

**SolGold plc**  
 (“SolGold” or the “Company”)

**Metallurgical Test Work Yields High Grade Copper and Gold Content at Alpa**

The Board of SolGold (LSE & TSX code: SOLG) is pleased to update the market on recent results from the ongoing comprehensive comminution (crushing and grinding) and metallurgical test work programme for the Alpa project. These include updates to the recovery parameters for copper, gold and silver and a comprehensive analysis of concentrate specifications from Locked Cycle test (a repetitive batch used to simulate a continuous circuit) work completed and published in the ALS Metallurgical Testing Cascabel Copper-Gold Project – Phase 1 Report (the “ALS Report”).

The flotation locked cycle test is critical to simulating plant operation with regard to recirculating loads, water quality and reagents and has been the industry standard for developing circuit design for several decades.

SolGold is now actively engaged with concentrate market participants and expects to confirm alignment on the high quality and marketability of the Alpa concentrate in the Prefeasibility Study.

**Highlights:**

- **High recoveries and increased concentrate grades (since PEA)**

Parameters	Units	Low Copper-Low Gold Composite		Intermediate Copper-High Gold Composite		High Copper-High Gold Composite	
Cu in Cu concentrate	% Cu	28.8*	30.4**	27.6*	28.4**	30.5*	30.7**
Au in Cu concentrate	g/t Au	28.3*	28.3**	46.2*	46.2**	41.0*	41.0**

PEA Study current results\*  
 ALS Report \*\*  
 LC-LG low copper, low gold; IC-HG intermediate copper, high gold; HC-HG high copper, high gold; LC-LG low copper, low gold

Parameters	Units	Low Copper-Low Gold Composite	Intermediate Copper-High Gold Composite	High Copper-High Gold Composite
Cu recovery	%	86.0	93.2	93.0
Au recovery	%	79.4	79.3	85.2

Source: Preliminary Economic Assessment - Cascabel Project, Northern Ecuador Alpa Copper-Gold-Silver Deposit, ALS Report. NB An update on overall recoveries is expected shortly

- **Very low levels of dilution by non-sulphide minerals**

UNIT	Cu	S	Fe	Total	HC
%	30.6	37.2	31.3	99.1	

Source: ALS Report – HC Composite (full details below)

- **Extremely low content of deleterious elements in concentrate; measured at only trace levels**
- **Appointment of Dr Gregory J Harbort, General Manager Process and Metallurgy**



➤ **Appointment of Bluequest Resources AG to consult SolGold on commercial and logistical matters for concentrate marketing**

Commenting on the results, Nicholas Mather, SolGold’s Chief Executive Officer said:

“SolGold is heartened by the progress we have made to better understand the metallurgical aspects of Alpala. The high copper and gold content in the concentrate (than evident in the PEA) markedly enhances our ability to attract financing for this outstanding asset.”

“In combination with the very low content of deleterious elements, we expect the concentrate to be in high demand from all of the major global copper smelters, at a time when the market has gravitated towards developing more complex ore bodies to satisfy the surging demand for copper.”

**Background of the Metallurgical Test Work and Design**

Metallurgical test work on the Alpala project is being conducted by ALS Metallurgy Kamloops, in British Columbia Canada. The high precious metal bearing copper concentrates produced from the Locked-Cycle tests at Kamloops were then analysed for trace elements by ALS Geochemistry in North Vancouver, Canada.

The test work programme was carried out under the supervision and guidance of Dr. Gregory J Harbort, General Manager Process and Metallurgy (SolGold Plc) (see summary below).

SolGold Plc have specified a test programme aligned with the resource size and quality to maximise capital payback early in the project. The ALS Report considered 980kg of drill core from 20 variability samples representing different lithology, alteration styles and head grades, selected to provide a good spatial distribution within the mine plan. Further, the samples were composited into three Master Composites based on gold and copper head grade, to allow for optimisation and locked cycle flotation tests and solid-liquid tests.

**Head Assay Summary – Master Composites**

Master Composite	Assay – percent or grams/tonne						
	Cu	Fe	S	S(s)	Ag	Au	TOC
Low Copper (LC)	0.77%	6.70%	3.34%	2.26%	2 g/t	0.76 g/t	0.03%
Intermediate Copper (IC)	1.19%	8.80%	5.38%	4.74%	3 g/t	2.39 g/t	0.05%
High Copper (HC)	1.93%	8.90%	4.64%	3.51%	5 g/t	2.61 g/t	0.02%

Source: ALS Report

Variability testing of the 20 samples has included extensive comminution testing with SMC (profiling an orebody to predict its comminution circuit throughput as well as its rock mass characteristics and blasting properties), Bond Abrasion Index, and Bond Ball Mill Work Index testing. Bond rod mill work index tests were also conducted on selected samples, where sufficient material was available.



