</p> <p>RC samples were split using a rig-mounted cone splitter on 1m intervals to obtain a sample for assay. Samples were pulverised to sub-75µm to produce a representative sub-sample for analysis. Analysis consisted of 30g fire assay with AAS finish for Au and 4-acid digest with ICP-OES analysis all other elements.</p>
Drilling techniques	<p><i>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.).</i></p>	<p><b>DRILLING</b></p> <p><b>SHN</b> – Reverse circulation drilling utilising an 8inch open-hole hammer for first 10m (pre-collar) and a 5.5inch RC hammer for the remainder of the drill hole. Diamond holes were pre-collared as open-hole 8" PCD through the cover sequence before casing off and drilling as HQ3 for completion of the hole.</p> <p><b>Historic</b> – Diamond drilling typically comprised of using a PCD bit through the cover sequence (open hole, no recovery), HQ diameter core for parent hole drilling and NQ2 diameter core for daughter holes. Reverse circulation drilling was completed using a 5.5" bit. Hole diameters for RC prior to RVR are unknown.</p>

Criteria	Explanation	Commentary
Drill sample recovery	<p><i>Method of recording and assessing core and chip sample recoveries and results assessed.</i></p> <p><i>Measures taken to maximise sample recovery and ensure representative nature of the samples.</i></p> <p><i>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.</i></p>	<p><b>DRILLING</b></p> <p><b>SHN</b> - RC sample recoveries of less than approximately 80% are noted in the geological/sampling log with a visual estimate of the actual recovery. No such samples were reported within the significant intercept zones. Moisture categorisation was also recorded. No wet samples were noted during the program. Diamond drilling recoveries were complete (100%) across the reported significant intercepts.</p> <p><b>Historic</b> – Diamond core sample recovery is measured and recorded by RVR Field Technicians. Negligible sample loss was reported. In RC drilling, moisture content and sample recovery were reportedly recorded for each sample, with no significant sample loss recorded. Significantly wet samples were recorded in drill hole LLRC187 and as such has not been previously reported by SHN.</p>
Logging	<p><i>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.</i></p> <p><i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.</i></p> <p><i>The total length and percentage of the relevant intersections logged.</i></p>	<p><b>DRILLING</b></p> <p><b>SHN</b> – The drill core and chip samples from SHN exploration drilling has been geologically and geotechnically logged to a level to support appropriate mineral resource estimation, mining studies and metallurgical studies. Core is logged both qualitatively and quantitatively. Core and chip tray photography is available.</p> <p><b>Historic</b> – Qualitative logging included lithology, alteration and textures; and Quantitative logging includes sulphide and gangue mineral percentages. All drill core was reportedly fully logged and photographed, although each hole has not yet been individually validated by SHN.</p>
Sub-sampling techniques and sample preparation	<p><i>If core, whether cut or sawn and whether quarter, half or all core taken.</i></p> <p><i>If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.</i></p> <p><i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i></p> <p><i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i></p> <p><i>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.</i></p> <p><i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i></p>	<p><b>DRILLING</b></p> <p><b>SHN &amp; Historic</b> – RC samples were split using a rig-mounted cone splitter on 1m intervals to obtain a sample for assay, of approximate weight 3 – 5kg. Samples were pulverised to sub-75µm to produce a representative sub-sample for analysis. Core samples were sawn longitudinally in half using an automated core saw and dispatched to the laboratory for analysis. Samples were crushed to sub-6mm, split and pulverised to sub-75µm to produce a representative sub-sample for analysis.</p> <p><b>METALLURGICAL TEST WORK</b></p> <p>Previously assayed intervals from diamond holes LTDD22055, 24LTDD011 and 24LTDD024 left half core sample in the core trays. For hole LTDD22055, metallurgical samples were collected from the remaining half core (NQ2). For holes 24LTDD011 and 24LTDD024, remaining core was quarter core (HQ3) sampled and bagged into calico sample bags for dispatch to IMO in Perth.</p> <p>Samples were prepared for metallurgical analysis by IMO to different grind sizes according to the test work completed. Samples were crushed and pulverised to a nominal 80% passing 38µm for leach tests LT01 and LT02, to 80% passing 106µm for leach tests LT03 and LT04 and to 65µm for flotation test work.</p>

