

ASX ANNOUNCEMENT 21 September 2015

# SIGNIFICANTLY IMPROVED PROJECT ECONOMICS FOR LOS CALATOS WITH NPV UP 57%

#### Metminco Limited ("Metminco" or the "Company") (ASX: MNC; AIM: MNC).

As previously announced, Metminco appointed RungePincockMinarco ("RPM") to undertake a strategic Mining Study to determine an alternate development approach for Los Calatos as a potential high grade mining operation ("Mining Study"). Preliminary results of the Mining Study as announced on 27<sup>th</sup> July 2015 have now been further optimised and addressed in the final Mining Study Report.

The results of the Mining Study demonstrate significantly improved economics for the Project by comparison to the results released to the market on 27<sup>th</sup> July 2015, specifically returning a 57% increase in the NPV for the project to US\$447 million.

#### **HIGHLIGHTS**

- Mineable Quantity of 134.3Mt at 0.89% Cu and 0.036% Mo;
- Short lead time to production with a forecast construction period of 18 to 24 months and mining commencing 150 metres below surface;
- Average Life of Mine (LoM) production of 50,000tpa copper in concentrate for 22 years;
- LoM C1 cash operating costs after by-product credits of US\$1.29/lb;
- Pre-production capital expenditure of US\$655 million.
- LoM copper production of 1,100,000 tonnes in concentrate (2.4 billion lbs);
- LoM by-product credits of US\$0.40/lb payable copper;
- LoM EBITDA of US\$3.82 billion;
- NPV at 8% discount rate of US\$447 million (ungeared);
- IRR 16.6% (ungeared); and
- Payback period of 4.85 years.

Inferred Mineral Resources comprise 62% of the Mineable Quantity (Table 1), noting that there is a low level of geological confidence associated with Inferred Mineral Resources, and that there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target itself will be realised.

Mr William Howe, Managing Director, commented: "The Mining Study completed by RPM provides an excellent building block for the potential development of the Los Calatos Project. This study clearly demonstrates that there are a number of options available for the development of Los Calatos into a low cost, long life mine.

Located in an excellent mining jurisdiction and infrastructure setting, the Los Calatos project is well positioned to be developed, and based on the Mining Study, has the potential to achieve significant financial returns for our shareholders with further upside potential through exploration.

The projected demand for copper in the medium term is strong against the back drop of declining copper production due to recent mine closures and potential debt funding limitations, which will potentially have a positive impact on copper prices earlier than anticipated by the market.

Attracting an appropriate partner for Los Calatos remains a priority, with an increasing number of parties currently undertaking detailed due diligence.

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#### LOS CALATOS PROJECT

### **RPM Strategic Mining Study (Expansion Case)**

## **Estimation of a Mineable Quantity**

The basis for the work completed by RPM was the Mineral Resource Estimate completed by SRK Consulting (Chile) S.A., and in particular, the associated 3D Block Model (Appendix 1).

RPM were provided with specific guidelines by Metminco in as far as the target product is concerned, namely a copper in concentrate annual production rate of 50,000 tpa at a milling rate of 6.0 to 6.5Mtpa (Appendix 2). By implication, this required the application of a high cut-off grade of 0.70% Cu to 0.75% Cu, and a more selective mining method by comparison to the block caving method proposed for the larger mining scenario developed by RPM in August 2013.

Having evaluated a number of mining methods, RPM recommended the application of a sub-level cave mining method, the design criteria of which are summarised below:

- 25 metre sub-level spacing.
- 25 metre long stopes.
- Minimum stope width of 10 metres.
- Maximum stope width of 50 metres.
- Minimum waste pillar width of 10 metres.
- Minimum footwall / hangingwall angle of 60 degrees.

These criteria, in combination with defined mining, processing, realisation and capital costs, as well as metal recovery factors and long term consensus commodity prices, formed the basis of a stope optimisation process using Vulcan Stope Optimiser at cut-off grades of 0.70% and 0.75% Cu. This process in turn identified a spectrum of sub-level cave stopes over the depth interval 2,850mRL to 1,125mRL.

