

## LOS CALATOS PROJECT UPDATE

### HIGHLIGHTS

- **Higher Grade Zones:** Drilling confirms the existence of higher-grade zones within a broad mineralised envelope that could provide high grade ore feed in the initial mining years, thereby materially improving the NPV of the project
- **Pit Optimisation Studies:** The Company's focus has now shifted to the assessment of pit optimisation scenarios prior to commencing a pre-feasibility study at the end of 2012
- **Savings on Drilling Costs:** Due to consistent drill results enabling a better understanding of the geology, the Phase 4 drilling program has been trimmed from 100,000m to 61,000m, thereby saving approximately US\$12million in the current year
- **Drilling Update:** A further 17 drill holes have been completed at Los Calatos with all holes delivering intercepts within, or exceeding, expectations. Significant intercepts include 324m at 0.53% Cu and 51 ppm Mo, 956m at 0.48% Cu and 408 ppm Mo and 179m at 0.61% Cu and 79 ppm Mo

### KEY RESULTS

Metminco Limited ("Metminco" or the "Company") is pleased to announce further results from the in-fill drilling at Los Calatos, its 100% owned copper-molybdenum project in southern Peru. Excellent progress has been made with the understanding of the high grade domains within the large mineralised porphyry system at Los Calatos. While the previously announced Mineral Resource Estimate of 2.3 billion tonnes at 0.40% Cu and 210 ppm Mo (26.1 billion lbs CuEq) demonstrates a world-class copper deposit in terms of size, the Company has undertaken additional work to help provide the detail needed to enable mine planning and scheduling.

As more drill data is collected and modelled, the Company's knowledge of grade distribution and the location of higher grade geological domains has increased. The early mining of the higher grade domains could have a positive, material, impact on the economics of the project in terms of timing, capital expenditure and revenue.

Importantly, the ongoing studies have demonstrated that the Company has considerable optionality in terms of a phased development of Los Calatos, enabling better management of capital expenditure and cash flows. This is viewed by the Company as being particularly relevant in these challenging economic times.

Due to an improved understanding of the grade distribution, the Company will now focus the remaining Phase 4 drilling on converting that high grade portion of the mineral resource, which will potentially be exploited in the early years of the project, to an Indicated Mineral Resource. Accordingly, the number of Phase 4 drilling metres has been reduced from 100,000m to 61,000m, without compromising the quality of the information, thereby saving approximately \$12million in drilling costs this financial year.

William Howe, Managing Director said "*The reduction in the Phase 4 drilling metres follows a decision to concentrate the remaining drilling on high grade zones identified at Los Calatos, which will be the focus of an initial, Stage 1, open pit. This will not only result in a cost saving, but will expedite the conclusion of the Phase 4 drilling program ahead of the planned pre-feasibility study.*"

## DISCUSSION OF RESULTS

### Recent drilling results

The drilling results returned to-date for Phase 4 (CD-50 to CD-77) are summarised in Appendix 1.

Since the release of the Interim Mineral Resource Estimate for Los Calatos in April 2012, 17 drill holes (CD-61 to CD-77) have been completed, as described in Tables 1 and 2 below, and as depicted in Appendix 2.

**Table 1: Objectives of drill holes CD-61 to CD-77**

| BHID   | Mineralised Zone              | Objective                                      |
|--|-------------------------------|--|
| CD-61 & CD-64                                      | Breccia                       | Definition drilling; northern margin           |
| CD-66B, CD-67; CD-69, CD-71, CD-72, CD-75B & CD-77 | Porphyry & Diatreme Complex   | Infill drilling of potential Stage 1 Open Pit  |
| CD-63, CD-65, CD-68, CD-70 & CD-73                 | Porphyry and Diatreme Complex | Confirm depth extension of mineralisation      |
| CD-62 & CD-76                                      | Diatreme Complex              | Confirm eastern continuity of high grade zones |
| CD-74  | Porphyry                      | Confirm western extension                      |

Note: BHID = Borehole identification number

**Table 2: Significant drill hole results (CD-61 to CD-77)**

| BHID          | Mineralised Intercept                             | Depth Interval (m) |
|---------------|---|--------------------|
| <b>CD-61</b>  | 933m at 0.51% Cu and 407ppm Mo                    | 767m to 1,700m     |
|               | <i>including</i> 309m at 0.97% Cu and 1,052ppm Mo | 878 to 1,187m      |
| <b>CD-62</b>  | 324m at 0.53% Cu and 51ppm Mo                     | 652m to 976m       |
| <b>CD-64</b>  | 956m at 0.48% Cu and 408ppm Mo                    | 464m to 1,420m     |
|               | <i>including</i> 63m at 1.07% Cu and 565ppm Mo    | 494m to 557m       |
|               | <i>including</i> 42m at 1.23% Cu and 2,224ppm Mo  | 914m to 956m       |
| <b>CD-73</b>  | 647m at 0.36% Cu and 92ppm Mo                     | 1,256m to 1,903m   |
|               | <i>including</i> 79m at 0.53% Cu and 59ppm Mo     | 1,385m to 1,464m   |
| <b>CD-75B</b> | 179m at 0.61% Cu and 79ppm Mo                     | 1,351m to 1,530m   |
|               | <i>including</i> 67m at 1.07% Cu and 139ppm Mo    | 1,411m to 1,478m   |
| <b>CD-76</b>  | 58m at 0.45% Cu and 12ppm Mo                      | 539m to 597m       |
|               | <i>and</i> 128m at 0.59% Cu and 43ppm Mo          | 685m to 813m       |

The drilling results for the porphyry are generally consistent with the geological and evaluation models used for the April 2012 Mineral Resource Estimate.

