

# MIRAFLORES UNDERGROUND MINE DEVELOPMENT OPTION TAKES SHAPE

**Metminco Limited ("Metminco" or the "Company") (ASX: MNC; AIM: MNC)** announces that it has received a preliminary mine design and production schedule from SRK Consulting (U.S.) Inc. (SRK) for the underground only mining option for the Miraflores Project (Project).

The mine design and production schedule are based on the block model used in support of the JORC 2012 Mineral Resource Statement released to the market on 21 July 2016, and resulted in the estimation of a mineable quantity of 4 million tonnes at a grade of 3.51g/t Au and 2.84g/t Ag that is mined over 9-years. The mineable quantity, which is based on Measured and Indicated Mineral Resources, comprises the following:

> 1.2g/t Au cut-off: 3,825,501 tonnes at 3.66g/t Au and 2.91g/t Ag

> 0.6g/t and <1.2g/t Au: 203,000 tonnes at 0.85g/t Au and 1.5g/t Ag

At a steady state milling rate of 1300tpd, the operation is expected to attain an average production of 50,000 oz of gold per annum.

SRK were also engaged to review and collate all prior work undertaken on the Project in order to perform a Gap Analysis of the key information required to progress the Project forward to completion of a Feasibility Study.

The Company is now completing a PEA level capital and operating cost review based on the mine design.

Interim work by the Company supports the potential to reduce the pre-production and life of mine capital for and underground only mining option significantly, which will have a material impact on the project financials.

The key drivers for a reduction in capital expenditure, are as follows:

- No open pit: Capital costs for pre-stripping and open pit capital equipment costs are eliminated.
- Underground mining fleet: A fleet leasing arrangement will remove the capital costs for the mining fleet, and be accounted for in operating costs.
- Tailings Storage Facility (TSF): The prior, wet TSF, will be replaced by a filtered (dried) stacked tailings facility. This, in conjunction with the fact that dried tailings will be used for backfill, will result in a smaller facility with a reduced capital and operating costs.
- Other capital reductions: To be assessed as part of the planned Feasibility Study. Expected to be significant due to a reduction in the footprint of the mining operation.
- Competitive market and devaluation of currencies: Weakening of currencies against the US Dollar in supplier countries such as Australia, Canada, South Africa and Colombia allows for competitive pricing.

The Board of the Company has agreed proceed with the completion of a Feasibility Study for the Project, subject to finalising funding.

Mr William Howe, Managing Director, commented: "The indications from the mine design and scheduling completed by SRK suggests that the underground mining option is a potentially robust option for the development of the Miraflores Project.

Due to the significant potential capital cost reductions expected for the underground only option, the Company is now focussed on completing a Feasibility Study and environmental permitting."

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## Introduction

The Company engaged the services of SRK Consulting (U.S.) Inc. (SRK) to complete a Gap Analysis of the work completed on the Project to-date (in terms of the requirements to complete a Feasibility Study), as well as to develop a revised (indicative) mine plan and schedule for an underground only mining scenario.

The objective of the revised mine plan was to provide the Company with an underground only mining scenario, which effectively translates to adding the material, previously planned to be mined as open pit, into the underground mine plan. The mine plan furthermore assumes the use of a paste backfill as opposed to waste backfill. The basis for the work conducted by SRK is the resource model developed by Metal Mining Consultants (MMC) in 2013, using only Measured and Indicated Mineral Resources. Where appropriate, the previous mine design developed in support of a Technical Report completed by SRK for RMB Resources (RMB) in 2015 was used (SRK Technical Report, dated February 24, 2015).

## **Cut-off Grade Calculation**

The cut-off grade assumptions remain unchanged from the RMB work. Cut-off grade calculation is summarized in Table 1.

Parameter	Unit	Amount		
Mining cost	US\$/t	32.00		
Process and tailings cost	US\$/t	15.60		
G&A	US\$/t	3.90		
Total Cost	US\$/t	\$51.50		
Gold price	US\$/oz	1,200.00		
Ave Au mill recovery	%	91		
Smelting & Refining	US\$/t	3.00		
Transportation & Insurance	US\$/t	1.00		
Royalty	% of NSR	3.2%		
Cut-off grade	g/t	1.52		

Table 1: Underground Cut-off Grade Calculation.

