



## Metallum extends San Sebastian high-grade zone and commences mining

ASX ANNOUNCEMENT

6 November 2014

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### Highlights

- Ongoing sampling at Metallum's San Sebastian mine at El Roble, Chile expands high-grade copper zone including:
  - 2.00m @ 12.55% Cu and 5.10g/t Au
  - 2.40m @ 9.96% Cu and 0.63g/t Au
  - 1.90m @ 5.25% Cu and 2.18g/t Au
- San Sebastian high-grade zone on 1040 level extended to more than 40m along strike, averaging 1.60m wide, and interpreted to continue up to the 1090 level approximately 40m above
- Installation of stope access shafts underway and material being stockpiled in preparation for trucking

Perth-based copper developer Metallum Ltd (ASX: MNE) is pleased to provide an update of its activities at the San Sebastian mine at its El Roble Copper Project in Chile. Ongoing tunnel development and grade control sampling has extended the high-grade copper zone within the 1040 level to more than 40 metres along strike. Stope access shafts are currently being installed within the mineralised zone up to the 1090 level in preparation for stoping.

Metallum entered an option to acquire the San Sebastian concession in August 2014 (see ASX announcement 27 August 2014), adding to its portfolio at El Roble (Figure 1). It is currently mining and trucking material from the Panga mine and preparing the first stoping area at San Sebastian to commence trucking material as soon as the Company takes 100% ownership of the concession. Metallum has applied for a mining licence to extract up to 5,000 tonnes of copper-bearing material a month from San Sebastian, as well as the nearby Paraguay vein<sup>1</sup>.

San Sebastian covers a major mineralised structure within the El Roble vein system, and the Company has installed an exploration tunnel along the mineralised vein to assess the vein for mining. Metallum has installed approximately 75 metres of tunnel along the vein on the 1040 level and extended the high-grade zone to 40 metres along strike. Preparation of the first stoping areas has also commenced with the installation of two access shafts for preparation of production panels. Material from these shafts is currently being stockpiled.

Metallum Managing Director Zeff Reeves said: "San Sebastian continues to deliver excellent results. The main high-grade zone we have delineated is now approximately 40 metres long, averaging 1.60 metres wide and is interpreted to continue up to the 1090 level, 40 metres above where we are currently working. This is the first stoping panel we have delineated at San Sebastian and we have begun the installation of two access shafts to prepare the area for production.

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<sup>1</sup> It should be noted that a mining licence to extract up to 5,000 tonnes of copper bearing material is not a production target.

“Other work we have planned at San Sebastian is to continue to develop along the vein in the 1040 level to delineate further high-grade zones and also install an additional tunnel beneath to provide an additional development face and provide additional access to the vein,” Mr Reeves added.

### San Sebastian Development

Metallum’s activities at San Sebastian have included the installation of an exploration tunnel at the 1040 level within the mineralised vein, approximately 50 metres below where the vein has been mined historically along a length of approximately 300 metres and a depth of 50 metres.