Criteria	Explanation	Commentary
Quality of assay data and Laboratory tests	<p><i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i></p> <p><i>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.</i></p> <p><i>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.</i></p>	<p><b>DRILLING</b></p> <p><b>SHN</b> – Samples are assayed using a 30g or 50g fire assay for gold with AAS finish, which is considered appropriate for this style of mineralisation. Fire assay is considered total assay for gold. Assays reporting over 100g/t Au were re-assayed using gravimetric methods to report a final assay. All other elements are assayed using an ICP-MS/OES, with overrange Ba reported by XRF.</p> <p>Initial QAQC review indicates that all CRMs in and around the major mineralised intersections returned results within acceptable limits. No blanks or duplicates reported results outside of acceptable limits however a review is ongoing.</p> <p><b>Historic</b> – Only certified reference material (CRMs) were used in the QAQC program during the RVR diamond drilling. All reportedly returned results within an acceptable range. SHN has not validated this statement to date. There is no report of Blanks material or field duplicates used in the program. RC drilling used CRMs which reportedly returned results within an acceptable range. Field duplicates were taken as 1 in 40 samples. No sample method or review of these duplicates is reported. No information has been provided or located on historical QAQC programs.</p>
Verification of sampling and assaying	<p><i>The verification of significant intersections by either independent or alternative company personnel.</i></p> <p><i>The use of twinned holes.</i></p> <p><i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i></p> <p><i>Discuss any adjustment to assay data</i></p>	<p><b>DRILLING</b></p> <p><b>SHN</b> – No new drill holes reported within this document have been twinned or were designed as twinned holes. Verification of significant intercepts has been undertaken internally by alternative company personnel.</p> <p><b>Historic</b> – Laboratory results were reviewed by RVR Geologists. Raw assay files were stored on the Company Server and no adjustments were made to assay data.</p>
Location of data points	<p><i>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.</i></p> <p><i>Specification of the grid system used.</i></p> <p><i>Quality and adequacy of topographic control.</i></p>	<p><b>DRILLING</b></p> <p><b>SHN</b> – Drilled holes (excluding 24LTDD024) have been accurately surveyed using GNSS surveying with PPK processing to centimetre-scale accuracy. Hole 24LTDD024 was surveyed using a handheld GPS. Coordinates are displayed within GDA94, Zone 55 format. Downhole surveys were conducted with an industry-standard gyroscopic survey tool.</p> <p><b>Historic</b> – Drill hole collar coordinates were captured using RTK GPS in GDA94, Zone 55 format. Downhole surveys were conducted with a digital magnetic multi-shot camera, typically every 20 – 40m. Topographic control was based on a detailed 3d Digital Elevation Model. The basis of this model is not currently known.</p>

Criteria	Explanation	Commentary
Data spacing and distribution	<p><i>Data spacing for reporting of Exploration Results.</i></p> <p><i>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.</i></p> <p><i>Whether sample compositing has been applied.</i></p>	<p><b>DRILLING</b></p> <p>24LTDD011 and 024 were spaced approximately 100m apart vertically, with 24LTDD024 approximately 90m vertically above historical hole LTDD18012.</p> <p>No samples compositing has been applied to the intersections reported.</p>
Orientation of data in relation to geological structure	<p><i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i></p> <p><i>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.</i></p>	<p><b>DRILLING</b></p> <p><b>SHN</b> – Drill holes have been designed predominantly to intersect the approximate east-west trend of the known lenses at Lioneville at an optimal angle as possible (i.e. perpendicular).</p> <p><b>Historic</b> – Drill holes were oriented perpendicular to the perceived strike of the host lithologies. Drill holes were drilled at a dip based on the logistics and dip of target to be tested. Orientation of drilling was designed to not bias sampling. Orientation of drill core was determined using a digital orientation tool.</p>
Sample security	<p><i>The measures taken to ensure sample security.</i></p>	<p><b>DRILLING</b></p> <p><b>SHN</b> – RC drill samples were collected by the Drill Contractor and then collected on site by the SHN Field Technician. The sample was then validated against a pre-prepared sample sheet to ensure the sample matched the correct interval. Samples were then collected into groups of five and placed in a labelled polyweave bag. The samples were then dispatched from site directly to the lab by SHN field personnel. Diamond core samples are collected at the time of cutting by the SHN Field Technician and validated against a pre-prepared sample sheet. In both cases, samples were then collected into groups of five and placed in a labelled polyweave bag. The samples were then dispatched from site directly to the lab by SHN field personnel.</p> <p><b>Historic</b> - Drill samples were reportedly overseen by RVR staff during transport from site to the laboratory.</p> <p><b>METALLURGICAL TEST WORK</b></p> <p>Metallurgical samples were placed into calico sample bags by Sunshine staff, placed on a pallet and freighted directly to IMO.</p>
Audits or reviews	<p><i>The results of any audits or reviews of sampling techniques and data.</i></p>	<p><b>DRILLING</b></p> <p>No audits have been carried out on the newly reported drill results herein.</p>