Assessment of the elemental content of each Master Composite and variability sample was conducted via standard analytical techniques and multi-element ICP analyses. In addition, detailed scanning electron microscope (SEM) mineralogy was undertaken.

Variability flotation test work included both kinetic roughing tests and open circuit cleaning tests. Davis Tube Recovery (DTR) tests were conducted on the rougher tailing to determine the amount of recoverable magnetite.

Master Composite optimisation tests focussed on developing conditions to enhance recovery and concentrate grade, including size-by-assay analysis and diagnostic leach tests on the cleaner tailing stream.

Locked Cycle flotation tests were conducted under optimised conditions to produce expected plant recoveries, concentrate grades and mass balances to feed into the PFS. Concentrates produced were/are being assayed for an extended assay suite to confirm concentrate quality. The assays will also be used to evaluate the recovery of molybdenum and a valuable rhenium credit.

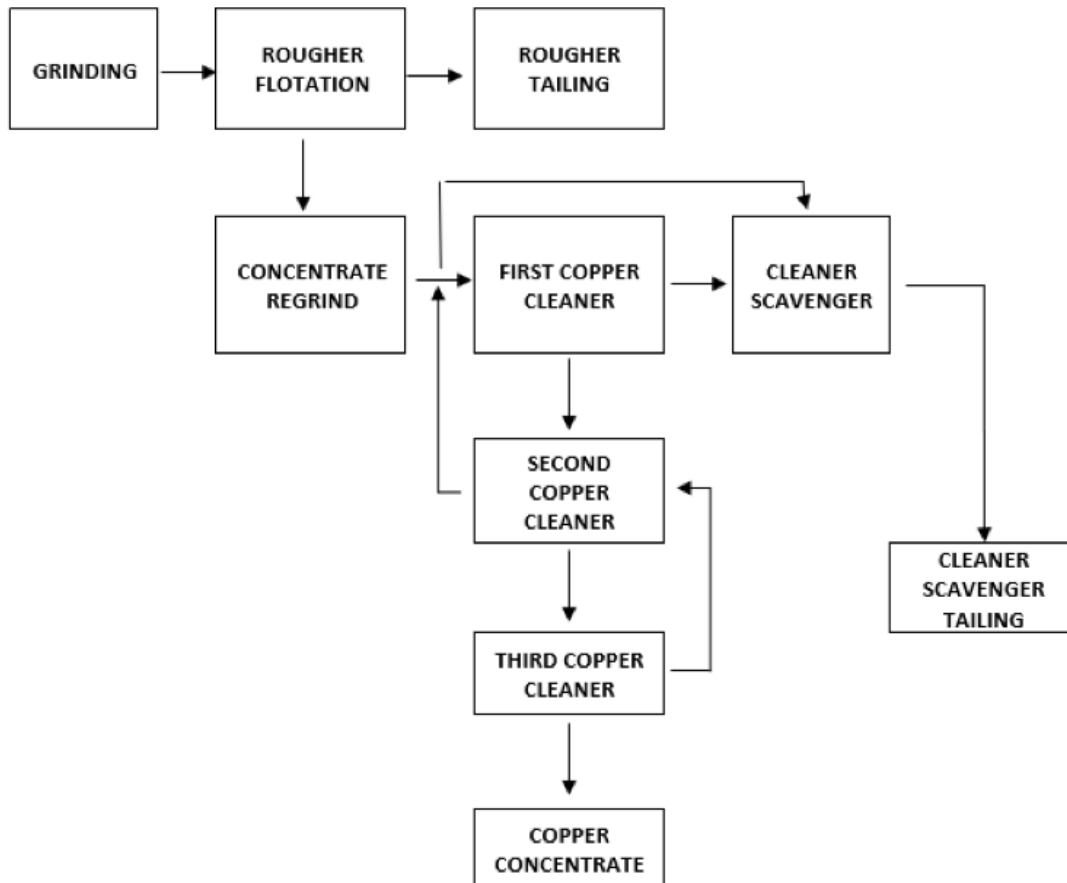
The ALS Report documents the results of Phase 1 (980kg of drill core analysed), which is followed up by Phase 2, which is ongoing. The amount of drill core tested in Phase 2 has increased significantly to 2,500 kg of drill core across fifty-three variability samples. Available results of these tests show further improvements in recovery rates and the company will update the market on these improvements separately.