RPM then applied their High-level Underground Evaluation (HUGE) process, which interfaces with Vulcan Stope Optimiser, to identify underground mining limits, and for scheduling and economic modelling to define economic mining limits. As a consequence, and using sub-level caving, the economic depth to which underground mining could take place for the 0.70% Cu cut-off was the 1,300mRL, whereas in the case of the 0.75% Cu cut-off, it is the 1,550mRL. The sub-level cave stopes were thus trimmed to these levels.

In order to derive an estimated mineable quantity, modifying factors were subsequently applied to the sublevel cave tonnes and grade, as indicated below:

Mining losses: 10%

Dilution: 20%

Due to the level of the Mining Study, RPM applied a 20% dilution factor to the sub-level cave stopes based on their experience in modelling sub-level cave mining operations. The dilution was ascribed a constant grade of 0.43% Cu and 317ppm Mo based on the Grade Tonnage table for the breccia units, this being attributable to the fact that the design of the stopes is largely restricted to the confines of the breccias. It is probable that the mining dilution can be reduced with an improved understanding of the caving characteristics of the breccia, the latter of which will be facilitated by the morphology of the breccias.

On this basis, RPM estimated a mineable quantity for the 0.70% Cu cut-off grade scenario, known as the Expansion Case, as summarised in Table 1 below.

Table 1: Mineable Quantity by Mineral Resource Classification.

Mineral Resource Classification	Mt	Cu %	Mo %
Measured	26.8	0.85	0.054
Indicated	24.0	0.83	0.040
Inferred	83.5	0.92	0.028
Mineable Quantity	134.3	0.89%	0.036%

Note: Cut-off grade of 0.70% Cu.

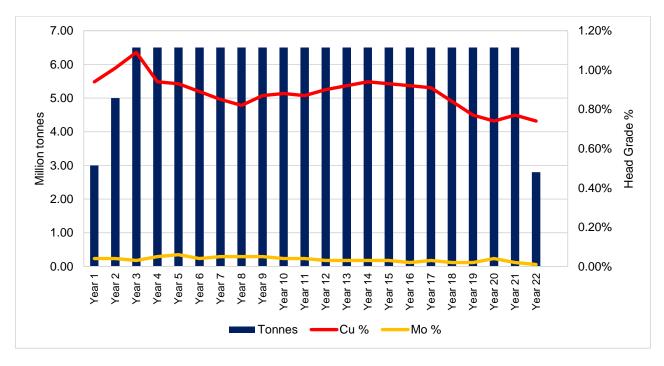
The conversion rate from mineral resources to tonnes mined at a cut-off grade of 0.70% Cu is approximately 85% (or 134Mt from a total mineral resource of 158Mt). Given an increasing copper price, there is considerable upside to increase the size of the mineable quantity. For instance, at a lower copper cut-off grade of 0.50% copper, the total mineral resource for Los Calatos is 352Mt at 0.76% Cu and 318ppm Mo (Appendix 1).

It must be emphasised, however, that the Mining Study is based on a low-level technical and economic assessment with an accuracy level of ±50%, which is insufficient to support the estimation of Ore Reserves, or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusions of the Mining Study will be realised.

#### **Production Profile**

A production profile was constructed for the Expansion Case based on a steady state production (and milling) rate of 6.5Mtpa (Figures 1 and 2).

Figure 1: Expansion Case - Annual production rate and head grade.



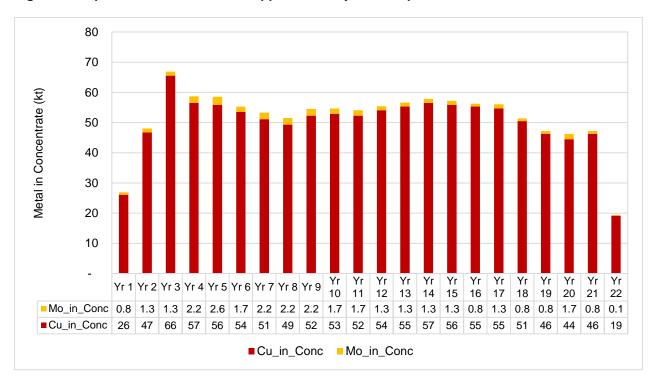


Figure 2: Expansion Case - Annual copper and molybdenum production in concentrate.

