

High Intensity Leach Testwork Demonstrates Upgrade Pathway to Doré for Hualilan Gold-Silver Concentrate

Potential to significantly improve Hualilan's already outstanding economics

Highlights

- The November 2023 Scoping Study for the Hualilan Gold Project proposed a process path which produced three main product streams; an Au-Ag concentrate from bulk flotation, a Zn-Au-Ag concentrate from sequential flotation, and Au-Ag doré from leaching of the flotation tailings leach (FTL).
- During a late phase in the preparation of the scoping study, an opportunity was identified to upgrade the Au-Ag concentrate into doré via a fine-grind and high-intensity cyanide leach circuit, however at the time of the Scoping Study release the supporting test work was incomplete.
- Converting this concentrate into doré on site results in the elimination of Scoping Study ¹ costs of US\$150/ t for transport and US\$100/ t for Treatment Costs/ Refining Costs (TC/RCs) and increases payability on gold from 95% to 99.5% and payability on silver from 60% to 97.5%.
- Two intensive leach tests were conducted by SGS Lakefield on a representative sample of the Au-Ag concentrate one at a 16.7 µm P₈₀ grind and another at 40 µm P₈₀ grind.
- The 16.7 µm sample returned a recovery of 96.0% Au and the 40 µm sample returned a recovery of 92.8% Au.
- CAPEX is expected to be minimal to produce doré in this process given the relatively low-tonnage of Au-Ag concentrate to be fine-ground and intensely leached, with operating costs well below the costs associated with the transport and treatment of the Au-Ag concentrate.
- This indicates that the proposal to upgrade the Au-Ag concentrate to doré will generate significant additional revenue and cost savings for the project, should it be progressed.

Commenting on the results, CEL Managing Director, Mr Kris Knauer, said

"This is an excellent outcome from the first of a series of metallurgical tests targeting several material opportunities we have identified to improve the already attractive Hualilan Scoping Study economics.

The testwork demonstrates a clear and simple pathway to produce gold doré on site which has several benefits for the project. Firstly, it removes some \$100 million in costs associated with the transport and treatment of Au-Ag concentrate. Secondly, it increases the payability on the gold produced and removes the delay associated with payment for gold sold via a concentrate reducing working capital requirements.

Testwork to address the other material opportunities identified to enhance Hualilan is progressing and we look forward to presenting these in due course."

¹All references to the Scoping Study and its outcomes in this announcement relate to the ASX Announcement of 8 November 2023 'Hualilan Gold Project Scoping Study'. Please refer to that announcement for full details and supporting documentation.

Challenger Gold (ASX: CEL) (“CEL” the “Company”) is pleased to report results from a recent metallurgical testwork program undertaken to evaluate the opportunity to upgrade the Au-Ag concentrate produced in the Hualilan bulk flotation circuit into doré.

This program was undertaken to verify the feasibility of one of the several clear and material opportunities for improvement to the recent Hualilan Scoping Study, for potential inclusion in the Pre-Feasibility Study. These material opportunities consist of:

1. Conversion of the Au-Ag concentrate produced by the flotation circuit into doré on site, thereby reducing transport and TC/RC costs, and increasing payability.
2. Inclusion of a heap leach, alongside a floatation or CIL circuit, to capture value from the low-grade portion of the Hualilan orebody, which was excluded under the low-risk/ high-grade/ low-tonnage scoping study strategy.
3. Reduction in the cut-off grade of zinc ore fed into the flotation circuit, based on test work indicating that economic zinc concentrate can be produced from low-grade zinc samples, thereby recovering more of the 263 kt of contained zinc in the resource beyond the 70 kt recovered in the scoping study case.
4. Ongoing evaluation of CIL processing option and subsequent trade-off studies against flotation.