**Critical timeline for test work:**

		2018		2019				2020
		Q3	Q4	Q1	Q2	Q3	Q4	Q1
<b>Phase 1 (Completed)</b>	Comminution tests	X	X					
	Master composite optimisation tests		X					
	Locked cycle tests		X					
	Variability tests		X					
	Concentrate analysis			X				
Diagnostic leach tests completed				X				
<b>Phase 2 (Completed)</b>	Comminution tests				X	X		
	Master composite optimisation tests					X		
	Rougher recovery enhancement tests					X		
	Davis Tube magnetite rougher recover tests						X	
	Critical locked cycle tests						X	
	Concentrate analysis scheduled for completion:						Y	
	Pyrite enhanced recovery tests scheduled for completion:						Y	
Final report scheduled completion:								Y

X Completed  
Y Scheduled to be completed

**Master Composite Locked Cycle Test Summary – Locked Cycle Flowsheet**



Source: ALS Report

**Appointment of Dr. Gregory (Greg) J Harbort, General Manager Process and Metallurgy**

Dr. Greg Harbort has 33 years of in-depth experience in copper and precious metals extraction and mineral processing, including heap leaching, gravity concentration, flotation, leaching and purification, roasting, and fuming. He has authored 47 technical publications, contributed to seven books on mineral processing technology, flotation development and flotation optimization and is the co-author of “History of Flotation” and contributing author of SME “Mineral Processing & Extractive Metallurgy Handbook”.

Greg brings a wealth of porphyry copper experience to SolGold Plc, including five years working for Philex Mining Corp Padcal site, recognised as one of the world’s most efficient block cave operations. He also brings to this project, two year’s involvement with design, construction, commission and operation of the Minera Alumbrera concentrator in Argentina. Greg also spent five years working with the CMO (China Molybdenum Co. Ltd) Northparkes operation on process optimisation, refurbishment and life of mine geo-metallurgical planning. In the two years prior to joining SolGold he was involved with design and life of mine geo-metallurgical planning for the Oyu Tolgoi concentrator expansion to allow treatment of the Hugo North block cave ore.



Greg holds a Ph.D. from University of Queensland, Australia, 2005 and holds a bachelor's degree of Engineering Metallurgy, University of Queensland, 1990.

### Summary of Mineral Processing and Metallurgical Testing to Date

The flotation locked cycle test is critical to simulating plant operation with regard to recirculating loads, water quality and reagents and has been the industry standard for developing circuit design for several decades. The locked cycle programme has shown that Alpala material responds rapidly to flotation, with low circulating loads and reagent addition.

### Locked Cycle Test Result Summary

Product	Weight	Assay (% or g/t)					Distribution (%)				
	%	Cu	Fe	S	Au	Ag	Cu	Fe	S	Au	Ag
KM5754-31 Low Copper Master Composite											
Copper Ro Feed	100	0.79	6.63	3.51	0.80	2.00	100	100	100	100	100
Copper Concentrate	2.2	30.4	28.8	36.8	28.3	45.0	86.0	9.7	23.4	79.4	56.3
Flotation Tailing	97.8	0.11	6.13	2.75	0.17	0.80	13.96	90.29	76.60	20.56	43.7
KM5754-32 Intermediate Copper Master Composite											
Copper Ro Feed	100	1.17	8.61	5.35	2.29	2.00	100	100	100	100	100
Copper Concentrate	3.9	27.6	32.2	38.0	46.2	39.0	93.2	14.7	27.9	79.3	74.2
Flotation Tailing	96.1	0.08	7.64	4.02	0.49	0.50	6.83	85.27	72.10	20.70	25.8
KM5754-33 High Copper Master Composite											
Copper Ro Feed	100	2.03	8.94	4.85	2.97	5.00	100	100	100	100	100
Copper Concentrate	6.2	30.5	30.6	37.3	41.0	58.0	93.0	21.1	47.4	85.2	78.8
Flotation Tailing	93.8	0.15	7.51	2.72	0.47	1.01	6.95	78.85	52.57	14.84	21.2

Source: ALS Report

### Further Planned Test Work

During 2020, a pilot plant operation is planned, to treat approximately 30 tonnes of core and coarse rejects. The material has been sourced and is currently being packaged for transport. The pilot plant will allow for confirmation of the flowsheet at a larger design and provide copper sufficient concentrate to operate a molybdenum-rhenium recovery evaluation, conduct vendor thickening and filtration tests, measure rheological properties for concentrate pipeline design and measure transport moisture limits (TML) and supply samples for smelter evaluation.