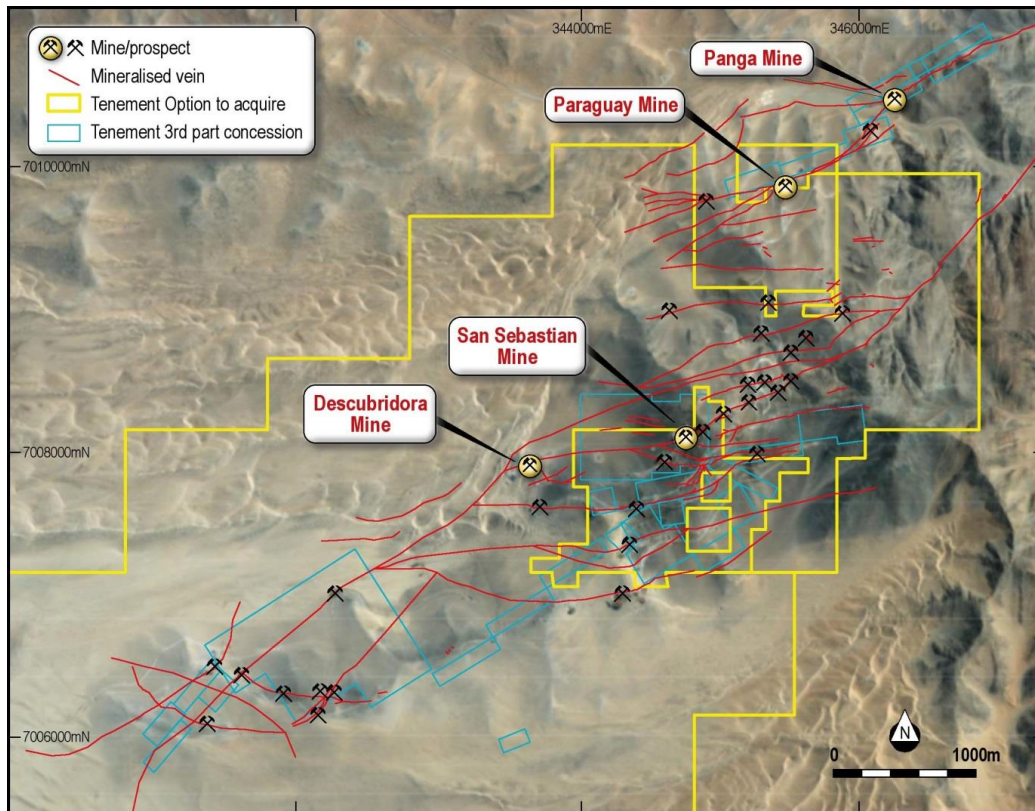
The exploration tunnel has nominal dimensions of 2.20 metres wide by 2.20 metres high. It has encountered high-grade copper and gold mineralisation with now more than 75 metres of exposed vein and a wide high-grade zone delineated over 40 metres. The vein width varies from 0.50 metres to 3.00 metres and averages 1.60 metres (Figure 3). Recent results have further extended the high-grade zone and continue to demonstrate the very high-grade nature of the copper mineralisation within the San Sebastian vein.

Hole_ID	From (m)	to (m)	Interval	Cu %	Au ppm
RCPCH00678	0.00	2.03	2.03	4.29	0.61
RCPCH00680	0.00	1.90	1.90	5.25	2.17
RCPCH00681	0.00	1.68	1.68	4.32	0.71
RCPCH00683	0.00	1.90	1.90	3.47	0.62
RCPCH00695	0.00	2.00	2.00	12.56	5.10
RCPCH00696	0.00	2.40	2.40	9.96	0.64
RCPCH00697	0.00	3.20	3.20	4.59	0.76
RCPCH00703	0.00	2.05	2.05	3.88	1.18

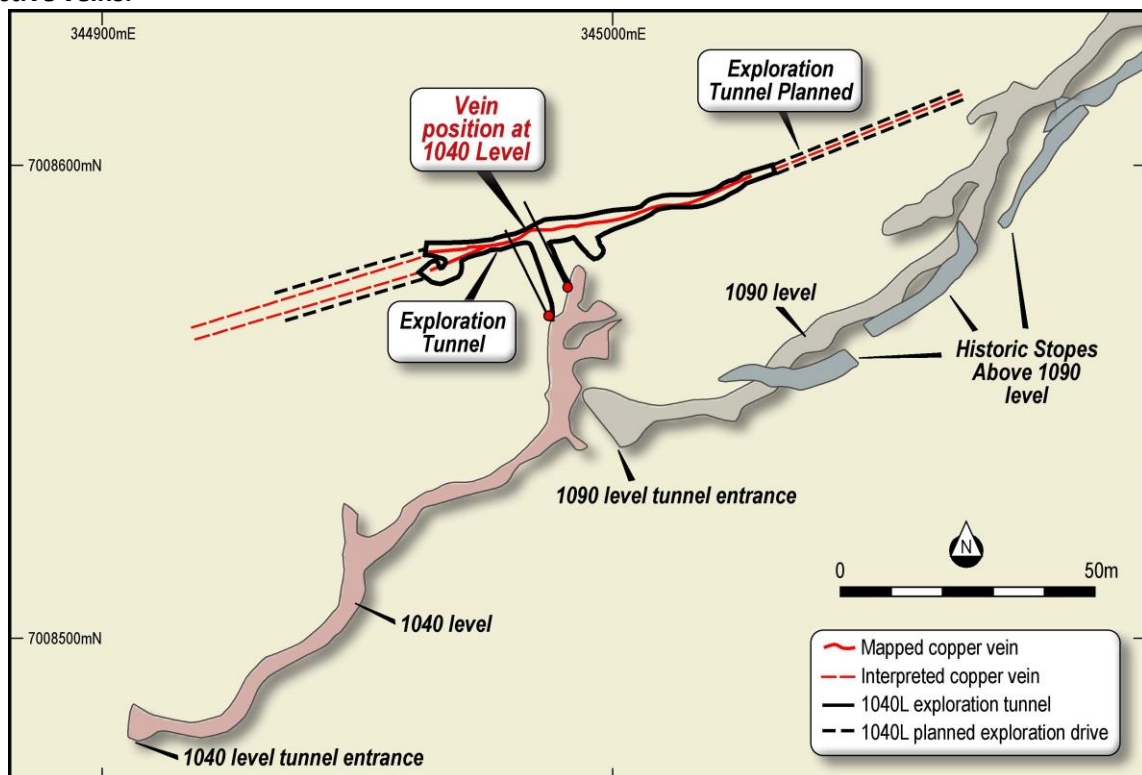
**Table 1 – New significant sampling results from the San Sebastian exploration tunnel**