However, drill holes CD-61 and CD-64 returned higher grade intersections than were predicted in the evaluation model for the high grade breccia zone located on the northern margin of the deposit,

with CD-61 returning a grade of 0.97% Cu over 309 metres, and CD-64 returning grades of 1.07% and 1.23% Cu over 63 metres and 42 metres respectively.

Two drill holes (CD-62 and CD-76) were completed on the eastern edge of the mineralised envelope (diatreme complex), which returned grades of 0.53% Cu over 324 metres (CD-62), and 0.59% Cu over 128 metres (CD-76).

### **Categorisation of drilling results**

The drilling results for Los Calatos can be grouped into three broad categories:

- a) High grade breccia (Appendix 2; Figure 2): Mineralisation tends to be well-constrained, occurs close to surface, and is open at depths in excess of 1,700 metres. The breccia would constitute the primary focus of an initial, Stage 1, open pit.
- b) High grade diatreme complex (Appendix 2; Figure 3): Mineralisation tends to be well-constrained, occurring within, and peripheral to the diatreme complex. As the associated mineralisation occurs at depths in excess of 500 metres, the identified mineralisation would be exploited as part of a larger open pit, and/or an underground bulk mining (viz. block caving) operation.
- c) Low to medium grade porphyry (Appendix 2; Figure 4): Mineralisation tends to be more diffuse, occurs close to the surface and is open at depths in excess of 1,700m metres. The mineralised porphyry would be incorporated into a Stage 1 and subsequent, larger, open pit.

### **Revised drilling program**

Following completion of the interim Mineral Resource Estimate for Los Calatos in April 2012, which identified a mineral resource of 2.3 billion tonnes at a grade of 0.40% Cu and 210ppm Mo (using a 0.2% Cu cut-off grade), the Phase 4 drilling program was revised to focus on high grade zones within the Los Calatos mineralised envelope.

In general, the high grade zones identified within the Los Calatos porphyry system are associated with a well-developed breccia system, and a younger diatreme complex.

Based on a preliminary Company assessment of the drilling, and the fact that the high grade breccia zone occurs near surface, and persists at depth, the breccia zone will broadly be the focus of an initial, Stage 1, open pit.

The Phase 4 drilling program has therefore been reduced from 100,000 metres to 61,000 metres to focus on the high grade breccia zone, in addition to the high grade zones associated with the diatreme complex. The objective of the remaining drilling is threefold:

- Definition of geological domains: Delineate the areal extent of the high grade zones that have been identified within the Los Calatos mineralised envelope, and confirm their geological attributes;
- High grade breccia: Upgrade that part of the current Inferred Mineral Resource which will potentially be included in a Stage 1 open pit, to an Indicated Mineral Resource, ahead of the planned pre-feasibility study; and
- Diatreme Complex: Develop a better understanding of the high grade zones that occur within, and peripheral to, the diatreme complex, and their lateral and vertical continuity.

### Proposed work program

The revised Phase 4 drilling program is scheduled for completion in early Q3 2012, following which the Company will announce an updated JORC Mineral Resource Estimate. This resource update will be followed by the commissioning of a pre-feasibility study in early 2013.

The Company is undertaking an internal mining study to identify the main requirements of the pre-feasibility study. This will address aspects such as pit optimisation studies (and key input parameters), planned seawater pipeline from the coast, the design of a port/loading facility for concentrate, the quantification of the metallurgical testwork required to evaluate the use of sea water for flotation purposes (and refine recoveries) and access to the regional power grid.

As part of the mining study, several mining scenarios will be evaluated involving the phased development of Los Calatos, commencing with an initial, Stage 1, open pit. These studies will be finalised by the end of 2012, following the completion of an updated Mineral Resource Estimate.



**William Howe**  
**Managing Director**

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## Company Background

Metminco is a dual ASX and AIM listed company with a portfolio of copper, molybdenum and gold projects in Peru and Chile.

The Los Calatos Project, located in southern Peru, has a Mineral Resource of 2,316 million tonnes, comprising an Indicated Resource of 885 million tonnes at 0.42% Cu and 270 ppm Mo, and an Inferred Resource of 1,431 million tonnes at 0.40% Cu and 180 ppm Mo (at a 0.2% copper cut-off).

The Chilean assets include the Mollacas copper project with a Mineral Resource of 34.3 million tonnes consisting of a Measured Resource of 19.4 million tonnes at 0.45% Cu and 0.16g/t Au, an Indicated Resource of 9.4 million tonnes at 0.34% Cu and 0.16g/t Au, and an Inferred Resource of 5.5 million tonnes at 0.26% Cu and 0.15g/t Au (at a 0.2% copper cut-off); and the Vallecillo gold/zinc project with a Mineral Resource of 10.1 million tonnes consisting of an Indicated Resource of 7.9 million tonnes at 1.14g/t Au; 11.4g/t Ag; 1.32% Zn; 0.29% Pb and an Inferred Resource of 2.2 million tonnes at 0.78g/t Au; 8.2g/t Ag; 0.58% Zn; 0.26% Pb (at a cut-off grade of 0.3g/t Au).

The Company also has a number of early stage exploration projects where initial exploration activities have identified anomalous copper, molybdenum and gold values.

## Competent Persons Statement

The information in this report that relates to Exploration Results and Mineral Resources is based on information compiled by Colin Sinclair, BSc, MSc, who is a Member of the Australasian Institute of Mining and Metallurgy and is a full-time employee of the Company as Executive General Manager.

Colin Sinclair has sufficient experience (over 30 years) which is relevant to the style of mineralisation, type of deposit under consideration, and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results'. Mr Sinclair, as Competent Person for this announcement, has consented to the inclusion of the information in the form and context in which it appears herein.