The large quantity of flotation tailing will allow testing of rougher recovery enhancements and magnetite recovery at a substantial scale, in addition to allowing for tailing deposition and environment tests. The production of significant pyrite concentrate allows for pilot testing of the cleaner recovery enhancement. The pilot is designed to be an effective blueprint for the first ten years of performance.

At the same time material flow tests will be conducted allowing for ore chute and stockpile design. It is anticipated that several hundred kilograms will also undergo ore sorting evaluation trials.



## Summary of the Quality of Concentrates and Concentrate Specifications

Expert third-party opinion by SolGold’s market consultants Bluequest has confirmed that the concentrate assay indicates a premium quality; high in copper and gold and very low in deleterious elements compared to industry standards.

Copper concentrate assayed between 29% and 31%, iron assayed between 29% and 31%, and sulphur assayed between 37% and 38%. Combined, these three elements account for 96% to 99% of the concentrate mass, indicating a very low level of dilution of these concentrates by non-sulphide minerals.

None of the assayed deleterious elements such as arsenic, bismuth, cadmium, chlorine, fluorine, mercury, selenium, tellurium, or uranium, were present at levels that typically are of concern; most measured at only trace levels. Similarly, only trace amounts of magnesium and total organic carbon (TOC) were measured in the Alpala concentrates. This suggests little to no presence of typically hydrophobic non-sulphide gangue minerals. Very low levels of lead and zinc measured indicate little to no galena or sphalerite content in the concentrates.

### Locked Cycle Test Copper Concentrate Quality

Element	Symbol	Units	Sample		
			LC Composite	IC Composite	HC Composite
			T31 Cycle VI Copper Con	T32 Cycle VI Copper Con	T33 Cycle VI Copper Con
Antimony	Sb	g/tonne	22.2	58.6	15.5
Arsenic	As	g/tonne	180	481	325
Bismuth	Bi	g/tonne	5.6	7	7.9
Cadmium	Cd	g/tonne	3	0.6	1.3
Chlorine	Cl	g/tonne	80	80	110
Copper*	Cu	%	30.5	28.8	30.6
Fluorine	F	g/tonne	<20	30	30
Gold*	Au	g/tonne	27.8	44.7	43.5
Iron*	Fe	%	28.8	31.2	31.3
Lead	Pb	g/tonne	77	16	20
Magnesium	Mg	%	0.05	0.02	0.02
Mercury	Hg	g/tonne	0.06	0.09	0.17
Organic Carbon	TOC	%	0.03	0.03	0.02
Selenium	Se	g/tonne	150	140	150
Silver*	Ag	g/tonne	46	38	58
Sulphur(S)*	S	%	36.9	37.5	37.2
Tellurium	Te	g/tonne	4.8	5.4	7.7
Thorium	Th	g/tonne	<2	<2	<2
Uranium	U	g/tonne	<1	<1	<1
Zinc	Zn	g/tonne	130	40	50

Source: ALS Report - - \* Cu, Au, Fe, Ag and S assays were taken from locked cycle test assays completed at ALS Metallurgy Kamloops; other assays were sourced from assays completed at ALS Geochemistry in North Vancouver.



It is expected that there will be strong demand for the concentrate from South East Asian, North and South American, European and a limited number of Chinese smelters seeking to optimise their economics with a premium quality concentrate such as Alpala.

The high gold content concentrate will be seen as a perfect replacement for Grasberg when Freeport's new smelter is built and export tonnages contract.

Very low deleterious elements are extremely low for a copper concentrate which will enhance the ability to market the Alpala concentrate, including the potential to achieve market leading payability. Alpala concentrate will allow smelters to consume greater quantities of complex material from which smelters receive a penalty payment, therefore optimising a smelter's revenue without adversely affecting the smelter's overall feed grade.

### **Appointment of Bluequest Resources AG (BQR)**

BQR has been appointed as a specialist advisor on commercial and logistical matters for concentrate marketing. The firm brings a wealth of experience to SolGold, in developing marketing and logistics plans for early stage, late stage and operating assets. BQR will also provide a market report and update Solgold constantly about relevant market developments.