Key aspects of the production profile are as follows:

Pre-production period: 18 to 24 months

Two decline systems: Access high grade supergene material at an initial depth of 150 metres

below surface

• Year 1: Production rate of 3Mtpa

Year 2: Production rate of 5Mtpa

Year 3: Production rate of 6.5Mtpa

Years 3 to 21
 Steady State at 6.5Mtpa

Copper Production: Peaks in Year 3 at 65,500t Cu in Concentrate

# **Conceptual Mine Design**

The high grade Cu and Mo mineralization occurs within three well defined breccia units, although from a mining perspective there are two geographic areas which contain the majority of the mineralization in both a lateral and vertical sense. For this reason, two decline systems have been proposed to access these areas, known as the eastern and western declines.

Two conceptual designs have been proposed, the key difference being that one design has a central vertical shaft system in addition to the eastern and western declines, whereas the alternate design provides for a central decline / conveyor system. Although preliminary cost estimates have been determined for the designs, a detailed trade-off study has yet to be completed. As such, a contingency of approximately 25% of total mine capital has been provided.

## Design 1

- Eastern and Western Declines: Extends from surface to the 2,450mRL
- Central Conveyor System: Extends from the 2,500mRL to the 1,300mRL

#### Design 2

- Eastern Decline: Extends from surface to the 2,175mRL
- Western Decline: Extends to the 2,300mRL
- Central Vertical Shaft System: Extends from surface to the 1,300mRL

Design 2 is graphically illustrated in Appendix 3.

## **Regional Infrastructure**

Over the period 2012 to 2014, Poch y Asociados Ingenieros Consultores S.A. ("POCH") conducted a number of studies on Los Calatos in terms of road access, power supply and the location of a water and concentrate pipeline to the coast, for which capital and operating costs were estimated.

These costs, excluding the provision for a concentrate pipeline, have formed the basis of the cost estimates used for the Expansion Case. The concentrate is planned to be transported via road to Matarani Port, for which transport, loading and ocean freight costs have been estimated.

As the POCH work was based on a larger mining operation of ±24Mtpa (by comparison the planned 6.5Mtpa operation), the potential exists to reduce these costs in accordance with the requirements of the smaller operation.

The proposed regional infrastructure is shown in Appendix 4.

# **Operating Costs and Capital Expenditure**

The operating and capital costs were estimated by RPM to a +/- 50% accuracy level, with supporting information for infrastructure (road, power, water), processing recovery rates, smelting and refining charges and selling costs having been provided by Metminco.

The estimated operating and capital costs for the Expansion Case are summarised in Tables 2 and 3 respectively.

As can be seen from Table 2, the C1 Cash Operating Cost after by-product credits is US\$1.29/lb. Figure 3 shows how Los Calatos ranks in terms of C1 Cash Costs by comparison to the cumulative tonnes per annum paid copper production for some 268 copper projects.

Table 3 indicates an estimated total life of mine capital expenditure of US\$1,043 million, comprising US\$655 million of pre-production capital and US\$388 million sustaining capital. Figure 4 compares the capital intensity for Los Calatos (US\$13,100/t annual copper production) with 60 other copper projects.

Table 2: Total Operating Costs and Unit Operating Costs.