## Section 2 - Reporting of Exploration Results

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

Criteria	Explanation	Commentary
Mineral tenement and land tenure status	<p><i>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.</i></p> <p><i>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.</i></p>	<p>Greater Lontown Exploration Permits are: EPMs 10582, 12766, 14161, 16929, 26718, 27168, 27221, 27223, 27357, 27520 and 27731 and Mining Lease Applications 100221, 100290 and 100302 (previously Cromarty) for a total of 463km<sup>2</sup>; and EPMs 18470, 18471, 18713, 25815 and 25895 (previously Hebrides) for a total of 221km<sup>2</sup>. The tenements are in believed to be in good standing and no known impediments exist. These leases are now held in their entirety by Sunshine (Ravenswood) Pty Ltd, a 100% owned subsidiary of Sunshine Metals Ltd.</p> <p>The Thalanga mill and mining operation was abandoned by administrators to Red River Resources. A restricted area has been placed over the mill, dumps and tailings facilities. The Queensland Department of Environment is now responsible for the rehabilitation of the aforementioned facilities. There are no known other Restricted Areas located within the tenure.</p> <p>Five third-party Mining Leases are present exist on these Exploration Permits – named MLs 1571, 1734, 1739 and 10028 (Thalanga Copper Mines Pty Ltd) and 100021 (Clyde Ian Doxford).</p> <p>Liontown, Waterloo and the majority of tenure exist on the native land of the Jangga People #2 claim, with northwestern tenure located on the native land of the Gudjala People.</p> <p>A 0.8% Net Smelter Return (NSR) royalty is payable to Osisko Ventures Ltd and a 0.7% NSR royalty payable to the Guandong Guangxin Mine Resources Group Co Ltd (GMRG) on sale proceeds of product extracted form EPM 14161.</p> <p>The Ravenswood West area consists of EPMs 26041, 26152, 26303, 26404, 27824 and 27825, owned by wholly owned subsidiaries of Sunshine Metals Limited. The tenements are in good standing and no known impediments exist. Two current, third party Mining Leases exist on EPM 26041 – named ML 10243 (Delour) and ML 10315 (Podosky). One further current, third party Mining Lease exists partially on EPM 26152 – named ML 1529 (Waterloo). All of EPM 26303 and part of EPM 26041 are situated within the Burdekin Falls Dam catchment area.</p> <p>The Lighthouse Project consists of EPMs 25617 and 26705. All EPMs are owned 100% by BGM Investments Pty Ltd, a wholly owned subsidiary of Rockfire Resources Limited. No current Mining Leases exist on the tenure. South-eastern blocks on EPM 26705 are situated within the Burdekin Falls Dam catchment area. Sunshine Metals has the option to earn 75% of the project.</p>
Exploration done by other parties	<i>Acknowledgment and appraisal of exploration by other parties.</i>	<p>Exploration activities have been carried out by Nickel Mines (1970-1973), Esso (1982-1983), Great Mines (1987), Pancontinental (1994-1995), and Liontown Resources (2007). Work programs included surface mapping, and sampling, costeans, drilling and geophysics.</p> <p>Historic exploration was carried out by Esso Exploration and Pancontinental Mining. This included drilling and geophysics. Historic drilling over the Liontown East area is shallow and did not intercept the current Mineral Resource mineralisation.</p>
Geology	<i>Deposit type, geological setting and style of mineralisation.</i>	<p><b>LIONTOWN AND LIONTOWN EAST RESOURCE</b></p> <p>The Liontown and Liontown East deposits are hosted within Cambro-Ordovician marine volcanic and volcano-sedimentary sequences of the Mt Windsor Volcanic sub-province. The Liontown and Liontown East deposits are volcanogenic massive</p>