## Forward Looking Statement

All statements other than statements of historical fact included in this announcement including, without limitation, statements regarding future plans and objectives of Metminco are forward-looking statements. When used in this announcement, forward-looking statements can be identified by words such as 'anticipate', 'believe', 'could', 'estimate', 'expect', 'future', 'intend', 'may', 'opportunity', 'plan', 'potential', 'project', 'seek', 'will' and other similar words that involve risks and uncertainties.

These statements are based on an assessment of present economic and operating conditions, and on a number of assumptions regarding future events and actions that, as at the date of this announcement, are expected to take place. Such forward-looking statements are not guarantees of future performance and involve known and unknown risks, uncertainties, assumptions and other important factors, many of which are beyond the control of the Company, its directors and management of Metminco that could cause Metminco's actual results to differ materially from the results expressed or anticipated in these statements.

The Company cannot and does not give any assurance that the results, performance or achievements expressed or implied by the forward-looking statements contained in this announcement will actually occur and investors are cautioned not to place undue reliance on these forward-looking statements. Metminco does not undertake to update or revise forward-looking statements, or to publish prospective financial information in the future, regardless of whether new information, future events or any other factors affect the information contained in this announcement, except where required by applicable law and stock exchange listing requirements.

## APPENDIX 1

## Los Calatos Project: Summary of Phase 4 drill hole results.

| Hole ID | Easting<br>(m) | Northing<br>(m) | RL<br>(m) | Azimuth true<br>(degrees) | Dip<br>(degrees) | Hole depth<br>(m) | Depth (m) |      | Interval<br>(m) | Cu<br>(%) | Mo<br>(ppm) |
|---------|----------------|-----------------|-----------|---------------------------|------------------|-------------------|-----------|------|-----------------|-----------|-------------|
|         |                |                 |           |                           |                  |                   | From      | To   |                 |           |             |
| CD-50   | 286415         | 8130424         | 2978      | 39                        | -63              | 993.3             | 183       | 855  | 672             | 0.28      | 217         |
| CD-51   | 286941         | 8130464         | 2916      | 205                       | -60              | 918               | 383       | 587  | 204             | 0.32      | 295         |
| CD-52   | 287111         | 8130240         | 2936      | 238                       | -69              | 674.5             | 318       | 415  | 97              | 0.42      | 9           |
| CD-53   | 286312         | 8130086         | 3047      | 31                        | -64.5            | 1976.4            | 670       | 1089 | 419             | 0.42      | 223         |
|         |                |                 |           |                           |                  | includes          | 905       | 1039 | 134             | 0.69      | 293         |
|         |                |                 |           |                           |                  |                   | 1163      | 1323 | 160             | 0.15      | 21          |
|         |                |                 |           |                           |                  |                   | 1371      | 1634 | 263             | 0.39      | 161         |
|         |                |                 |           |                           |                  |                   | 1682      | 1780 | 98              | 0.16      | 80          |
| CD-54   | 286502         | 8130076         | 3020      | 23                        | -70              | 1577.35           | 482       | 836  | 354             | 0.25      | 165         |
|         |                |                 |           |                           |                  |                   | 853       | 921  | 68              | 0.23      | 292         |
|         |                |                 |           |                           |                  |                   | 933       | 957  | 24              | 0.30      | 142         |
|         |                |                 |           |                           |                  |                   | 974       | 1013 | 39              | 0.36      | 129         |
|         |                |                 |           |                           |                  |                   | 1213      | 1279 | 66              | 0.26      | 7           |
|         |                |                 |           |                           |                  |                   | 1351      | 1390 | 39              | 0.12      | 11          |
|         |                |                 |           |                           |                  |                   | 1506      | 1572 | 66              | 0.21      | 78          |
| CD-55   | 287415         | 8130772         | 2924      | 207                       | -59              | 1588.25           | 762       | 816  | 54              | 0.47      | 51          |
|         |                |                 |           |                           |                  |                   | 830       | 998  | 168             | 0.36      | 18          |
|         |                |                 |           |                           |                  |                   | 1125      | 1154 | 29              | 0.13      | 101         |
|         |                |                 |           |                           |                  |                   | 1240      | 1435 | 195             | 0.26      | 55          |
| CD-56   | 287331         | 8130859         | 2951      | 216                       | -64.5            | 2003.9            | 980       | 1270 | 290             | 0.80      | 184         |
|         |                |                 |           |                           |                  | includes          | 990       | 1102 | 112             | 1.14      | 244         |
|         |                |                 |           |                           |                  |                   | 1289      | 1385 | 96              | 0.47      | 151         |
|         |                |                 |           |                           |                  |                   | 1401      | 1734 | 333             | 0.43      | 494         |
|         |                |                 |           |                           |                  | includes          | 1672      | 1732 | 60              | 0.75      | 627         |
|         |                |                 |           |                           |                  |                   | 1772      | 2004 | 232             | 0.55      | 146         |
|         |                |                 |           |                           |                  | includes          | 1809      | 1843 | 34              | 1.02      | 151         |
| CD-57   | 286733         | 8131226         | 3041      | 201                       | -72              | 1894.8            | 711       | 826  | 115             | 0.44      | 634         |
|         |                |                 |           |                           |                  |                   | 850       | 870  | 20              | 0.37      | 440         |
|         |                |                 |           |                           |                  |                   | 879       | 1894 | 1015            | 0.51      | 233         |
|         |                |                 |           |                           |                  | includes          | 1197      | 1282 | 85              | 1.05      | 221         |
| CD-58   | 286423         | 8131111         | 2983      | 206.5                     | -64              | 1263.2            | 870       | 1263 | 393             | 0.26      | 155         |