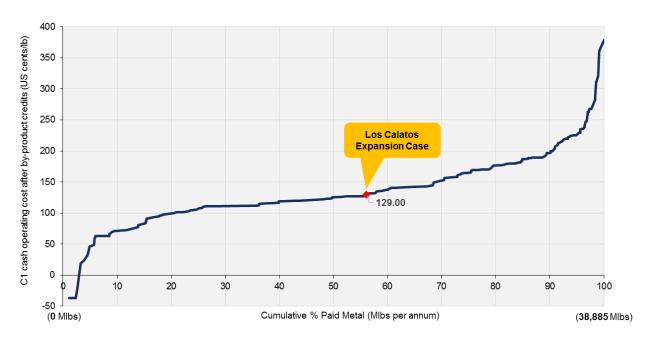
Total Operating Costs						
Item	US\$/t milled					
Mining	14.27					
Milling	6.05					
G&A	1.34					
Subtotal – On Site	21.66					
Treatment & Transport	6.97					
Total Operating Costs	28.63					

Unit Operating Costs						
Item	US\$/lb					
C1 Cash Operating Cost	1.69					
By-product credits	0.40					
C1 Cash Costs after by-product credits	1.29					

**Table 3: Estimated Capital Expenditure.** 

Item	Initial Capex	Sustaining Capex	Total Capex	
Underground	58.1	335.0	393.1	
Plant	149.9	33.3	183.2	
Infrastructure	216.2	19.9	236.1	
Indirect Costs	83.6		83.6	
Contingencies	111.7		111.7	
Owners Costs	27.6		27.6	
Land Acquisition	8.0		8.0	
Total	655.1	388.2	1,043.3	

Figure 3: C1 Cash Operating Costs – Los Calatos



Note: Comparison with 268 other projects (WoodMacKenzie 2015 Q2).

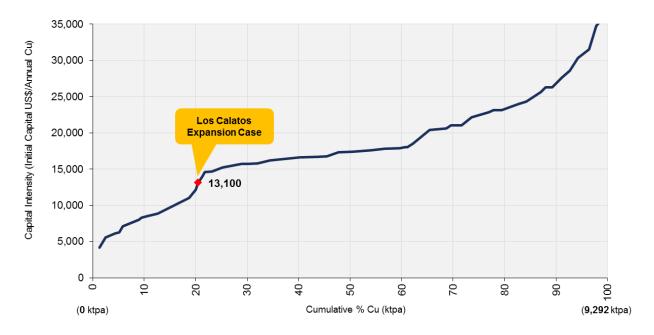


Figure 4: Capital Intensity - Los Calatos

Note: Comparison with Goldman Sachs GS 60 Copper Projects (dated September 2012).

# Indicative Life of Mine (LoM) Financial Model - Results

Financial modeling of the Expansion Case was conducted by Metminco based on the financial and production data provided by RPM.

The financial model supports the potential development of Los Calatos as a high grade mine producing on average 50kt per annum of copper in concentrate over a LoM of 22 years, with an estimated C1 cash operating cost of US\$1.29/lb copper (net of by-product credits), a NPV at 8% (ungeared) of US\$447 million, and an IRR (ungeared) of 16.6%.

Key operating parameters and financial returns for the Expansion Case, based on the planned production / milling rates and operating and capital cost estimates are summarized in Table 4 below.

Table 4: Key Operating Parameters & Financial Returns - Life of Mine (Expansion Case).

Economic Analysis	Units	Amount		
Mine Physicals				
Milled Grade Cu	%	0.89%		
Recovery	%	92.50%		
Milled Grade Mo	%	0.036%		
Recovery	%	68.00%		
Mineable Quantity	Mt	134.3		
Production Rate	Mtpa	6.5		
Life of Mine	Years	22		
Product				
Copper in Concentrate	Kt	1,101		
Payable Copper	Kt	1,062		
Payable Molybdenum	Kt	28		
Gold	Koz	106		
Silver	Koz	1,699		
Rhenium	(000's kg)	17		
Commodity Prices 1	, 0,			
Copper Price	US\$ per lb	3.00		
Molybdenum Price	US\$ per lb	11.15		
Gold Price	US\$ per oz	1,250		
Silver Price	US\$ per oz	19.00		
Rhenium Price	US\$ per kg	5,773		
Revenue		,		
Copper	US\$ million	7,031		
Molybdenum	US\$ million	678		
Other Commodities	US\$ million	262		
Total Revenue	US\$ million	7,971		
Operating Costs		·		
Mining	US\$ million	1,917		
Milling	US\$ million	813		
G&A	US\$ million	180		
Treatment & Transport	US\$ million	936		
Subtotal - Operating Costs	US\$ million	3,845		
Unit Operating Cost <sup>2</sup>	US\$/t milled	28.63		
Royalties	US\$ million	305		
Cash Flow				
EBITDA	US\$ million	3,820		
Capital Expenditure <sup>3</sup>	US\$ million	1,043		
Unlevered Cash Flow (before tax)	US\$ million	2,541		
Unlevered Cash Flow (after tax)	US\$ million	1,774		
Net Present Value @ a 8% discount rate (ungeared)	US\$ million	447		
IRR (ungeared)	%	16.6		
Payback	Years	4.85		