Its personnel have been responsible for assisting companies in the marketing and transportation of concentrates from a number of world-class assets in recent years, including Timok (Nevsun), Fruta del Norte (Lundin Gold), Khoemacau (Cupric Canyon), Pumpkin Hollow (Nevada Copper), Quebradona (Anglogold Ashanti) and Minesa (Mubadala).

Commenting on this appointment, Nicholas Mather, SolGold's CEO said:

"We are very pleased to have Bluequest assisting us in optimising our marketing and logistics efforts for the Tier 1 Apala project and look forward to working with them as we progress through studies and ultimately to development and production."





## Market Abuse Regulation (MAR) Disclosure

Certain information contained in this announcement would have been deemed inside information for the purposes of Article 7 of the Regulation (EU) No 596/2014 until the release of this announcement.

### Qualified Person:

Information in this report relating to the exploration results is based on data reviewed by Mr Jason Ward ((CP) B.Sc. Geol.), the Chief Geologist of the Company. Mr Ward is a Fellow of the Australasian Institute of Mining and Metallurgy, holds the designation FAusIMM (CP), and has in excess of 20 years' experience in mineral exploration and is a Qualified Person for the purposes of the relevant LSE and TSX Rules. Mr Ward consents to the inclusion of the information in the form and context in which it appears.

By order of the Board  
Karl Schlobohm  
Company Secretary





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## ABOUT SOLGOLD

SolGold is a leading exploration company focussed on the discovery and definition of world-class copper and gold deposits. In 2018 SolGold's management team was recognised by the "Mines and Money" Forum as an example of excellence in the industry, and continues to strive to deliver objectives efficiently and in the interests of shareholders. SolGold is the largest and most active concession holder in Ecuador and is aggressively exploring the length and breadth of this highly prospective and gold-rich section of the Andean Copper Belt.

The Company operates with transparency and in accordance with international best practices. SolGold is committed to delivering value to its shareholders, while simultaneously providing economic and social benefits to impacted communities, fostering a healthy and safe workplace and minimizing the environmental impact.

### *Dedicated stakeholders*

SolGold employs a staff of over 560 and at least 98% are Ecuadorean. This is expected to grow as the operations at Alpala, and in Ecuador generally, expand. SolGold focusses its operations to be safe, reliable and environmentally responsible and maintains close relationships with its local communities. SolGold has engaged an increasingly skilled and experienced team of geoscientists using state of the art geophysical and geochemical modelling applied to an extensive data base to enable the delivery of ore grade intersections from nearly every drill hole at Alpala. SolGold has 86 geologists, of which 11% are female, on the ground in Ecuador looking for copper and gold.

### **About Cascabel and Alpala**

The Alpala deposit is the main target in the Cascabel concession, located on the northern section of the heavily endowed Andean Copper Belt, the entirety of which is renowned as the base for nearly half of the world's copper production. The project area hosts mineralisation of Eocene age, the same age as numerous Tier 1 deposits along the Andean Copper Belt in Chile and Peru to the south. The project base is located at Rocafuerte within the Cascabel concession in northern Ecuador, an approximately three hour drive on sealed highway north of Quito, close to water, power supply and Pacific ports (**Figure 1**).

Having fulfilled its earn-in requirements, SolGold is a registered shareholder with an unencumbered legal and beneficial 85% interest in ENSA (Exploraciones Novomining S.A.) which holds 100% of the Cascabel concession covering approximately 50km<sup>2</sup>. The junior equity owner in ENSA is required to repay 15% of costs since SolGold's earn in was completed, from 90% of its share of distribution of earnings or dividends from ENSA or the Cascabel concession. It is also required to contribute to development or be diluted, and if its interest falls below 10%, it shall reduce to a 0.5% NSR royalty which SolGold may acquire for US\$3.5m.

Over 228,000m of diamond drilling has been completed on the project. With numerous rigs currently active on the project, SolGold produces up to approximately 10,000m of core every month. The Cascabel drill program is currently focussed on extending and upgrading the status of the Alpala Resource, as well as further drill testing of the rapidly evolving Aguinaga prospect. Drill testing of the Trivinio target has commenced, whilst the numerous other untested targets, namely at Moran, Cristal, Tandayama-America and Chinambicito, are flagged for drill testing as overall program demands allow.