Metallum has also been granted permission from the vendor of the concession to begin stope preparation on the first production stope by installing production shafts (Figure 3) within the mineralised vein up to the 1090 level. The estimated dimensions of the material able to be extracted from the first stope area is 35m (length) x 1.60 metres (width) x 30 metres (height), however it must be noted that this assumes constant vein width of 1.60 metres and this may vary within the stoping panel as evidence by mapping of the vein up to 3 metres width and down to 0.60 metres width.

The shafts are inclined within the vein at a nominal 45 degrees and to date each shaft has advanced approximately 5 metres. Each shaft is designed to be 80 metres long to reach the 1090 level and expected to take a further 2-3 weeks to install. Once installed the production stoping can commence at a larger tonnage rate.

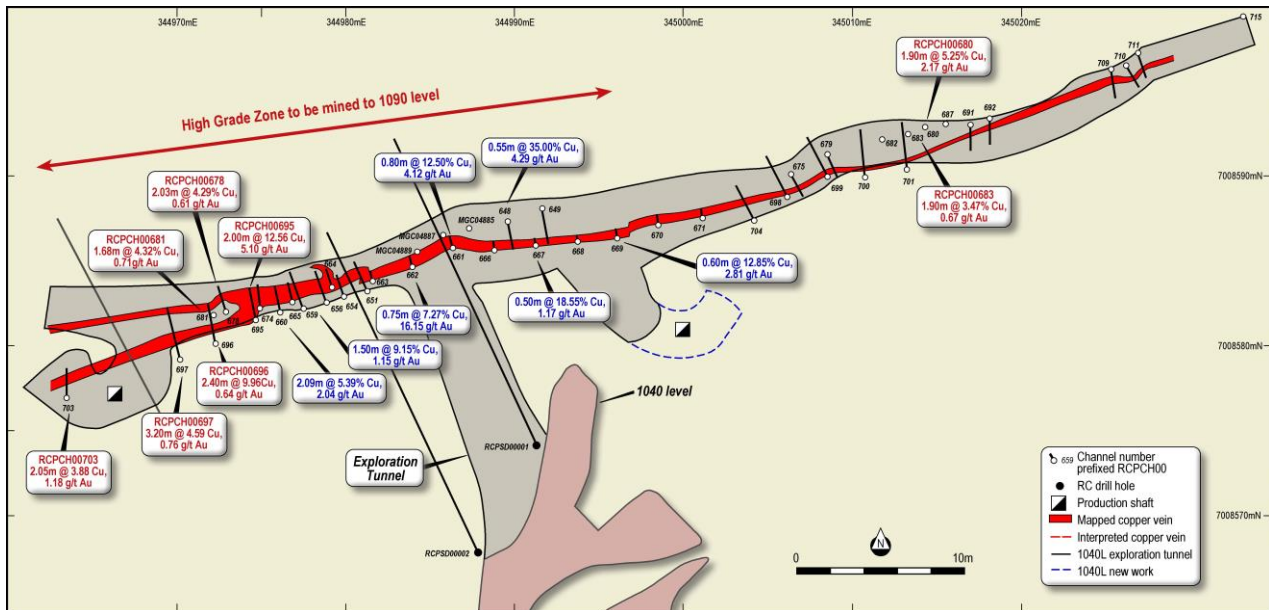


**Figure 1 – Map of the north-east sector of the El Roble Project showing the location of the San Sebastian mine within a strike continuous mineralised corridor where Metallum has mapped more than 60km of prospective veins.**