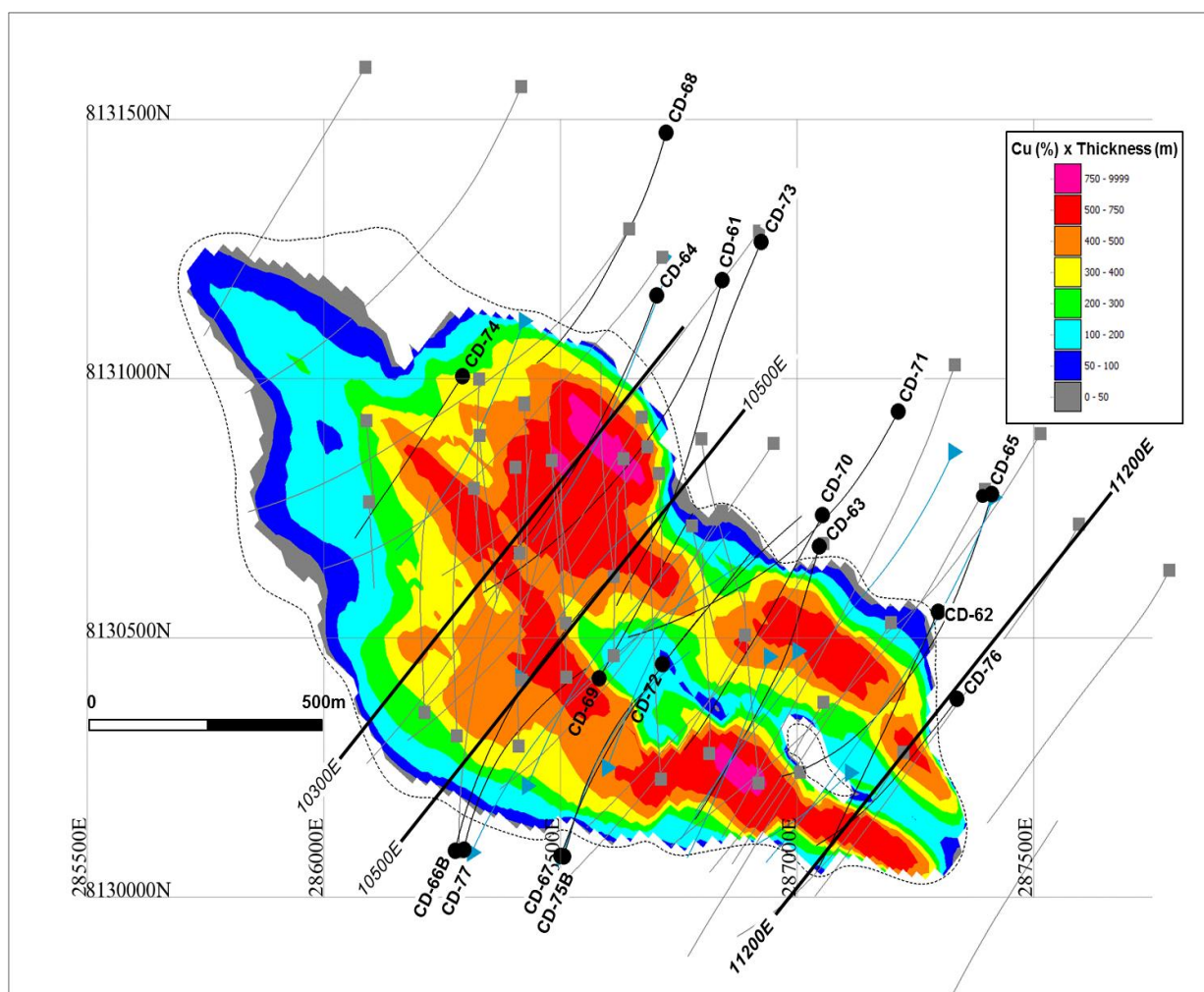
| Hole ID | Easting<br>(m) | Northing<br>(m) | RL<br>(m) | Azimuth true<br>(degrees) | Dip<br>(degrees) | Hole depth<br>(m) | Depth (m) |      | Interval<br>(m) | Cu<br>(%) | Mo<br>(ppm) |
|---------|----------------|-----------------|-----------|---------------------------|------------------|-------------------|-----------|------|-----------------|-----------|-------------|
|         |                |                 |           |                           |                  |                   | From      | To   |                 |           |             |
| CD-59   | 286429         | 8130214         | 2997      | 31.5                      | -61              | 1277.9            | 413       | 601  | 188             | 0.20      | 116         |
|         |                |                 |           |                           |                  |                   | 700       | 1002 | 302             | 0.17      | 145         |
|         |                |                 |           |                           |                  |                   | 1014      | 1194 | 180             | 0.22      | 99          |
| CD-60   | 287001         | 8130475         | 2921      | 221.5                     | -65.5            | 997.35            | 70        | 103  | 33              | 0.17      | 4           |
|         |                |                 |           |                           |                  |                   | 542       | 819  | 277             | 0.24      | 146         |
|         |                |                 |           |                           |                  |                   | 912       | 955  | 43              | 0.13      | 12          |
| CD-61   | 286842         | 8131190         | 3062      | 204.5                     | -63              | 1753.35           | 767       | 1700 | 933             | 0.51      | 407         |
|         |                |                 |           |                           |                  | includes          | 878       | 1187 | 309             | 0.97      | 1,052       |
| CD-62   | 287298         | 8130550         | 2913      | 212.5                     | -60.5            | 1195.05           | 652       | 976  | 324             | 0.53      | 51          |
| CD-63   | 287047         | 8130677         | 2941      | 200                       | -60              | 1137.7            | 140       | 231  | 91              | 0.16      | 9           |
|         |                |                 |           |                           |                  |                   | 424       | 451  | 27              | 0.24      | 14          |
|         |                |                 |           |                           |                  |                   | 666       | 685  | 19              | 1.32      | 23          |
|         |                |                 |           |                           |                  |                   | 698       | 987  | 289             | 0.35      | 93          |
|         |                |                 |           |                           |                  |                   | 1006      | 1051 | 45              | 0.24      | 20          |
| CD-64   | 286703         | 8131161         | 3030      | 206                       | -60              | 1419.9            | 345       | 391  | 46              | 0.51      | 37          |
|         |                |                 |           |                           |                  |                   | 464       | 1420 | 956             | 0.48      | 408         |
|         |                |                 |           |                           |                  | includes          | 494       | 557  | 63              | 1.07      | 565         |
|         |                |                 |           |                           |                  | includes          | 914       | 956  | 42              | 1.23      | 2224        |
| CD-65   | 287412         | 8130778         | 2940      | 200                       | -65              | 1804.2            | 1087      | 1262 | 175             | 0.17      | 39          |
|         |                |                 |           |                           |                  |                   | 1414      | 1438 | 24              | 0.18      | 75          |
| CD-66B  | 286277         | 8130089         | 3064      | 20                        | -65              | 1812.6            | 688       | 1139 | 451             | 0.24      | 142         |
|         |                |                 |           |                           |                  |                   | 1254      | 1812 | 558             | 0.29      | 63          |
| CD-67   | 286500         | 8130080         | 3035      | 24                        | -65              | 1538.25           | 490       | 844  | 354             | 0.22      | 80          |
|         |                |                 |           |                           |                  |                   | 899       | 1003 | 104             | 0.22      | 98          |
|         |                |                 |           |                           |                  |                   | 1054      | 1205 | 151             | 0.21      | 101         |
| CD-68   | 286723         | 8131475         | 3047      | 208.5                     | -72              | 1807.5            |           |      |                 |           |             |
| CD-69   | 286582         | 8130422         | 2955      | 35                        | -63              | 856.2             | 70        | 233  | 163             | 0.20      | 84          |
|         |                |                 |           |                           |                  |                   | 323       | 417  | 94              | 0.19      | 264         |
|         |                |                 |           |                           |                  |                   | 428       | 659  | 231             | 0.27      | 260         |
| CD-70   | 287054         | 8130737         | 2934      | 215                       | -67              | 1528.85           | 608       | 1382 | 774             | 0.30      | 131         |
|         |                |                 |           |                           |                  |                   | 1399      | 1423 | 24              | 0.11      | 6           |
|         |                |                 |           |                           |                  | includes          | 1254      | 1311 | 57              | 0.92      | 343         |