Testwork is underway to evaluate these opportunities, each of which have the potential to materially improve the already outstanding Scoping Study¹ outcome (which was the subject of an ASX release on 8 November 2023) that demonstrated:

- Forecast EBITDA of US\$738m (A\$1.1 billion) over Life of Mine (LOM).
- Rapid payback period of 1.25 years.
- Average annual production target of 116 koz Au, 440 koz Ag, 9,175 t Zn (141 koz AuEq)
- Forecast global lowest-quartile All in Sustaining Cost (AISC) of US\$830/oz.

High Intensity Leach of Au-Ag Concentrate

The process route for the Hualilan Gold Project involves crushing, milling, gravity recovery of gold, conventional flotation, and flotation tailings leach (FTL). This produces a high-grade Zn-Au-Ag concentrate, a high-grade Pb-Au-Ag concentrate, gold-silver doré, and an Au-Ag concentrate.

The majority of the gold and silver produced at Hualilan is via the Au-Ag concentrate, which comprises the cleaner Au-Ag concentrate combined with the gravity-recovered-gold (GRG) concentrate. This combined Au-Ag concentrate contains approximately 81% of the forecast annual production of 116 koz Au and 65% of the annual 440 koz Ag. The Au-Ag concentrate will likely be sold to off-takers in Asia, with forecast costs of US\$150/t to transport the concentrate, and concentrate Treatment and Refining charges (TC/RC's) of approximately US\$100/t.

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Thus, the ability to produce gold-silver doré bars onsite will remove the transport and TC/RC costs associated with the 412,000 t of Au-Ag concentrate produced over the Scoping Study LOM, thereby significantly improving project economics. Additionally, the payability for doré (99.5% Au and 97.5% Ag) compares favourably to the forecast payability of the Au-Ag concentrate (95% Au and 60% Ag).

The Company has identified a low-cost and simple process option which would potentially allow for doré production on site from the Au-Ag concentrate. This involves a fine grind of the Au-Ag concentrate, followed by an intensive cyanide leach cycle to recover the Au and Ag, with the pregnant leach solution (PLS) containing the Au and Ag added to the existing carbon-in-leach (CIL) circuit, which is required for the FTL process.

To test this potential process option, a representative sample of the Au-Ag concentrate was prepared from a combination of Au-Ag cleaner concentrates which were produced during flotation test-work. This representative composite included Au-Ag cleaner concentrate produced from both high-grade composite samples used in metallurgical testing (both of which were designed to be representative of the high-grade mineralisation), plus high-grade material from Sentazon and the Magnata Fault. This sample had a grade of 23 g/t Au, in line with the predicted 23.5 g/t Au grade of the cleaner Au-Ag concentrate in the Scoping Study (prior to the addition of the higher-grade gravity concentrate).

Two charges of this representative Au-Ag cleaner concentrate underwent an intensive leach at SGS Laboratories in Lakefield. The first sample at the existing size of 40 µm P₈₀ grind and the second at 16.7 µm P₈₀ grind. The results are outlined in Table 1 below. The recovery of 96% of the gold from the concentrate at 16.7-micron grind indicates an increase in overall Au payability from 95% via the concentrate to 95.75% via the doré option.

Operating costs associated with the fine grind and the intensive leach cycle, including cyanide consumption of 30.7 kg NaCN/t of concentrate processed, are anticipated to be less than US\$100/t Au-Ag concentrate. This will result in a net cost saving of at least US\$150/t, in addition to the uplift in Au payability. Additional testwork, including a pre-oxidation stage, is expected to further reduce the reagent consumption and associated costs of the intensive leach.

The results for Ag recovery remain pending, however any recovery above the 60% payability for Ag in the Au-Ag concentrate provides additional upside. The gravity-recovered-gold concentrate will also be converted to doré on site, likely via an Acacia reactor. The CAPEX and OPEX associated with this will be minor, considering the small amount (3.5 kt of GRG concentrate) that will be processed annually.

Table 1 - Results Intensive Leach Testing Au-Ag Cleaner concentrate.