Criteria	Explanation	Commentary
		sulphide (VMS) base metal style deposits, which typically are exhibited as lense-like massive to stringer sulphides comprised of sphalerite, galena, chalcopyrite and pyrite. The main lenses are in and around the contact a sequence of marine sediments and a rhyodacite pumice breccia. SHN is currently focussing on the zonation of the deposit, with aim of identifying potential Cu-Au rich zones which could represent feeder zones to the overlying stratiform sulphide lenses.
Drill hole Information	<p><i>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:</i></p> <ul style="list-style-type: none"> <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> <p><i>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</i></p>	No new drill hole information is presented in this report. All references to drilling sampled are referenced in the body of this report.
Data aggregation methods	<p><i>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.</i></p> <p><i>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.</i></p>	<p>All grades and intercepts referred to in this document are as reported in their associated historical documents. No further adjustments or assumptions have been made.</p> <p>The zinc equivalent grades for Greater Liontown (Zn Eq) are based on zinc, copper, lead, gold and silver prices of US\$2500/t Zinc, US\$8500/t Copper, US\$2000/t Lead, US\$1900/oz Gold and US\$20/oz Silver with metallurgical metal recoveries of 88.8% Zn, 80% Cu, 70% Pb, 65% Au and 65% Ag and are supported by metallurgical test work undertaken.</p> <p>The zinc equivalent calculation is as follows: <math>Zn\ Eq = Zn\ grade\ \% * Zn\ recovery + (Cu\ grade\ \% * Cu\ recovery\ \% * (Cu\ price\ \\$/t / Zn\ price\ \\$/t)) + (Pb\ grade\ \% * Pb\ recovery\ \% * (Pb\ price\ \\$/t / Zn\ price\ \\$/t)) + (Au\ grade\ g/t / 31.103 * Au\ recovery\ \% * (Au\ price\ \\$/oz / Zn\ price\ \\$/t * 0.01)) + (Ag\ grade\ g/t / 31.103 * Ag\ recovery\ \% * (Ag\ price\ \\$/oz / Zn\ price\ \\$/t * 0.01))</math>.</p>



Criteria	Explanation	Commentary
	<i>The assumptions used for any reporting of metal equivalent values should be clearly stated.</i>	It is the opinion of Sunshine Metals and the Competent Person that all elements and products included in the metal equivalent formula have a reasonable potential to be recovered and sold.
Relationship between mineralisation widths and intercept length	<i>These relationships are particularly important in the reporting of Exploration Results. If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. • If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').</i>	At Lione town, the mineralisation is typically east-west and either stratabound and interpreted to be dipping at ~70 degrees roughly south or potentially related to feeder structures exhibiting a sub-vertical dip. . The exact orientation of any feeder structures to the VMS lenses remain under interpretation. Geological and structural understanding is an ongoing process and observations and interpretations within may be modified over time.  Drill holes have been designed to intercept the mineralisation as close to perpendicular as possible and where down hole intercepts are reported, true widths are likely to be ~75%. The typical drill sample interval is 1m in length. At Lione town East the average downhole thickness of the mineralised zone is 8.2m.
Diagrams	<i>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.</i>	All diagrams are located within the body of this report
Balanced reporting	<i>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.</i>	All drill intercepts are recorded within the body of this report
Other substantive exploration data	<i>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;</i>	All meaningful and material data is reported within the body of the report.  For the latest resource update at the Lione town deposit, please refer to: <ul style="list-style-type: none"> <li>ASX: SHN, 7<sup>th</sup> February 2024, Significant Increase in Lione town Resource</li> </ul> For the most recent previous releases outlining SHN drill assay results please refer to: <ul style="list-style-type: none"> <li>ASX: SHN, 24<sup>th</sup> November 2023, 17m @ 22.1g/t Au Confirms Lione town Feeder Zone</li> <li>ASX: SHN, 13<sup>th</sup> March 2024, 20m @ 18.21g/t Au Extends Au-Cu Rich Footwall at Lione town</li> </ul> For a detailed summary on the historical Lione town and Lione town East Mineral Resource Estimates, please refer to: <ul style="list-style-type: none"> <li>ASX: SHN, 8<sup>th</sup> May 2023, Fully Funded Acquisition of Greater Lione town</li> </ul>

Criteria	Explanation	Commentary
	<i>potential deleterious or contaminating substances.</i>	
Further work	<p><i>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</i></p> <p><i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i></p>	<p>Further drilling will be required to test geological interpretation and targeting of potential Au-rich feeder structures and to provide more data within the Gap Zone and Sapidinus Lode for future resource definition.</p> <p>Further metallurgical work is ongoing on copper-gold rich mineralisation at Liontown, incorporating regrind stages to improve copper concentrate grade. Further metallurgical work will also assess zinc rich ores to assess an optimal processing path for Liontown mineralisation.</p>