| Hole ID | Easting<br>(m) | Northing<br>(m) | RL<br>(m) | Azimuth true<br>(degrees) | Dip<br>(degrees) | Hole depth<br>(m) | Depth (m) |      | Interval<br>(m) | Cu<br>(%) | Mo<br>(ppm) |
|---------|----------------|-----------------|-----------|---------------------------|------------------|-------------------|-----------|------|-----------------|-----------|-------------|
|         |                |                 |           |                           |                  |                   | From      | To   |                 |           |             |
| CD-71   | 287214         | 8130937         | 3024      | 212                       | -62              | 1487.45           | 608       | 631  | 23              | 0.24      | 1           |
|         |                |                 |           |                           |                  |                   | 1028      | 1253 | 225             | 0.23      | 134         |
|         |                |                 |           |                           |                  |                   | 1285      | 1356 | 71              | 0.23      | 34          |
| CD-72   | 286715         | 8130449         | 2941      | 41                        | -61              | 570               | 34        | 170  | 136             | 0.16      | 25          |
|         |                |                 |           |                           |                  |                   | 200       | 325  | 125             | 0.25      | 49          |
|         |                |                 |           |                           |                  |                   | 405       | 468  | 63              | 0.28      | 137         |
| CD-73   | 286924         | 8131264         | 3018      | 207                       | -62              | 1912.5            | 1256      | 1903 | 647             | 0.36      | 92          |
|         |                |                 |           |                           |                  | includes          | 1385      | 1464 | 79              | 0.53      | 59          |
| CD-74   | 286293         | 8131005         | 2956      | 217                       | -66              | 1045.5            | 481       | 569  | 88              | 0.13      | 29          |
|         |                |                 |           |                           |                  |                   | 651       | 690  | 39              | 0.11      | 21          |
|         |                |                 |           |                           |                  |                   | 716       | 1037 | 321             | 0.15      | 13          |
| CD-75B  | 286507         | 8130078         | 3028      | 18.7                      | -74              | 1559.2            | 635       | 1265 | 630             | 0.22      | 213         |
|         |                |                 |           |                           |                  |                   | 1351      | 1530 | 179             | 0.61      | 79          |
|         |                |                 |           |                           |                  | includes          | 1411      | 1478 | 67              | 1.07      | 139         |
| CD-76   | 287338         | 8130382         | 2920      | 220.7                     | -60.5            | 926.15            | 539       | 597  | 58              | 0.45      | 12          |
|         |                |                 |           |                           |                  |                   | 685       | 813  | 128             | 0.59      | 43          |
| CD-77   | 286296         | 8130092         | 3036      | 14                        | -74.5            | 1595.35           | 826       | 1157 | 331             | 0.20      | 133         |
|         |                |                 |           |                           |                  |                   | 1222      | 1482 | 260             | 0.26      | 87          |



APPENDIX 2

Figure 1: Cu (%) x Thickness (m) contour plan showing Los Calatos drilling program.



Note

- a) Drill holes CD-61 to CD-77 are annotated for reference purposes.
- b) Contours are projected to surface. See figures 2, 3 and 4 for elevation of mineralisation relative to surface.

Figure 2: Section 10300E showing the high grade Cu zones associated with the mineralised breccia system.