Sample Name	CN Test #	Size P ₈₀ µ	Reagent Addition		Reagent Consumption		Free CN* mg/L	Au Extraction, %			Au Residue, g/t			Au Head Grade, g/t	
			NaCN, kg/t	CaO, kg/t	NaCN, kg/t	CaO, kg/t		24 h	48 h	72 h	Cut A	Cut B	Average	Calc'd	Direct
Comb Flot Conc	CN17	40	23.5	27.1	19.7	26.8	692	84	91	92.5	1.76	1.77	1.77	24.5	
Comb Flot Conc	CN18	16.7	33.6	12.4	30.7	12.4	510	95	86	96	0.94	0.93	0.94	22.8	

The Company is extremely encouraged by the results, which demonstrate a simple and cost-effective pathway to upgrade the Au-Ag concentrate to doré onsite, and which is expected to result in a significant improvement in forecast project economics.

Next steps will involve additional intensive-leach tests on the representative concentrate sample to optimise for grind size and reagent consumption against Au-Ag recovery. This will allow the Company to maximise the improvement in projected economics from the production of doré on site.

This ASX release was approved by the Managing Director.

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References

Hualilan Scoping Study ASX Release - 8 November 2023

The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and that all material assumptions and technical parameters underpinning the estimates in the relevant original market announcements continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements.

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COMPETENT PERSON STATEMENT – EXPLORATION RESULTS AND MINERAL RESOURCES

The information that relates to sampling techniques and data, exploration results, geological interpretation and Mineral Resource Estimate has been compiled Dr Stuart Munroe , BSc (Hons), PhD (Structural Geology), GDip (AppFin&Inv) who is a full-time employee of the Company. Dr Munroe is a Member of the AusIMM. Dr Munroe has over 20 years' experience in the mining and metals industry and qualifies as a Competent Person as defined in the JORC Code (2012).

Dr Munroe has sufficient experience of relevance to the styles of mineralisation and the types of deposits under consideration, and to the activities undertaken, to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results and Mineral Resources. Dr Munroe consents to the inclusion in this report of the matters based on information in the form and context in which it appears. The Australian Securities Exchange has not reviewed and does not accept responsibility for the accuracy or adequacy of this release.

The Mineral Resource Estimate for the Hualilan Gold Project was first announced to the ASX on 1 June 2022 and updated 29 March 2023. The Company confirms it is not aware of any information or assumptions that materially impacts the information included in the announcements and that the material assumptions and technical parameters underpinning the Mineral Resource Estimates continue to apply and have not materially changed.

Hualilan Hold Project Mineral Resource Estimate (March 2023)

Domain	Category	Mt	Au (g/t)	Ag (g/t)	Zn (%)	Pb (%)	AuEq (g/t)	AuEq (Mozs)
US\$1800 optimised shell > 0.30 ppm AuEq	Indicated	45.5	1.0	5.1	0.38	0.06	1.3	1.9
	Inferred	9.6	1.1	7.3	0.43	0.06	1.4	0.44
Below US\$1800 shell >1.0ppm AuEq	Indicated	2.7	2.0	9.0	0.89	0.05	2.5	0.22
	Inferred	2.8	2.1	12.4	1.1	0.07	2.8	0.24
Total		60.6	1.1	6.0	0.4	0.06	1.4	2.8

Note: Some rounding errors may be present

¹ Gold Equivalent (AuEq) values - Requirements under the JORC Code

- Assumed commodity prices for the calculation of AuEq is Au US\$1900 Oz, Ag US\$24 Oz, Zn US\$4,000/t, Pb US\$2000/t
- Metallurgical recoveries are estimated to be Au (95%), Ag (91%), Zn (67%) Pb (58%) across all ore types (see **JORC Table 1 Section 3 Metallurgical assumptions**) based on metallurgical test work.
- The formula used: $AuEq (g/t) = Au (g/t) + [Ag (g/t) \times 0.012106] + [Zn (\%) \times 0.46204] + [Pb (\%) \times 0.19961]$
- CEL confirms that it is the Company's opinion that all the elements included in the metal equivalents calculation have a reasonable potential to be recovered and sold.