The November 2018 Alpala MRE update, dated 15 November 2018, was estimated from 68,173 assays. Drill core samples were obtained from total of 133,576m of drilling comprising 128 diamond drill holes, including 75 drill holes comprising, 34 daughter holes, 8 redrills, and 11 over-runs, and represents full assay data from holes 1-67 and partial assay data received from holes 68 to 75. In contrast, the Dec 2017 Maiden MRE was estimated from 26,814 assays obtained from 53,616m of drilling comprising 45 drill holes, including 10 daughter holes and 5 redrills.

The November 2018 Alpala updated Mineral Resource Estimate (MRE) totals a current:

- 2,050 Mt @ 0.60% CuEq (at 0.2% CuEq cut-off) in the Indicated category, and 900 Mt @ 0.35% CuEq (at 0.2% CuEq cut-off) in the Inferred category.
- Contained metal content of 8.4 Mt Cu and 19.4 Moz Au in the Indicated category.
- Contained metal content of 2.5 Mt Cu and 3.8 Moz Au in the Inferred category.

Investors should consult the technical report dated 3 January 2019 for a detailed account of the assumptions on which the estimates were based as well as any known legal, political, environmental and other risks that could materially affect the development of the resources.

#### ***Getting Alpala advanced towards development***

The resource at the Alpala deposit boasts a high grade core which, in the event of the construction of a mine, is targeted to facilitate early cashflows and an accelerated payback of initial capital. SolGold is currently investigating development and financing options available to the company for the development of Cascabel on reaching feasibility.

The results of the PEA were published on 20 May 2019, highlighting the following key aspects:

- Net Present Value ("NPV") estimates range from US\$4.1Bn to US\$4.5Bn (Real, post-tax, @ 8% discount rate, US\$3.3/lb copper price, US\$1,300/oz gold price and US\$16/oz silver price) depending on production rate scenario.
- Internal Rate of Return ("IRR") estimates range from 24.8% to 26.5% (Real, post-tax, US\$3.3/lb copper price, US\$1,300/oz gold price and US\$16/oz silver price) depending on production rate scenario.
- Pre-production Capex estimated at approx. US\$2.4B to US\$2.8B, and total Capex including life of mine sustaining Capex of US\$10.1B to US\$10.5B depending on production rate scenario.
- Payback Period on initial start-up capital – Range from 3.5 to 3.8 years after commencement of production depending on production rate scenario.
- Preferred Mining Method – Underground low-cost mass mining using Block Cave methods applied over several caves designed on two vertically extensive Lifts.

Full results and all details of the PEA are available in the Company's market release of 20 May 2019.

#### **SolGold's regional push**

SolGold is using its successful and cost efficient blueprint established at Alpala, and Cascabel generally, to explore for additional world class copper and gold projects across Ecuador. SolGold is the largest and most active concessionaire in Ecuador.

The Company wholly owns four other subsidiaries active throughout the country that are now focussed on thirteen high priority gold and copper resource targets, several of which the Company believes have the potential, subject to resource definition and feasibility, to be developed in close succession or even on a more accelerated basis from Alpala.

SolGold is listed on the London Stock Exchange and Toronto Stock Exchange (LSE/TSX: SOLG). SolGold is listed on the London Stock Exchange and Toronto Stock Exchange (LSE/TSX: SOLG). The



Company has on issue a total of 1,846,321,033 fully-paid ordinary shares; 139,012,000 share options exercisable at 60p and 21,250,000 share options exercisable at 40p.

**Figure 1:** Location of Cascabel project in Imbabura Province, northern Ecuador, highlighting the significant capital advantages held by the project, with proximity to ports, road infrastructure, hydro-electric power stations and the trans-continental power grid.

See [www.solgold.com.au](http://www.solgold.com.au) for more information. Follow us on twitter [@SolGold\\_plc](https://twitter.com/SolGold_plc)

#### CAUTIONARY NOTICE

News releases, presentations and public commentary made by SolGold plc (the "Company") and its Officers may contain certain statements and expressions of belief, expectation or opinion which are forward looking statements, and which relate, inter alia, to interpretations of exploration results to date and the Company's proposed strategy, plans and objectives or to the expectations or intentions of the Company's Directors. Such forward-looking and interpretative statements involve known and unknown risks, uncertainties and other important factors beyond the control of the Company that could cause the actual performance or achievements of the Company to be materially different from such interpretations and forward-looking statements.