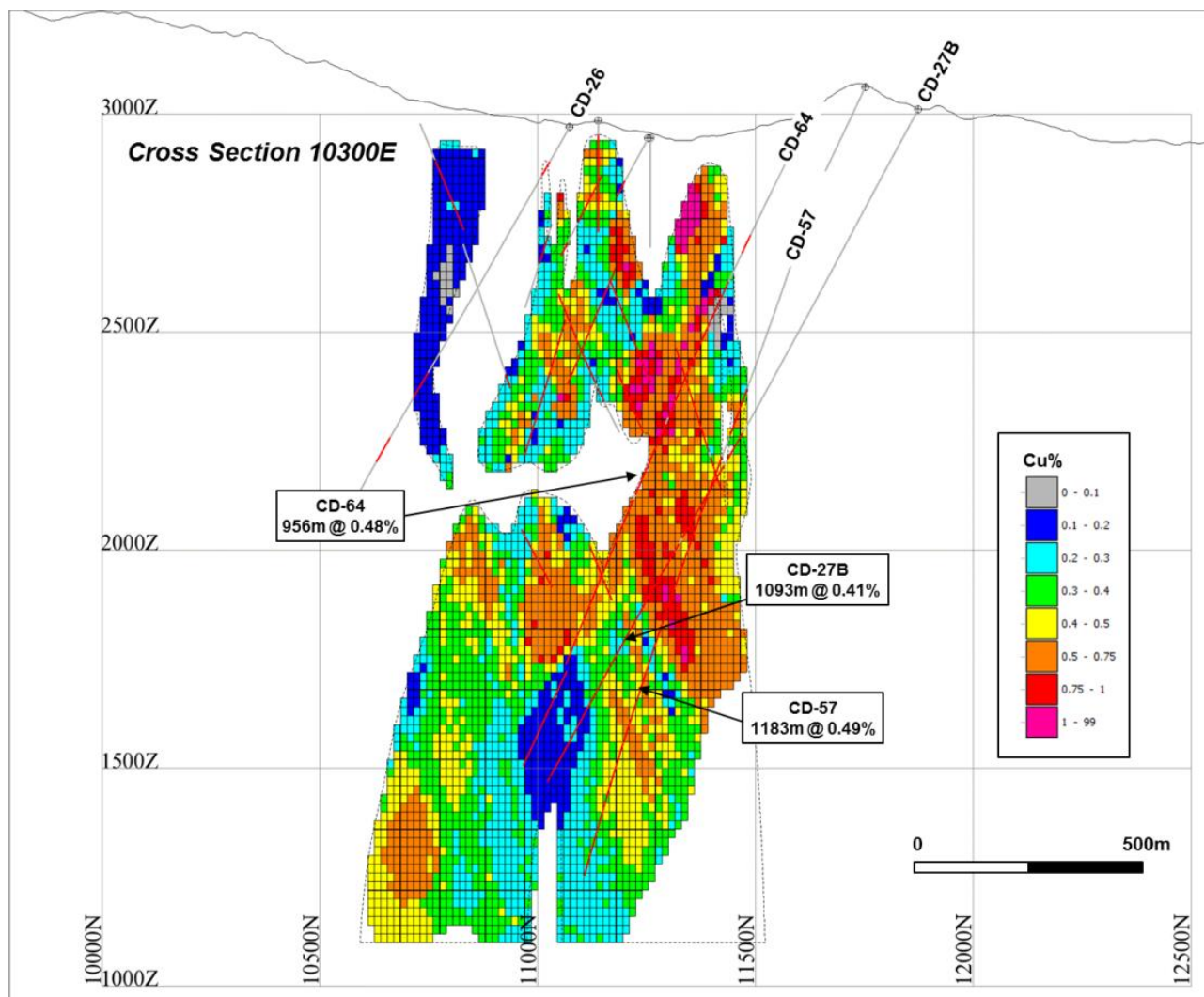


Figure 3: Section 11200E showing the high grade Cu zones associated with the diatreme complex.