Street Consensus long term commodity prices used (circa median price beyond 2019) sourced from BMO, encompassing up to 40 Institutions: Copper US\$3.00/lb; Au US\$1,250/oz; Ag US\$19/oz; Mo US\$1.16/lb; Re US\$5,773/kg (Re price from MNC).

<sup>&</sup>lt;sup>2</sup> C1 Cash Operating Cost after by-product credits of US\$1.29/lb Cu.

<sup>&</sup>lt;sup>3</sup> Pre-production capital expenditure of US\$655 million.

Under the preferred development scenario, Los Calatos becomes an attractive development option in a resource sector that is focused on minimising capital spend, attaining above average copper grades, and achieving C1 cash operating costs in the lower quartile of global copper producers.

# **Project Is Highly Deliverable**

The development of the Los Calatos Project is deliverable due to a number of important factors, namely:

#### Social Licence

- No exposure to local potable water issues.
- No competing land use.
- All surface rights covering the project will be acquired directly from the Peruvian government Project of National Interest status.

#### Access to Power and Water

- Use of seawater for the operations access via a 75km pipeline.
- Located in southern Peru with estimated long term power costs of 6 cents/kWh.
- Power to be accessed via a dedicated 32km power line from Moquegua.

## Regional Infrastructure

- Modest elevation (2,900m amsl) capable of supporting year round operations.
- Close proximity to the regional city of Moquegua (65km).
- Large available work force in historical mining district.
- Close proximity to port facilities accessible via the Pan American highway (e.g. loading facility at Matarani).

### **Opportunities**

RPM has identified a number of opportunities that have the potential to improve the economics of the Project, which include:

- Planned infill drilling, geotechnical work, and improved open pit designs: Potential to increase the mineral resources amenable to open cut mining.
- Optimisation of mine design and supporting infrastructure: Reduction in capital expenditure.
- Detailed mine planning, with the benefit of an improved understanding of the geotechnical attributes of the breccia splines: Reduction in dilution.
- Cave rate: Expected to be favourable based on the 'soft rock' properties generally expected in breccias.
- Application of dynamic cut-off grade: Improved annual operating margins.
- Financial analysis supported by supplier quotations: Improved cost estimates and reduction in current contingencies.

From the work completed by RPM in terms of a Conceptual Mine Design, it is clear that a number of development alternatives exist, which will ultimately be dictated by commodity prices and the impact thereof on cut-off grades and the selected mining method, or methods.

No technical fatal flaws have been identified by RPM which prevents the Project from progressing to a higher level of study, and potentially, a successful mining operation. As per industry standard mining project development approaches, risks identified in the Mining Study can be mitigated or better quantified through the completion of further geological, geotechnical, metallurgical test work and mine design.

# **Way Forward**

Based on the results of the Mining Study, the Company is positioned to initiate a development program that progresses the Los Calatos Project to Feasibility, subject to the availability of funding.

The initial work program leading into the completion of a Pre-Feasibility Study will be an in-fill drilling program to advance the current mineral resource to Measured and Indicated Mineral Resource categories for that part of the mineral resource that is to be mined in the first 10 years of the LoM.