**Figure 2 – Plan view of the San Sebastian mine showing existing footwall drive (1040 Level) in relation to the historic mine workings at the 1090 Level. The first stope at the 1040 level is designed to be mined up to the 1090 level.**





**Figure 3 – Plan view of San Sebastian 1040 Level tunnel showing high grade zone being prepared for stoping and the location of the first two stoppe access shafts currently being installed. Red assay highlights are new results. Blue assay highlights released 14 October 2014.**



**Figure 4 – San Sebastian mine and vein looking north. Note favorable topography for access, vertical distance between the 1040 Level and 1090 Level entrances is approximately 50m. It is planned that an additional level will be installed approximately 30m below the 1040 level entrance to access the vein.**

Metallum is focused on achieving growth and shareholder value through the development of near-term, small-scale mining operations at El Roble to enable self-funded growth.

For more information visit the Metallum website at [www.metallum.com.au](http://www.metallum.com.au) or contact:

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#### **About Metallum Limited**

Metallum Limited (ASX: MNE) is an Australian-based company that acquires and develops copper and gold projects around the world with a focus on Chile. The Company has an interest in the highly prospective, high grade El Roble Copper Project in Region III of Chile, targeting IOCG-style copper and gold mineralisation. The Company is focused on achieving growth and shareholder value through the development of near-term, small-scale mining operations at El Roble which will enable self-funded growth into the future. El Roble is ideally located 25km from the port of Caldera and within 80km of two copper toll treatment plants within the world class Atacama IOCG region, which has a history of high-grade copper production. The Company has commenced trucking copper-bearing material from the Panga mine at El Roble for processing at a nearby plant.

Metallum Limited also has an interest in the Comval Copper Project in the Philippines, and its Australian-based project, Teutonic, is prospective for gold and base metals.

Metallum Limited has a strong Board and management team with considerable technical, commercial and corporate experience in the resources sector.

For more information visit the Metallum Limited website at [www.metallum.com.au](http://www.metallum.com.au)

#### **Competent Person's Statement**

The information in this report that relates to Exploration Results is based on information compiled by Mr Zeffron Reeves (B App Sc (Hons) (Applied Geology) MBA, MAIG), a member of the Australian Institute of Geoscientists. Mr Reeves has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Reeves is a full time employee and Managing Director of Metallum Limited. Mr Reeves consents to the inclusion in this report of the new Exploration Results in the form and context in which it appears. The Company confirms that the form and context in which the previously released Exploration Results are presented has not been materially modified and it is not aware of any new information or data that materially affects the information included in the relevant market announcements, as detailed in the body of this announcement.

## Appendix 1 Sampling Data

### 1) Location Data

hole_id	psad56_northing	psad56_easting	psad56_rl	max_depth	Dip	Azimuth
RCPCH00680	7008587.24	344988.45	1031.91	1.90	30	340
RCPCH00681	7008581.80	344972.20	1031.91	1.68	30	340
RCPCH00682	7008592.16	345011.60	1031.91	1.37	30	340
RCPCH00683	7008592.45	345013.20	1031.91	1.90	30	345
RCPCH00686	7008592.80	345014.20	1031.91	2.40	24	345
RCPCH00687	7008593.10	345015.50	1031.91	2.20	30	340
RCPCH00691	7008593.13	345017.06	1030.14	1.75	28	180
RCPCH00692	7008593.53	345018.22	1030.04	1.90	36	180
RCPCH00695	7008581.50	344974.70	1031.51	2.00	0	347
RCPCH00696	7008580.20	344972.30	1031.40	2.40	0	347
RCPCH00697	7008579.20	344970.10	1031.30	3.20	0	347
RCPCH00698	7008588.90	345006.20	1030.81	2.80	0	333
RCPCH00699	7008590.04	345008.60	1030.81	2.70	0	333
RCPCH00700	7008590.07	345010.80	1030.75	2.90	0	354
RCPCH00701	7008590.50	345013.30	1030.51	2.80	0	354
RCPCH00703	7008576.98	344963.40	1031.80	2.05	33	0
RCPCH00704	7008587.50	345004.20	1030.81	2.30	0	333
RCPCH00709	7008596.40	345025.40	1030.56	1.95	30	170
RCPCH00710	7008596.70	345026.30	1030.56	1.75	28	150
RCPCH00711	7008597.40	345027.00	1030.56	1.95	36	160