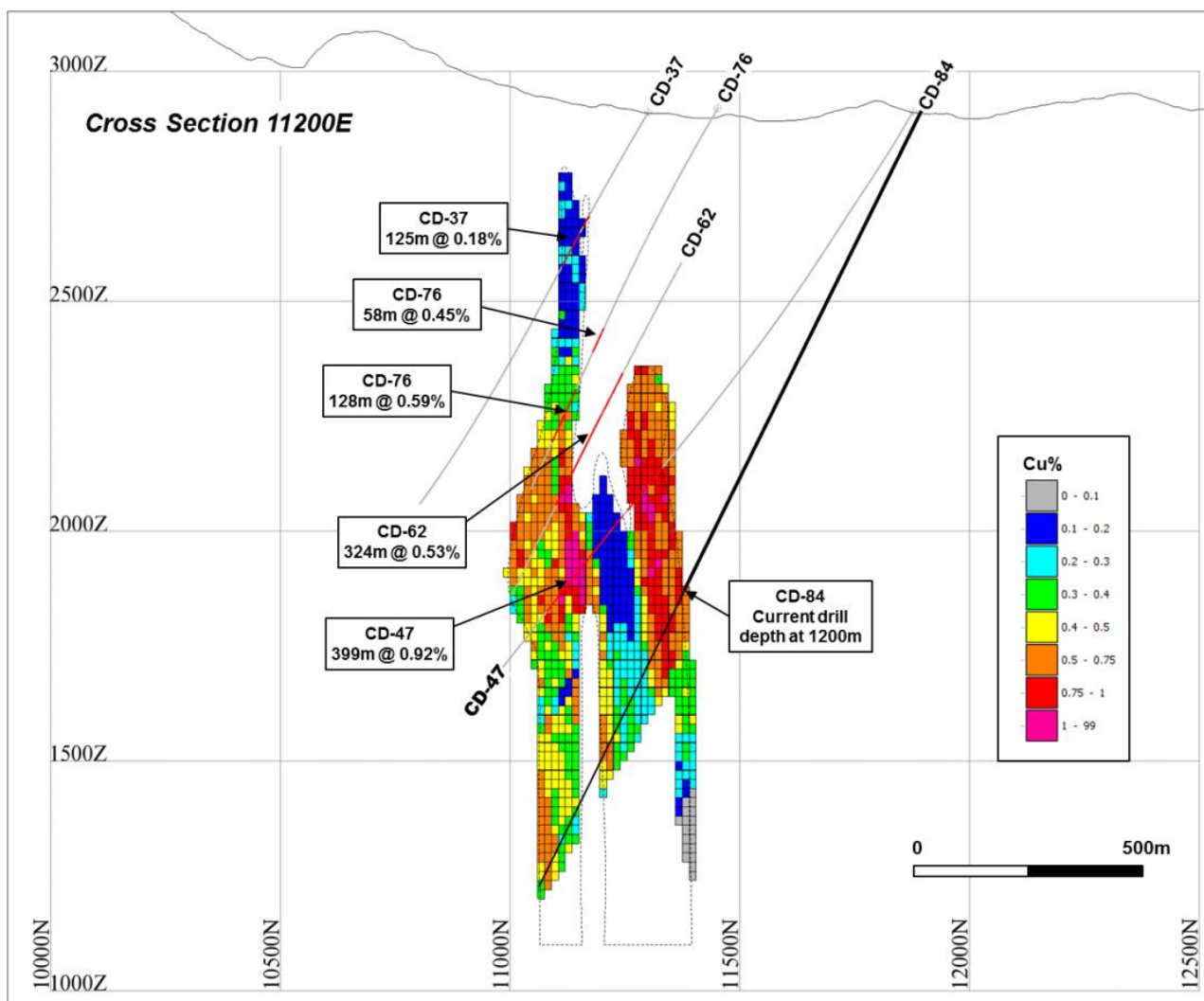
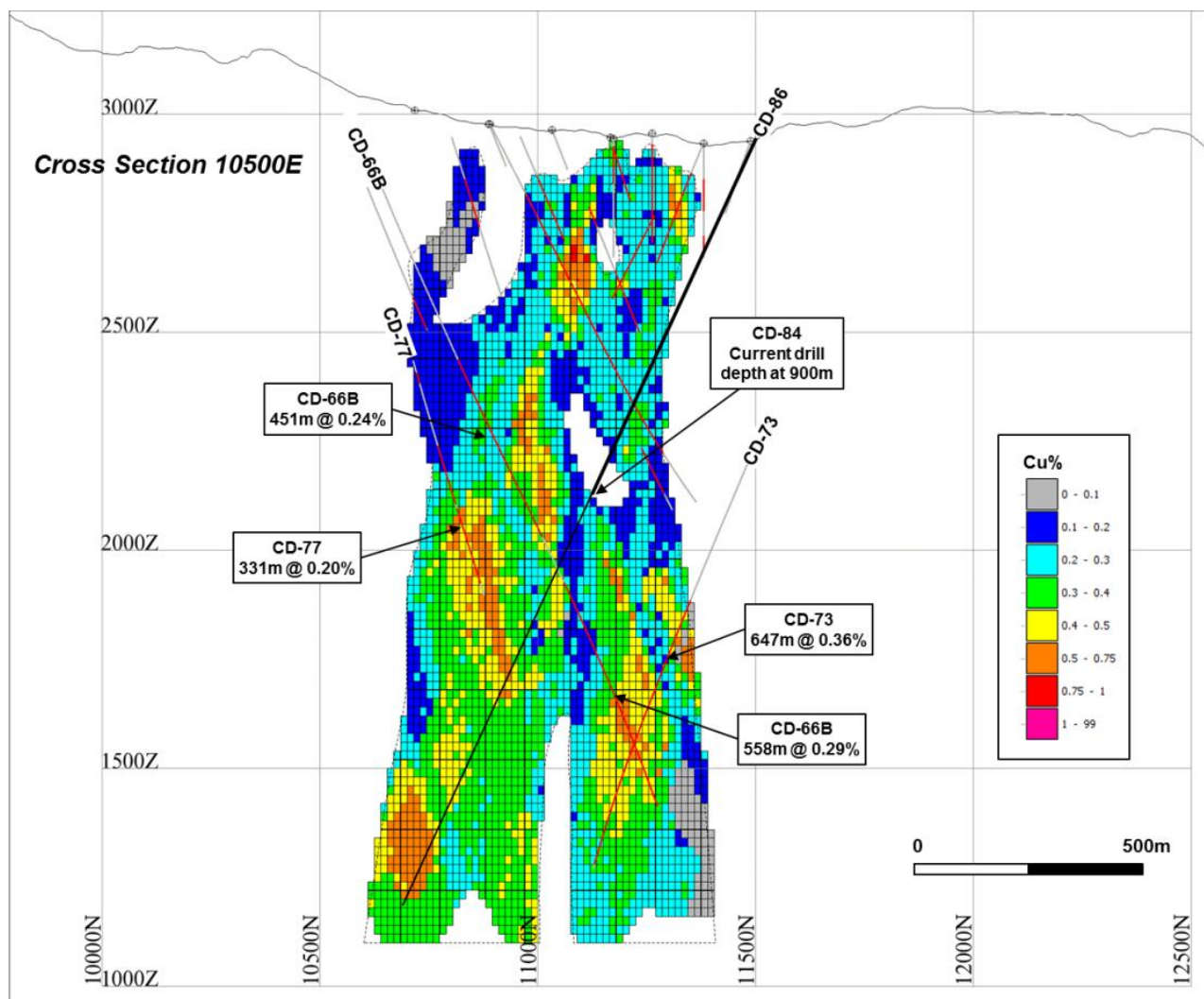


Figure 4: Section 10500E showing the low to medium Cu grades associated with the mineralised porphyry.