About Challenger Gold

Challenger Gold Limited's (ASX: CEL) aspiration is to become a globally significant gold producer. The Company is developing two complementary gold/copper projects in South America with the Company's flagship Hualilan Gold Project in San Juan, Argentina containing resources of **2.8 Moz AuEq**.

The Company strategy is for the 100% owned Hualilan Gold Project to provide a high-grade low capex operation in the near term while it prepares for larger bulk gold operation at El Guayabo in Ecuador.

1. **Hualilan Gold Project**, located in San Juan Province Argentina, is a near term development opportunity. It has extensive drilling with over 150 historical and almost 900 CEL drill-holes. The Company has released a JORC 2012 Compliant resource of **2.8 Moz AuEq** which remains open in most directions. This resource contains a high-grade core **9.9 Mt at 5.0 g/t AuEq for 1.6 Moz AuEq and 29.1Mt at 2.2 g/t AuEq for 2.4 Moz AuEq** within the larger MRE of **60.6 Mt at 1.4 g/t AuEq for 2.8 Moz AuEq**. The resource was based on approximately 220,000 metres of CEL drilling. Drill results have included **6.1m @ 34.6 g/t Au, 21.9 g/t Ag, 2.9% Zn, 67.7m @ 7.3 g/t Au, 5.7 g/t Ag, 0.6% Zn, and 63.3m @ 8.5 g/t Au, 7.6 g/t Ag, 2.8% Zn**. This drilling intersected high-grade gold over 3.5 kilometres of strike and extended the known mineralisation along strike and at depth in multiple locations. Recent drilling has demonstrated this high-grade skarn mineralisation is underlain by a significant intrusion-hosted gold system with intercepts including **209.0m at 1.0 g/t Au, 1.4 g/t Ag, 0.1% Zn and 110.5m at 2.5 g/t Au, 7.4 g/t Ag, 0.90% Zn** in intrusives. The Hualilan Scoping Study demonstrates production of 116,000 oz Au, 440,000 oz Ag, 9175t Zn (141,000 oz AuEq) at an ASIC of US\$830/oz over an initial 7-year mine life. CEL's current program will include a Pre-Feasibility Study, and regional exploration along the previously unexplored 30 kilometres of prospective stratigraphy.
2. **El Guayabo Gold/Copper Project** covers 35 sq kms in southern Ecuador and is located 5 kilometres along strike from the 20.5-million-ounce Cangrejos Gold Project¹. Prior to CEL the project was last drilled by Newmont Mining in 1995 and 1997 targeting gold in hydrothermal breccias. Historical drilling demonstrated potential to host significant gold and associated copper and silver mineralisation. Historical drilling has returned a number of intersections including 156m @ 2.6 g/t Au, 9.7 g/t Ag, 0.2% Cu and 112m @ 0.6 % Cu, 0.7 g/t Au, 14.7 g/t Ag which have never been followed up. CEL's maiden drilling program confirmed the discovery of a major Au-Cu-Ag-Mo gold system spanning several zones of significant scale. The Company has drilled thirteen regionally significant Au-soil anomalies with over 500 metres of mineralisation intersected at seven of these thirteen anomalies, confirming the potential for a major bulk gold system at El Guayabo. The Company reported a **maiden 4.5 Moz gold equivalent MRE**. This MRE is based on 34 drill holes, for 22,572 metres, from the Company's Phase 1 and 2 diamond core drill programs at its 100% owned El Guayabo concession. The drilling has focussed on 2 of the 7 anomalies that have returned plus 500 metre drill intercepts and mineralisation remains open in all directions.

¹ Source : Lumina Gold (TSX : LUM) July 2020 43-101 Technical Report

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ACN 123 591 382
ASX: **CEL**

Issued Capital
1,259m shares
10.0m options
44.2m perf rights

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