## 2) Assays

Hole_ID	Sample_ID	From (m)	To (m)	Cu %	Au ppm
RCPCH00671	MGC04984	0.00	0.50	5.87	1.00
RCPCH00675	MGC04996	0.00	1.00	0.02	0.01
RCPCH00675	MGC04997	1.00	1.40	11.30	1.71
RCPCH00675	MGC04998	1.40	1.90	0.39	0.04
RCPCH00678	MGC05003	0.00	1.00	0.74	0.23
RCPCH00678	MGC05004	1.00	1.43	17.85	2.22
RCPCH00678	MGC05005	1.43	2.03	0.49	0.10
RCPCH00679	MGC05006	0.00	1.00	0.03	0.01
RCPCH00679	MGC05007	1.00	1.35	2.45	0.55
RCPCH00679	MGC05008	1.35	1.55	0.57	0.06
RCPCH00680	MGC04901	0.00	0.35	0.51	0.06
RCPCH00680	MGC04902	0.35	1.30	9.46	4.03
RCPCH00680	MGC04903	1.30	1.90	1.36	0.47
RCPCH00681	MGC05009	0.00	1.00	0.46	0.06
RCPCH00681	MGC05010	1.00	1.28	15.15	2.32
RCPCH00681	MGC05011	1.28	1.68	6.40	1.22
RCPCH00682	MGC05014	0.00	0.90	0.13	0.03
RCPCH00682	MGC05015	0.90	1.17	0.27	0.03
RCPCH00682	MGC05016	1.17	1.37	0.07	0.03
RCPCH00683	MGC05018	0.00	1.00	5.53	1.03
RCPCH00683	MGC05019	1.00	1.50	0.26	0.05
RCPCH00683	MGC05020	1.50	1.90	2.31	0.33
RCPCH00685	MGC05025	0.00	0.60	0.64	0.09
RCPCH00685	MGC05026	0.60	1.00	3.70	0.68
RCPCH00686	MGC05027	0.00	0.70	0.12	0.02
RCPCH00686	MGC05028	0.70	1.05	1.57	0.26
RCPCH00686	MGC05029	1.05	2.40	0.07	0.02
RCPCH00687	MGC05034	0.00	0.25	1.93	0.36
RCPCH00687	MGC05033	0.25	2.20	0.04	0.01
RCPCH00691	MGC05048	0.00	0.50	0.10	0.01
RCPCH00691	MGC05049	0.50	0.75	1.32	0.52
RCPCH00691	MGC05050	0.75	1.75	0.03	0.01
RCPCH00692	MGC05053	0.00	0.40	0.35	0.03
RCPCH00692	MGC05054	0.40	0.90	0.65	1.08
RCPCH00692	MGC05055	0.90	1.90	2.13	0.41
RCPCH00695	MGC05080	0.00	0.30	16.00	1.62
RCPCH00695	MGC05081	0.30	1.00	13.80	12.05
RCPCH00695	MGC05082	1.00	2.00	10.65	1.28
RCPCH00696	MGC05083	0.00	0.60	3.50	0.16
RCPCH00696	MGC05084	0.60	1.10	33.40	2.10
RCPCH00696	MGC05085	1.10	2.00	2.29	0.07
RCPCH00696	MGC05086	2.00	2.40	7.62	0.79
RCPCH00697	MGC05087	0.00	0.50	0.51	0.05
RCPCH00697	MGC05088	0.50	0.90	0.87	0.15
RCPCH00697	MGC05089	0.90	1.70	14.55	2.49
RCPCH00697	MGC05090	1.70	2.80	0.57	0.05
RCPCH00697	MGC05091	2.80	3.20	1.19	0.11
RCPCH00698	MGC05092	0.00	0.40	0.72	0.14
RCPCH00698	MGC05093	0.40	0.70	3.41	0.49
RCPCH00698	MGC05094	0.70	1.90	0.02	0.01
RCPCH00698	MGC05095	1.90	2.80	0.02	0.00
RCPCH00699	MGC05096	0.00	0.40	3.46	0.49
RCPCH00699	MGC05097	0.40	1.60	0.01	0.00
RCPCH00699	MGC05098	1.60	2.70	0.01	0.00
RCPCH00700	MGC05099	0.00	0.30	0.07	0.01
RCPCH00700	MGC05100	0.30	0.60	0.30	0.43
RCPCH00700	MGC05102	0.60	1.80	0.09	0.01