## Abbreviated Glossary

### Assay

An analysis to determine the presence, absence or quantity of one or more chemical components.

### Base Metal

A metal, such as copper, lead, nickel, zinc or cobalt.

### Block caving

A method of underground mining in which large blocks of ore are undercut, causing the ore to break or cave under its own weight enabling extraction of the ore at a relatively low cost.

### Breccia

Rock fragmented into angular components.

### Circuit

A processing facility for removing valuable minerals from the ore so that it can be processed and sold.

### Copper (Cu)

A ductile, malleable base metal with a myriad of uses in construction (piping, wire) and electronics due to its high electrical and thermal conductivity and good resistance to corrosion.

### Copper equivalent (CuEq)

Copper equivalent is generally based on the value of the non-copper by-products (such as gold and molybdenum) relative to the copper price. For example, at a long term copper price of US\$2.75 per pound of copper and a molybdenum price of US\$12.50 per pound, 1 pound of molybdenum is equivalent to 4.5 pounds of copper.

### Diamond drilling / drill hole

A method of obtaining a cylindrical core of rock by drilling with a diamond impregnated bit.

### Diatreme

A diatreme is a breccia-filled volcanic pipe that was formed by a gaseous explosion. Diatremes often breach the surface and produce a tuff cone, a filled relatively shallow crater known as a maar, or other volcanic pipes.

### Drill core

The long cylindrical piece of rock brought to surface by diamond drilling.

### Feasibility Study

A feasibility study is an evaluation of a mineral resource to determine whether it can be mined effectively and profitably. It includes the detailed study of reserve estimation, mining methods evaluation, processing technique analysis, capital and operating cost determination and the process effect on the environment and community. This detailed study forms the basis for capital estimation, and provides budget figures for the development of the project. It requires a significant amount of formal engineering work and an accuracy within 10 to 15%.

### Geo-domain

Homogeneous geological domains within a deposit identified on the basis of spatial continuity of grades and geological features such as lithology, mineralogy and alteration.

### Gold (Au)

A heavy, soft, ductile, malleable precious metal used in jewellery, dentistry, electronics and as an investment.

### Grade

The amount of valuable metal in each tonne of ore, expressed as grams per tonne for precious metals and percent in the case of copper and parts per million (ppm) in the case of molybdenum. *Cut-off grade* – is the minimum metal grade at which a tonne of rock can be processed on an economic basis. *Recovered grade* – is the actual metal grade realised by the metallurgical process and treatment of ore, based on actual experience or laboratory testing.

**Indicated Mineral Resource**

An 'Indicated Mineral Resource' is that part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a reasonable level of confidence. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are too widely or inappropriately spaced to confirm geological and/or grade continuity but are spaced closely enough for continuity to be assumed.

**Inferred Mineral Resource**

An 'Inferred Mineral Resource' is that part of a Mineral Resource for which tonnage, grade and mineral content can be estimated with a low level of confidence. It is inferred from geological evidence and assumed but not verified geological and/or grade continuity. It is based on information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes which may be limited or of uncertain quality and reliability.

**JORC Code**

The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves sets out minimum standards, recommendations and guidelines for Public Reporting in Australasia of Exploration Results, Mineral Resources and Ore Reserves.

**Measured Mineral Resource**

A 'Measured Mineral Resource' is that part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a high level of confidence. It is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are spaced closely enough to confirm geological and grade continuity.

**Metallurgy**

The science and technology of extraction of metals from their ores and the refining of metals.

**Mineralisation**

The concentration of metals and their chemical compounds within a body of rock.

**Mineralised envelope**

The boundary constraining the extent of the identified mineralisation, as delineated by a nominated grade or cut-off.

**Mineral Resource**

A concentration or occurrence of material of intrinsic economic interest in or on the Earth's crust in such form, quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge. Mineral Resources are subdivided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories.

**Molybdenum (Mo)**

Molybdenum is commonly a by-product of copper mining. It has the ability to withstand extreme temperatures and has a high resistance to corrosion. Molybdenum is widely used as an alloy agent in stainless steel. It is also used to manufacture aircraft parts and industrial motors.

**NPV**

Net present value is the difference between the present value of a future cash flow from an investment and the amount of investment, where the present value of the expected cash flow is computed by discounting the cash flow at the required rate of return.

**Open Pit**

A mine that is entirely on surface. Also referred to as open-cut or open-cast mine.

**Ore**

Rock containing mineral(s) or metals that can be economically extracted to produce a profit.



**Pit optimisation study**

Pit optimisation studies are used for open pit mine planning to determine those pit limits and mining sequences that yield maximum financial returns based on defined technical parameters, operating costs and commodity prices.

**Porphyry**

A rock consisting of larger crystals embedded in a more compact finer grained groundmass.

**Porphyry copper deposit**

A copper deposit which is associated with porphyritic intrusive rocks and the fluids that accompany them during the transition and cooling from magma to rock. Porphyry copper deposits are typically mined by open-pit methods.

**Pre-feasibility study**

A preliminary assessment of the technical and economic viability of a proposed project. Alternative approaches to various elements of the project are compared, and the most suitable alternative for each element is recommended for further analysis. Costs of development and operations are estimated. Anticipated benefits are assessed such that some preliminary economic criteria for evaluation can be calculated. Preliminary feasibility studies are completed by a small group of multi-disciplined technical individuals and have an accuracy within 20 to 30%.

**Recovery**

A term used in process metallurgy to indicate the proportion of valuable material obtained in the processing of an ore. It is generally stated as a percentage of valuable metal in the ore that is recovered compared to the total valuable metal present in the ore.