Accordingly, the reader should not rely on any interpretations or forward-looking statements; and save as required by the exchange rules of the TSX and LSE or by applicable laws, the Company does not accept any obligation to disseminate any updates or revisions to such interpretations or forward-looking statements. The Company may reinterpret results to date as the status of its assets and projects changes with time expenditure, metals prices and other affecting circumstances.

This release may contain "forward-looking information" within the meaning of applicable Canadian securities legislation. Forward-looking information includes, but is not limited to, statements regarding the Company's plans for developing its properties. Generally, forward-looking information can be identified by the use of forward-looking terminology such as "plans", "expects" or "does not expect", "is expected", "budget", "scheduled", "estimates", "forecasts", "intends", "anticipates" or "does not anticipate", or "believes", or variations of such words and phrases or state that certain actions, events or results "may", "could", "would", "might" or "will be taken", "occur" or "be achieved".

Forward-looking information is subject to known and unknown risks, uncertainties and other factors that may cause the actual results, level of activity, performance or achievements of the Company to be materially different from those expressed or implied by such forward-looking information, including but not limited to: transaction risks; general business, economic, competitive, political and social uncertainties; future prices of mineral prices; accidents, labour disputes and shortages and other risks of the mining industry. Although the Company has attempted to identify important factors that could cause actual results to differ materially from those contained in forward-looking information, there may be other factors that cause results not to be as anticipated, estimated or intended. There can be no assurance that such information will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. Accordingly, readers should not place undue reliance on forward-looking information. The Company does not undertake to update any forward-looking information, except in accordance with applicable securities laws.



The Company and its officers do not endorse, or reject or otherwise comment on the conclusions, interpretations or views expressed in press articles or third-party analysis, and where possible aims to circulate all available material on its website.

The Company recognises that the term "World Class" is subjective and for the purpose of the Company's projects the Company considers the drilling results at the growing Alpala Porphyry Copper Gold Deposit at its Cascabel Project to represent intersections of a "World Class" deposit. The Company considers that "World Class" deposits are rare, very large, long life, low cost, and are responsible for approximately half of total global metals production.

"World Class" deposits are generally accepted as deposits of a size and quality that create multiple expansion opportunities, and have or are likely to demonstrate robust economics that ensure development irrespective of position within the global commodity cycles, or whether or not the deposit has been fully drilled out, or a feasibility study completed.

Standards drawn from industry experts (1) Singer and Menzie, 2010; (2) Schodde, 2006; (3) Schodde and Hronsky, 2006; (4) Singer, 1995; (5) Laznicka, 2010) have characterised "World Class" deposits at prevailing commodity prices. The relevant criteria for "World Class" deposits, adjusted to current long run commodity prices, are considered to be those holding or likely to hold more than 5 million tonnes of copper and/or more than 6 million ounces of gold with a modelled net present value of greater than USD 1 Billion.

The Company and its external consultants prepared an initial mineral resource estimate at the Cascabel Project in December 2017. Results are summarised in **Table B** attached.

The Mineral Resource Estimate was completed from 53,616m of drilling, approximately 84% of 63,500m metres drilled as of mid-December 2017, the cut-off date for the maiden resource calculation. There remains strong potential for further growth from more recent drilling results, and continue rapid growth of the deposit.

Any development or mining potential for the project remains speculative.

Drill hole intercepts have been updated to reflect current commodity prices, using a data aggregation method, defined by copper equivalent cut-off grades and reported with up to 10m internal dilution, excluding bridging to a single sample. Copper equivalent grades are calculated using a gold conversion factor of 0.63, determined using an updated copper price of USD3.00/pound and an updated gold price of USD1300/ounce. True widths of down hole intersections are estimated to be approximately 25-70%.

On the basis of the drilling results to date and the results of the Alpala Maiden Mineral Resource Estimate, the reference to the Cascabel Project as "World Class" (or "Tier 1") is considered to be appropriate. Examples of global copper and gold discoveries since 2006 that are generally considered to be "World Class" are summarised in **Table A**.

#### References cited in the text:

1. Singer, D.A. and Menzie, W.D., 2010. *Quantitative Mineral Resource Assessments: An Integrated Approach*. Oxford University Press Inc.
2. Schodde, R., 2006. *What do we mean by a world class deposit? And why are they special*. Presentation. AMEC Conference, Perth.