Source: SRK

At the time of the RMB work, the model was evaluated at various cut-off grades. It was determined that a cut-off of 2.2 g/t was optimal with the addition of 2.0 g/t stope areas which are immediately adjacent to the 2.2 g/t areas and require limited additional development. A similar approach was used to determine economic underground stopes in the areas which were previously planned to be mined as open pit.

## Mine Design

The stope optimization shapes were used as a basis for the mine design. These optimized stope shapes were viewed on screen and those that were low grade, geographically isolated, or otherwise sub-economic when considering development costs, were eliminated from the design. Typically, a crown pillar of 25 m or greater is used; however, there is one instance where an up-stope is mined to within 5 m of the surface.

Main development ramps are in the same locations as the prior RMB work. The opportunity exists to change the layout and modify the portal locations since the open pit no longer limits portal locations and since it is likely that surface infrastructure locations (e.g. stockpiles) may also change.

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The updated mine design is shown in Figure 1 below, with blue shapes being the same as the RMB design and pink showing the new (additional) mining areas. With the additional tonnage on upper levels, the ventilation layout/concept needs to be re-evaluated.

# Figure 1: Mine Design.



In addition to the completed mine design, dilution and recovery as shown below in Table 2 have been included.

## Table 2: Mine Design Dilution and Recovery.

	Additional Development Allowance	Unplanned Dilution	Mining Recovery
4 m x 5 m Drifts	10%	0%	100%
3 m x 5 m Drifts	5%	0%	100%
Stopes*	0%	3%	95%

Source: SRK

\*Stopes already include 0.25 m of dilution on each side of the stope wall (0.5 m total/stope) included in the stope optimization shape (~10% planned dilution). This planned dilution is included in the 3-D shape and received grade information based on the block model.

The underground mine design process resulted in a mineable quantity for the >1.2g/t Au mineralized tonnes of 3.82 Mt grading 3.66 g/t Au and 2.91 g/t Ag. Total waste/low grade development tonnage in the mine plan is 559 kt. Additional detail summarizing the material in the mine plan in summarized in Table 3 below.

# Table 3: Underground Only Mine Plan Summary.

Description	Unit	Amount
Total tonnes	(t)	4,383,762
Waste Tonnes (Au < 0.6g/t)	(t)	355,923
Waste/stockpile tonnes (Au 0.60-1.2g/t)	(t)	203,412
Mineralized tonnes (Au > 1.2g/t)	(t)	3,824,428
Mineralization Au	(g/t)	3.66
Contained Au oz	(oz)	449,535
Mineralization Ag	(g/t)	2.91
Contained Ag oz	(oz)	358,054
0.60 to 0.80 tonnes	(t)	97,648
0.60 to 0.80 Au	(g/t)	0.70
0.60 to 0.80 Ag	(g/t)	1.38
0.80 to 1.0 tonnes	(t)	59,260
0.80 to 1.0 Au	(g/t)	0.89
0.80 to 1.0 Ag	(g/t)	1.67
1.0 to 1.2 tonnes	(t)	46,504
1.0 to 1.2 Au	(g/t)	1.10
1.0 to 1.2 Ag	(g/t)	1.82

Source: SRK

A breakdown by rock type of the mineralized tonnes >1.2g/t Au is shown in Table 4 below.

 Table 4: Mine Design Tonnages/Grade by rock type.

Rock Type	Tonnes	Au (g/t)	Ag (g/t)
White breccia	2,314,856	3.84	2.92
Green breccia	992,340	3.48	3.05
Gray breccia	160,076	4.16	2.91
Basalt	304,547	2.71	2.32
Diorite	10,127	3.82	3.77
Red breccia	24,554	3.14	3.60
Dacite	-	-	-
Andesite	17,184	2.34	3.12

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Saprolite	743	2.18	1.65
Total	3,824,428	3.66	2.91

Source: SRK

#### **Production Schedule**

The production schedule is based on the rate assumptions shown in Table 5 below. These are the same as used for the RMB work. The backfilling rate has however not been updated from the previous waste rock backfill rate. It is assumed that a paste system would provide similar rates.