Hole_ID	Sample_ID	From (m)	To (m)	Cu %	Au ppm
RCPCH00700	MGC05103	1.80	2.90	0.01	0.00
RCPCH00701	MGC05104	0.00	0.40	0.37	0.06
RCPCH00701	MGC05105	0.40	0.60	1.07	0.15
RCPCH00701	MGC05106	0.60	1.80	0.70	0.07
RCPCH00701	MGC05107	1.80	2.80	0.01	0.02
RCPCH00703	MGC05113	0.00	1.00	1.29	0.13
RCPCH00703	MGC05114	1.00	1.60	9.73	2.01
RCPCH00703	MGC05115	1.60	2.05	1.82	2.40
RCPCH00704	MGC05125	0.00	1.00	0.02	0.00
RCPCH00704	MGC05126	1.00	1.50	2.61	0.33
RCPCH00704	MGC05127	1.50	2.30	0.08	0.01



**APPENDIX 2: JORC Table 1, Section 1 Sampling Techniques and Data**

Criteria	Explanation
Sampling techniques	<ul style="list-style-type: none"> <li>Minimum sample interval was 0.25m and maximum of 1.00m are collected from core, sampled to geological boundaries.</li> <li>Rock chip samples collected are of a minimum 2kg weight.</li> <li>Minimum sample interval was 0.50m and maximum of 2.00m were collected along installed channels.</li> <li>Samples sent to ALS Laboratories, Copiapo, Chile and to Cesmec laboratory, Copiapo Chile</li> <li>Samples submitted to ALS were pulverised to obtain a 30g charge for fire assay for gold</li> <li>ALS samples used a 0.5g charge was digested by four acid near total digest and analyses using ICP-OES for multi-element analysis, including copper</li> <li>ALS Ore grade copper samples over 10,000ppm (10%) are re-assayed using AAS</li> <li>High grade gold samples over 10 g/t are re-assayed using a fire assay fusion and gravimetric finish.</li> <li>Samples submitted to Cesmec Laboratory used a 0.5g charge, aqua regia digest and ICPMS finish</li> </ul>
Drilling techniques	<ul style="list-style-type: none"> <li>NA - No drill results are presented in this announcement</li> </ul>
Drill sample recovery	<ul style="list-style-type: none"> <li>NA - No drill results are presented in this announcement</li> </ul>
Logging	<ul style="list-style-type: none"> <li>All drill holes and rock samples are geologically logged by qualified geologists.</li> <li>Geological data is recorded in the Company's geological database.</li> <li>Logging is qualitative in nature and describes lithology, alteration, structure and mineralisation visually observed by the logging geologist.</li> <li>Total length of each sample interval has been logged.</li> </ul>
Sub-sampling techniques and sample preparation	<ul style="list-style-type: none"> <li>The sample collection and preparation technique is deemed suitable and industry standard for drill core and rock sampling.</li> <li>Samples are coarse crushed to 70% passing 2mm and then split produce a 30g sample for gold assay and 0.5g sample for multi-element assay. Sub samples are then pulverised to 85% passing 75 microns prior to assay.</li> <li>No duplicate samples have been carried out.</li> <li>Sample size is deemed appropriate.</li> <li>Samples may be subject to nonuniform grade distribution and nugget effect in relation to copper grade due to geological and mineralogical characteristics.</li> </ul>
Quality of assay data and laboratory tests	<ul style="list-style-type: none"> <li>Assay techniques are deemed suitable and accurate for the elements being tested.</li> <li>Standard reference materials have been submitted in each sample run every 20 samples.</li> <li>Blank reference materials are submitted in each sample run every 50 samples.</li> </ul>
Verification of sampling and assaying	<ul style="list-style-type: none"> <li>All significant intersections have been calculated using weighted averaging to sample length.</li> <li>All significant intersections have been checked by alternative company geological personnel.</li> <li>No duplicate sampling or twinned holes have been completed</li> <li>All data collected is done so in accordance with the Company's written data collection procedures and is kept within the Company's electronic database. Original sample logs and written data collection forms are also retained in the Company's data library.</li> <li>No adjustment to data has been done.</li> </ul>
Locations of data points	<ul style="list-style-type: none"> <li>All drill holes and channels have been surveyed using a measurement from known survey points in underground areas with appropriate control points used and referenced to ensure accuracy of survey information.</li> <li>Collar locations for channels RCPCH00375-RCPCH00381 have not been surveyed and have been located using measurements from known survey points. No elevation data is available until survey has been completed.</li> <li>Co-ordinates have an error of +/-10cm.</li> <li>Co-ordinates are recorded in WGS84 co-ordinate system</li> </ul>
Data spacing and distribution	<ul style="list-style-type: none"> <li>The current drill and channel spacing is deemed appropriate for the current early stage of exploration</li> </ul>
Orientation of data in relation to	<ul style="list-style-type: none"> <li>Wherever possible drill holes and channels have been planned to intersect mineralised structures perpendicular to the structure.</li> </ul>