The drill program will also facilitate the collection of appropriate metallurgical samples, in addition to geotechnical and hydrogeological information required for the development of the underground mining operation to feasibility level.

The planned in-fill drilling program, and additional studies, will ultimately address the quality and accuracy of the information required to estimate Ore Reserves, and to provide assurance of an economic development case, being cognisant of the risks involved in the mining sector.

Exploration drilling at the TD2 hydrothermal breccia target adjacent to the main Los Calatos deposit remains a priority, as any resources discovered would complement any development at Los Calatos. The Company has received quotes from drilling companies to complete an initial drilling program encompassing two 1,000m drill holes to test the TD2 target.

An environmental baseline study will also be initiated and will accommodate the legislated requirements for the completion of an Environmental Impact Assessment.



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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.

## **Projects and Mineral Resources**

The Los Calatos Project, located in southern Peru, has a total estimated mineral resource of 352 million tonnes at 0.76% Cu and 318 ppm Mo at a cut-off grade of 0.50% Cu, comprising a Measured Mineral Resource of 73 million tonnes at 0.73% Cu and 513 ppm Mo, an Indicated Mineral Resource of 64 million tonnes at 0.73% Cu and 345 ppm Mo, and an Inferred Mineral Resource of 21 million tonnes at 0.78% Cu and 244 ppm Mo.

The Chilean assets include the Mollacas Copper Project with a Mineral Resource of 15.5 million tonnes consisting of a Measured Resource of 11.2 million tonnes at 0.55% Cu and 0.12g/t Au and an Indicated Resource of 4.3 million tonnes at 0.41% Cu and 0.14g/t Au(at a 0.2% copper cut-off); and the Vallecillo Project with a Mineral Resource of 8.9 million tonnes consisting of a Measured Resource of 5.5 million tonnes at 0.84g/t Au, 9.99g/t Ag, 1.12% Zn and 0.32% Pb, an Indicated Resource of 2.6 million tonnes at 0.80g/t Au, 10.23g/t Ag, 0.94% Zn and 0.35% Pb and an Inferred Resource of 0.8 million tonnes at 0.50g/t Au, 8.62g/t Ag, 0.48% Zn and 0.17% Pb (at a cut-off grade of 0.2g/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 currently employed by the Company in Chile.

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.

# SRK Consulting (Chile) S.A. (SRK)

Metminco supplied SRK with a geological model and supporting drill hole data. Copper and molybdenum grades were estimated into a block model using ordinary kriging with VULCAN software.

The information provided in this ASX Release as it relates to Exploration Results and Mineral Resources of the Los Calatos copper deposit is based on information compiled by Joled Nur, Principal Mining Engineer (Geostatistics and Resources Estimation) SRK. Mr Nur, who is a Member of the Australasian Institute of Mining and Metallurgy, and is a Qualified Person for JORC 2012 compliant statements, performed the resource estimation. Mr Nur has sufficient experience that is relevant to the style of mineralisation and type of mineral deposit under consideration, and to the activity which was undertaken, to make the statements found in this report in the form and context in which they appear. Mr Nur has consented to be named in this announcement and inclusion of information attributed to them in the form and context in which it appears herein.

## RungePincockMinarco

RungePincockMinarco ("RPM") is the world's largest publicly listed independent group of mining technical experts, with a history going back to 1968.

Listed on the Australian Securities Exchange on 27 May 2008 (ASX: RUL), RPM is a global leader in the provision of advisory consulting, technology and professional development solutions to the mining industry.

The RPM global team of more than 200 specialist advisors and mining consultants is regarded as one of the most experienced and trusted teams in the industry, with wide-ranging operational and technical expertise across commodities, continents and mining methods.

Further, the RPM global team's knowledge base has been gained through the conduct of work in over 118 countries, and their approach to the business of mining is strongly grounded in economic principles.