## Table 5: Mining Rates\*.

Current design update	m/d	t/d
4 x 5m development	6.45	355
3 x 5m sill development with slashing	4.8 - 7.4	195-303
Stoping		900
Backfill		900
Raises	3.9	

Source: SRK

\*All rates are per face. Multiple areas/faces are mined together to generate the production schedule.

The mining schedule is based on 365 days/year, 7 days/week, with 2 shifts of 12 hrs each day. A production rate of approximately 1,300 t/d, or approximately 50,000 oz. of Au per year, was targeted from the underground. The yearly production schedule was generated using iGantt software and is summarized in Annexure 1.

The schedule shows rock backfill and cemented backfill as consistent with what was used in the RMB work, albeit that the nomenclature presented here is to show the volume that requires a higher strength paste (cemented fill) versus lower strength paste (rock fill). The assumed rate of backfill placement for paste needs to be developed and checked in future work. Backfill is sequenced in the schedule; however, multiple backfill activities occur at once if required by the schedule. Backfill is an integral part of the mining cycle and any delays would affect the schedule. Currently, the scheduled backfill requirements in Year 2 are quite large. Some of this could likely be moved into Year 3; however, it would take more detailed scheduling. Overall there are multiple faces/stopes available and typically only a single stope is mined at once.

The production schedule is shown graphically in Figure 2 below, colored by mining period.





Source: SRK

# Conclusions

Following the completion of the mine planning work, SRK concluded the following:

- All mine planning work is based on the 2013 MMC resource model. Additional geology review was completed by SRK (Miraflores Resource Report, dated July 19, 2016), however this information was not used.
- Including the material previously planned to be mined as open pit material in the underground mine plan adds approximately 370 kt at a grade of 3.84 g/t Au and 4.29 g/t Ag.
- To produce approximately 50,000 oz Au per year the plant would need to have a capacity of approximately 1,300 t/d.
- To achieve 1,300 t/d from the underground mine, considerably more development needs to be completed upfront. The productivities used and development required show approximately three development crews in the first few years of production. This is currently not optimized in the production schedule and should be re-evaluated with potential changes to the development design at the next level of study.
- The schedule reporting shows rock backfill and cemented backfill as that is what was assumed previously. The updated concept is to utilize a paste backfill system. The assumed rate of backfill placement for paste needs to be developed and checked. The strength characteristics and cure time will be critical elements of future work. Backfill is sequenced in the schedule; however, multiple backfill activities occur at once if required by the schedule. Backfill is an integral part of the mining cycle and any delays would affect the schedule. Currently the scheduled backfill requirements in Year 2 are quite large. Some of this could likely be moved into Year 3; however, it would take more

detailed scheduling. Overall there are multiple faces/stopes available and typically only a single stope is mined at once.

- The plan generates low grade stockpiles of material that has to be mined and removed in the development activity in the current plan. This material would likely be fed through the mill at the end of the underground mine life.
- The development drifting should be re-sequenced and optimized in future studies. With the addition of more tonnage on the upper levels of the deposit the ventilation plan should be re-evaluated.
- Productivities used for the rescheduling are identical to those used in the RMB work and should be revisited in future optimizations.
- No updated costing or revision of the productivities has been conducted as this scope of work but should be completed if future planning occurs.

SRK notes that at this time it has not conducted work on tailings, milling, backfill, environmental or updated the costing of any of the past or existing models. The SRK scope of work reported herein only includes an updated mine plan and associated production schedule.

## Way Forward

The Company is working with SRK to update the operating and capital costs of the 2015 Technical Study with a view to understanding the potential capital cost savings identified by the Company in relation to the underground only mining option.

William Howe Managing Director METMINCO LIMITED

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# SRK Consulting (U.S.) Inc.