geological structure	<ul style="list-style-type: none"> <li>• Drill Hole intercepts are downhole widths and do not indicate true widths of any mineralised structure.</li> </ul>
Sample security	<ul style="list-style-type: none"> <li>• All sampling was conducted under the supervision of the companies project manager who supervised sample collection and the chain of custody from the drill to the sample preparation and logging facility is continually monitored by the project manager. Samples are shipped to the lab by qualified couriers or Company personnel under locked bags.</li> </ul>
Audits or reviews	<ul style="list-style-type: none"> <li>• No audit or review has been conducted due to the early stage exploration nature of the work.</li> </ul>

**JORC Table 7: Section 2 Reporting of Exploration Results**

Criteria	Explanation
Mineral tenement and land tenure status	<ul style="list-style-type: none"> <li>Metallum does not own any of the properties sampled or mapped and sampling and mapping completed was done so as part of a due diligence process in order to assess the properties.</li> <li>Metallum has entered into an option to acquire the San Sebastian concessions (refer to ASX announcement 27<sup>th</sup> August 2014)</li> <li></li> </ul>
Exploration by other parties	<ul style="list-style-type: none"> <li>No information has been used in this report from exploration by other parties.</li> </ul>
Drill hole information	<ul style="list-style-type: none"> <li>Details of channel, drill holes, depth and intercept depths are contained within this announcement (Appendix 1).</li> </ul>
Geology	<ul style="list-style-type: none"> <li>The El Roble Project and San Sebastian mine area consists of quartz and iron oxide veins, containing copper and gold mineralisation. The veins are hosted within intrusive dioritic and andesitic volcanic rocks of the Chilean Cretaceous Belt.</li> </ul>
Data aggregation methods	<ul style="list-style-type: none"> <li>Intercept widths are along channel widths, intercept calculated by length weighted average for all samples and no internal dilution was used, where length is the along channel length for each sample interval</li> <li>Intercepts comprise of aggregated length weighted average for all samples taken in each channel. Length weighted averages have been calculated using the following formula assuming 3 samples were taken from the channel, where: A=sample interval, B=sample assay value <ol style="list-style-type: none"> <li>1) <math>A1 \times B1 = C1</math>, <math>A2 \times B2 = C2</math>, <math>A3 \times B3 = C3</math></li> <li>2) <math>A1 + A2 + B2 = \text{total interval}</math></li> <li>3) <math>(C1 + C2 + C3) / \text{total interval} = \text{length weighted grade average}</math></li> </ol> </li> <li>No metal equivalent values have been used.</li> </ul>
Relationship between mineralization widths and intercept lengths	<ul style="list-style-type: none"> <li>Channels were designed to be installed perpendicular to the interpreted strike of the mineralized structures unless stated.</li> <li>Intercept widths are along downhole widths and are not true geological widths.</li> </ul>
Diagrams	<ul style="list-style-type: none"> <li>Pertinent maps, plans and sections are within this announcement</li> </ul>
Balanced Reporting	<ul style="list-style-type: none"> <li>Full results of all samples taken are presented in Appendix 1 of this announcement.</li> </ul>
Other substantive exploration data	<ul style="list-style-type: none"> <li>No other data other than that presented has been used or relied upon.</li> </ul>
Further work	<ul style="list-style-type: none"> <li>Further exploration work including mapping, sampling and drilling is required, on areas throughout the property.</li> <li>These areas will be identified in the future through further analysis and interpretation of results.</li> <li>Diagrams cannot be provided until areas for future exploration have been identified, other than what is presented within this notice.</li> </ul>