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Deposit Name	Discovery Year	Major Metals	Country	Current Status	Mining Style	Inventory
LA COLOSA	2006	Au, Cu	Colombia	Feasibility - New Project	Open Pit	<sup>1</sup> 469Mt @ 0.95g/t Au; 14.3Moz Au
LOS SULFATOS	2007	Cu, Mo	Chile	Advanced Exploration	Underground	<sup>2</sup> 1.2Bt @1.46% Cu & 0.02% Mo; 17.5Mt Cu
BRUCEJACK	2008	Au	Canada	Development/Construction	Open Pit	<sup>3</sup> 15.6Mt @ 16.1 g/t Au; 8.1Moz Au
KAMOA-KAKULA	2008	Cu, Co, Zn	Congo (DRC)	Feasibility - New Project	Open Pit & Underground	<sup>4</sup> 1.3Bt @ 2.72% Cu; 36.5 Mt Cu
GOLPU	2009	Cu, Au	PNG	Feasibility - New Project	Underground	<sup>5</sup> 820Mt @ 1.0% Cu, 0.70g/t Au; 8.2Mt Cu, 18.5Moz Au
COTE	2010	Au, Cu	Canada	Feasibility Study	Open Pit	<sup>6</sup> 289Mt @ 0.90 g/t Au; 8.4Moz Au
HAIYU	2011	Au	China	Development/Construction	Underground	<sup>7</sup> 15Moz Au
RED HILL-GOLD RUSH	2011	Au	United States	Feasibility Study	Open Pit & Underground	<sup>8</sup> 47.6Mt @ 4.56 g/t Au; 7.0Moz Au
XILING	2016	Au	China	Advanced Exploration	Underground	<sup>9</sup> 383Mt @ 4.52g/t Au; 55.7Moz Au

Source: after MinEx Consulting, May 2017

<sup>1</sup> Source: <http://www.mining-technology.com/projects/la-colosa>

<sup>2</sup> Source: <http://www.angloamerican.com/media/press-releases/2009>

<sup>3</sup> Source: <http://www.pretivm.com/projects/brucejack/overview/>

<sup>4</sup> Source: <https://www.ivanhoemines.com/projects/kamoa-kakula-project/>

<sup>5</sup> Source:

[http://www.newcrest.com.au/media/resource\\_reserves/2016/December\\_2016\\_Resources\\_and\\_Reserves\\_Statement.pdf](http://www.newcrest.com.au/media/resource_reserves/2016/December_2016_Resources_and_Reserves_Statement.pdf)

<sup>6</sup> Source: <http://www.canadianminingjournal.com/news/gold-iamgold-files-cote-project-pea/>

<sup>7</sup> Source: <http://www.zhaojin.com.cn/upload/2015-05-31/580601981.pdf>

<sup>8</sup> Source: [https://mrdata.usgs.gov/sedau/show-sedau.php?rec\\_id=103](https://mrdata.usgs.gov/sedau/show-sedau.php?rec_id=103)

<sup>9</sup> Source: [http://www.chinadaily.com.cn/business/2017-03/29/content\\_28719822.htm](http://www.chinadaily.com.cn/business/2017-03/29/content_28719822.htm)

**Table A:** Tier 1 global copper and gold discoveries since 2006. This table does not purport to be exhaustive exclusive or definitive.

Grade Category	Resource Category	Tonnage (Mt)	Grade		Contained Metal			
			Cu (%)	Au (g/t)	CuEq (%)	Cu (Mt)	Au (Moz)	CuEq (Mt)
Total >0.2% CuEq	Indicated	2,050	0.41	0.29	0.60	8.4	19.4	12.2
	Inferred	900	0.27	0.13	0.35	2.5	3.8	3.2

**Table B:** Alcala Mineral Resource Estimate updated effective 16 November 2018.

**Notes:**

- Mr. Martin Pittuck, MSc, CEng, MIMMM, is responsible for this Mineral Resource estimate and is an "independent qualified person" as such term is defined in NI 43-101.



- *The Mineral Resource is reported using a cut-off grade of 0.3% copper equivalent calculated using [copper grade (%)] + [gold grade (g/t) x 0.6] based on a copper price of US\$2.8/lb and gold price of US\$1,160/oz.*
- *The Mineral Resource is considered to have reasonable potential for eventual economic extraction by underground mass mining such as block caving.*
- *Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.*
- *The statement uses the terminology, definitions and guidelines given in the CIM Standards on Mineral Resources and Mineral Reserves (May 2014).*
- *The MRE is reported on 100 percent basis.*
- *Values given in the table have been rounded, apparent calculation errors resulting from this are not considered to be material.*
- *The effective date for the Mineral Resource statement is 16 November 2018.*