The information provided in this ASX Release as it relates to mining plan and production schedule for the Miraflores Gold Project is based on information compiled by Mr Jeff Osborn BEng Mining, MMSAQP, on behalf of SRK. Mr Osborn has consented to be named in this announcement and inclusion of information attributed to him in the form and context in which it appears herein.

SRK have given their consent to be named in this Announcement and to the inclusion of all statements by SRK included in said Announcement that Metminco says are based on a statement by us, in the form and context in which these statements are included.

This consent relates to the Announcement of Metminco in Australia and the United Kingdom in both paper and electronic form.

Apart from as set out above, SRK takes no responsibility for any other part of the aforementioned Announcement.

## 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.

# **ANNEXURE 1**

	Unit	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Totals
Au oz	(oz)	17,799	47,292	56,443	51,632	56,113	63,096	56,693	61,098	39,415	449,580
Mineralization t/d	(t/d)	438	1,296	1,303	1,303	1,301	1,297	1,300	1,301	932	
Total tonnes (mineralization+ waste+ stockpiles)	(t)	325,628	571,370	662,051	521,238	492,948	494,682	489,700	479,782	346,364	4,383,762
Waste Tonnes (Au < 0.6 g/t)	(t)	132,719	56,905	134,872	12,275	9,306	5,183	4,047	-	616	355,923
Mineralized tonnes (Au > 1.2 g/t)	(t)	159,986	474,505	475,450	475,531	474,772	474,602	474,359	474,948	340,274	3,824,428
Mineralization Au	(g/t)	3.46	3.10	3.69	3.38	3.68	4.14	3.72	4.00	3.60	3.66
Mineralization Ag	(g/t)	2.92	3.36	3.32	2.25	2.41	2.77	3.24	3.27	2.59	2.91
0.60 to 0.80 tonnes	(t)	8,411	29,102	19,293	15,753	4,731	6,520	7,465	2,233	4,140	97,648
0.60 to 0.80 Au	(g/t)	0.65	0.69	0.72	0.73	0.73	0.66	0.66	0.71	0.79	0.70
0.60 to 0.80 Ag	(g/t)	1.83	1.42	1.35	1.22	1.28	1.22	1.22	1.35	1.48	1.38
0.80 to 1.0 tonnes	(t)	15,033	4,244	26,133	4,468	2,199	5,387	1,288	-	508	59,260
0.80 to 1.0 Au	(g/t)	0.89	0.90	0.91	0.86	0.84	0.90	0.84	-	0.83	0.89
0.80 to 1.0 Ag	(g/t)	1.47	1.73	1.90	1.40	1.91	1.21	1.55	-	1.34	1.67
1.0 to 1.2 tonnes	(t)	9,479	6,614	6,303	13,211	1,940	2,989	2,540	2,601	825	46,504
1.0 to 1.2 Au	(g/t)	1.07	1.14	1.11	1.10	1.16	1.09	1.11	1.05	1.10	1.10

# Annual Mine Plan Production Summary.

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1.0 to 1.2 Ag	(g/t)	2.09	1.61	1.80	1.78	1.36	1.38	2.32	2.14	1.53	1.82
Backfill volume	(m <sup>3</sup> )	12,071	142,243	91,145	100,403	84,198	110,406	133,603	128,704	96,301	899,074
Rock backfill volume	(m <sup>3</sup> )	12,071	137,526	87,732	100,403	55,292	44,228	40,131	44,834	69,176	591,393
Cement backfill volume	(m <sup>3</sup> )	-	4,718	3,413	-	28,906	66,178	93,472	83,870	27,125	307,681
Main Ramp Development Length (4 m x 5 m)	(m)	2,832	1,428	3,046	589	299	277	240	29	99	8,838
Surface raise meters	(m)	171	-	-	-	-	-	-	-	-	171
Internal Raise meters	(m)	97	56	142	-	-	-	-	-	-	294
Stope tonnes	(t)	42,323	341,214	289,632	314,214	263,796	328,425	404,000	410,920	311,693	2,706,218
Level Development tonnes (3 m x 5 m)	(t)	134,643	152,714	209,372	177,502	214,115	152,377	73,683	67,431	29,706	1,211,542

Source: SRK