The company's cutting-edge mining software technology has been at the forefront for more than 30 years and continues to be sought after globally for mine planning including scheduling, simulation and financial analysis solutions. Their software continues to be used by miners, mining contractors, financial institutions and other service providers to the mining sector.

At present, RPM operate offices in 20 locations across 12 countries on five continents.

In accordance with Metminco's requirements, RPM conducted a strategic mining study to evaluate alternative high grade development scenarios for Los Calatos Project based upon the Mineral Resources estimate completed by SRK Consulting (Chile) S.A. in June 2015.

The review was conducted under the direction of Mr David Pires, Bsc,Msc,GCert. Mr Pires is a Chartered Professional Member of the Australasian Institute of Mining and Metallurgy and is a full-time employee of RPM as Regional Consulting Manager – Latin America.

RPM certify that the results reported by Metminco correspond to those obtained by RPM in the conduct of their study on Los Calatos entitled "Strategic Mining Study - Los Calatos" dated 14 September 2015.

The reader is cautioned that the actual operating costs, production and economic returns may differ materially from those anticipated by the Strategic Mining Study, and depend on a variety of factors, some of which are outside the control of RPM.

# **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: Mineral Resources by copper cut-off grade - SRK Consulting (Chile) S.A (June 15, 2015).

Cut-off	ut-off Measured			Indicated		Total Measured & Indicated			Inferred			
Cu	Tonnes	Cu	Мо	Tonnes	Cu	Мо	Tonnes	Cu	Мо	Tonnes	Cu	Мо
(%)	(Mt)	(%)	(ppm)	(Mt)	(%)	(ppm)	(Mt)	(%)	(ppm)	(Mt)	(%)	(ppm)
0.00	646	0.23	170	1,251	0.17	74	1,898	0.19	107	2,788	0.21	75
0.05	525	0.28	204	1,008	0.21	89	1,533	0.23	128	2,299	0.25	87
0.10	420	0.34	247	709	0.26	116	1,128	0.29	165	1,814	0.29	103
0.15	345	0.38	287	499	0.32	146	844	0.34	204	1,352	0.35	123
0.20	285	0.42	323	361	0.38	174	646	0.40	239	1,045	0.40	141
0.25	231	0.47	355	261	0.43	202	491	0.45	274	788	0.46	162
0.30	183	0.52	387	187	0.50	234	371	0.51	310	564	0.53	190
0.35	145	0.58	422	135	0.56	267	280	0.57	347	423	0.60	210
0.40	114	0.63	460	101	0.63	296	215	0.63	382	327	0.66	228
0.45	90	0.68	489	80	0.68	323	170	0.68	411	265	0.72	235
0.50	73	0.73	513	64	0.73	345	137	0.73	434	216	0.78	245
0.55	59	0.79	532	52	0.78	363	110	0.78	452	177	0.83	253
0.60	47	0.84	545	42	0.83	374	89	0.83	464	147	0.88	258
0.65	38	0.89	556	34	0.88	382	72	0.88	473	122	0.94	257
0.70	31	0.94	566	28	0.92	393	59	0.93	483	99	1.00	261
0.75	25	0.99	572	23	0.97	405	48	0.98	492	81	1.06	259
0.80	20	1.04	581	19	1.00	412	39	1.02	499	66	1.12	257
0.85	16	1.09	593	16	1.04	422	32	1.07	509	55	1.18	250
0.90	13	1.14	603	13	1.08	426	26	1.11	516	47	1.24	243
0.95	10	1.20	625	10	1.13	441	20	1.17	536	39	1.30	236
1.00	8	1.26	650	7	1.18	461	16	1.22	561	33	1.36	232

Note: Total Mineral Resource inclusive of Inferred Mineral Resources is 352Mt at 0.76% Cu and 318ppm Mo (at a 0.50% Cu cut-off).

#### **APPENDIX 2**

# **Mining Study Scope**

The focus of the Scope of Work which included the following guidelines, was to evaluate a lower tonnage, high grade, development option for Los Calatos:

- Annual Tonnage: 6.0 to 6.5 Mtpa milling rate
- In Situ grade: ±1.00% Cu
- Selection of suitable underground mining method and cut-off grade;
- Annual Concentrate Production: 200,000 dmt
- Annual Cu in Concentrate: 50,000 tonnes
- Project Life: >15 Years.

Using as its basis the 3D Block Model developed by SRK, RPM evaluated the following three scenarios:

#### a) Case 1: Integrated Open Pit and Underground Operation (Base Case)

The key elements of this case were as follows:

- Open pit operation and underground sublevel cave operation based on mineable quantity of 136 Mt at 0.88% Cu (open pit: 0.12% Cu cut-off; underground 0.70% Cu cut-off)
- Initiate sub-level caving at a 2,850mRL (approximately 150 metres below the topographic surface) to a final depth of 1,300mRL;
- Run-Of-Mine feed to the process plant of 6.5 Mtpa;
- > Two year ramp-up period of 5 Mtpa and 6.5 Mtpa; and
- 22 year LoM.

#### b) Case 2: Standalone Underground Mining Operation (Alternate Case)

- Underground sublevel cave operation based on a mineable quantity of 105 Mt at 0.94% Cu (0.75% Cu cut-off);
- Initiate sub-level caving at a 2,850mRL (approximately 150 metres below the topographic surface) to a final depth of 1,500mRL;
- Run-Of-Mine feed to the process plant of 6 Mtpa;
- Three year ramp-up period of 3 Mtpa, 5 Mtpa and 6 Mtpa;
- 20 year LoM.

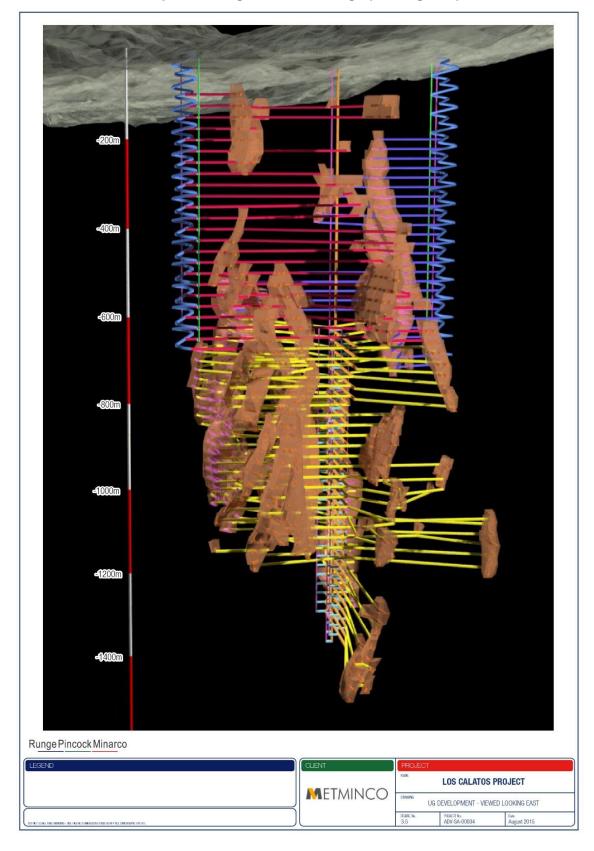
# c) Case 3: Standalone Expanded Underground Mining Operation (Expansion Case)

- Underground sublevel cave operation based on a mineable quantity of 134.3 Mt at 0.89% Cu (0.70% Cu cut-off);
- Initiate sub-level caving at a 2,850mRL (approximately 150 metres below the topographic surface) to a final depth of 1,300mRL;
- Run-Of-Mine feed to the process plant of 6.5 Mtpa;
- Three year ramp-up period of 3 Mtpa, 5 Mtpa and 6 Mtpa;
- 22 year LoM.

Of the three Cases evaluated by RPM, Case 3 generated the most favourable economic results.

APPENDIX 3

Conceptual Underground Mine Design (Looking East)



APPENDIX 4

Regional Infrastructure

