

# Corporate Presentation Vancouver Resource Investment Conference

January 19-20, 2020



## **Cautionary Statements**

#### Cautionary Note Regarding Forward Looking Statements:

Statements made regarding matters which are not historical facts, are "forward looking statements" within the meaning of the U.S. Private Securities Litigation Reform Act of 1995 and Canadian securities legislation. These include statements relating to plans to acquire advanced or operating properties primarily in Mexico and potential exploration projects in Nevada; the El Quevar project, including efforts to significantly increase resource size, ongoing drilling and plans for additional exploration, projections from the El Quevar PEA, potential for an underground mine within Yaxtché, resource estimates, the potential to expand through further exploration, and the impact of silver prices on the economics of the El Quevar project; the Velardeña properties, including the expected duration of, and annual net operating margin from, the plant and the anticipated results from the updated PEA; the Rodeo property, including estimates of mineral resources, anticipated results from the PEA and timing of initiating drilling program; the Santa Maria property, including projections from the Santa Maria PEA and the anticipated timing for closing the Santa Maria transaction; the Yoquivo project, including resource estimates, mineralization expectations and future drilling plans; the Sand Canyon project, including exploration plans; and Golden's business strategy and financial plans and projections. These statements are subject to risks and uncertainties, including, but not limited to, results of Magellan's due diligence investigation and the timing or outcome of third party or governmental consents (if any); lower than anticipated revenue from the oxide plant lease as a result of delays or problems at the third party's mine or the oxide plant, earlier than expected termination of the lease or other causes; reasonability of the economic assumptions at the basis of the results of the Rodeo PEA, updated Velardeña PEA, El Quevar PEA and Santa Maria PEA; changes in interpretations of geological, geostatistical, metallurgical, mining or processing information and interpretations of the information resulting from future exploration, analysis or mining and processing experience; new information from drilling programs or other exploration or analysis; unexpected variations in mineral grades, types and metallurgy; fluctuations in silver and gold metal prices; failure of mined material or veins mined to meet expectations; increases in costs and declines in general economic conditions and continued excessive inflation in Argentina; fluctuations in exchange rates and changes in political conditions, in tax, royalty, environmental and other laws in the United States, Mexico and Argentina; and financial market conditions and the availability of external financing, if required.

#### **Exploration Results:**

This presentation includes information regarding selected drill and sampling results on certain of our exploration properties. Complete drill and sampling results may be viewed by visiting our website at <a href="https://www.goldenminerals.com">www.goldenminerals.com</a>.

#### Cautionary Note to U.S. Investors Regarding Estimates of Measured, Indicated and Inferred Mineral Resources:

Certain terms in this presentation, such as "measured", "indicated" and "inferred" mineral resources, are defined in and required to be disclosed by NI 43-101. We advise U.S. investors that these terms are not recognized under the SEC Industry Guide 7. Accordingly, the disclosures regarding mineralization in this presentation may not be comparable to similar information disclosed by Golden Minerals in the reports it files with the SEC. The estimation of measured resources and indicated resources involves greater uncertainty as to their existence and economic feasibility than the estimation of proven and probable reserves. The estimation of inferred resources involves far greater uncertainty as to their existence and economic viability than the estimation of other categories of resources. US investors are cautioned not to assume that any or all of the minerals resources are economically or legally mineable or that these mineral resources will ever be converted into mineral reserves. In addition, the SEC normally only permits issuers to report mineralization that does not constitute SEC Industry Guide 7 compliant "reserves" as in-place tonnage and grade without reference to unit amounts. U.S. investors are urged to consider closely the disclosure in our Form 10-K and other SEC filings. You can review and obtain copies of these filings from the SEC's website at http://www.sec.gov/edgar.shtml.



We are a silver company based in Golden, Colorado and we will increase shareholder value through our plans to:

- Establish Golden Minerals as a mid-tier precious metals producing mining company, with focus primarily in Mexico, Argentina, and Nevada
- Advance the Velardeña Properties update PEA
- Advance the El Quevar Project (Salta, Argentina) via partner-funded exploration
- Explore properties selected for high grades, low development costs and near-term production
- Acquire advanced or operating properties, primarily in Mexico

Acquire and advance low cost/high potential exploration projects in Nevada and Mexico







## Recent Project Developments



## **V**ELARDEÑA

• Bio-oxidation test results on pyrite-arsenopyrite concentrates yield 91% Au and 92% Ag recovery from post-oxidation cyanide leaching

## SANTA MARIA

 Purchase option granted to Magellan Gold for anticipated \$4M plus royalty

## **RODEO**

Commenced permitting process for resource definition drilling and mining

## <u>Yoquivo</u>

• Oct. 2018: reported high-grade gold-silver assays from surface sampling program covering 40% of property

## **EL QUEVAR**

• Q2 2019: 3,000 m drilling defined high-grade results from new area that could be additive to resource

All dollar amounts in U.S. Dollars unless noted otherwise <sup>1</sup> See Resource Footnotes page





Stock Symbol	NYSE American & TSX: AUMN	
Share Price, 52-Wk Hi/Lo (US)	\$0.31 (\$0.38/\$0.20)	
Shares Outstanding	106.7 M	
Warrant Shares	14.7 M	
Options & Restricted Stock Units	2.3 M	
KELTIP* Units	2.3 M	
Shares Outstanding - Fully Diluted	126.0 M	
3-Month Avg. Daily Volume**	0.28 M	
Debt (09/30/19)	-	
Cash (09/30/19)	\$2.9M	

As of 01/13/2020 unless otherwise noted



## Why Invest in AUMN?

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Revenue	<ul> <li>~\$3-4M annual net operating margin from plant lease in Mexico</li> <li>Expected duration through 2020</li> <li>\$0.03 per share per year</li> </ul>		
Resources	<ul> <li>M&amp;I resources: 79M oz AgEq<sup>2</sup></li> <li>Inferred resources: 39M oz AgEq</li> </ul>		
Resources	• Total resources: 1.1 AgEq oz in the ground per share of AUMN *		
	• El Quevar PEA \$44.9M NPV (2018) <sup>1</sup>		
Value	• Santa Maria PEA \$10.6M NPV (2018) <sup>1*</sup> - Optioned to Magellan Gold		
	Velardeña mine & 300 tpd sulfide plant on stand-by		
Cash	\$2.9M (as of 09/30/19)		
Debt	Zero		
<b>Project Pipeline</b>	Argentina: El Quevar Mexico: Velardeña, Rodeo, Santa Maria, Yoquivo, Flechas USA: Sand Canyon, NV		
Experience	Experienced management and directors; strong technical staff		

<sup>&</sup>lt;sup>1</sup> See Resource Footnotes page

<sup>&</sup>lt;sup>2</sup> Silver equivalents calculated using Ag:Au ratios of 74:1 (Santa Maria), 70:1 (Velardeña) and 72:1 (Rodeo)



## 2016-Present: AUMN and Silver

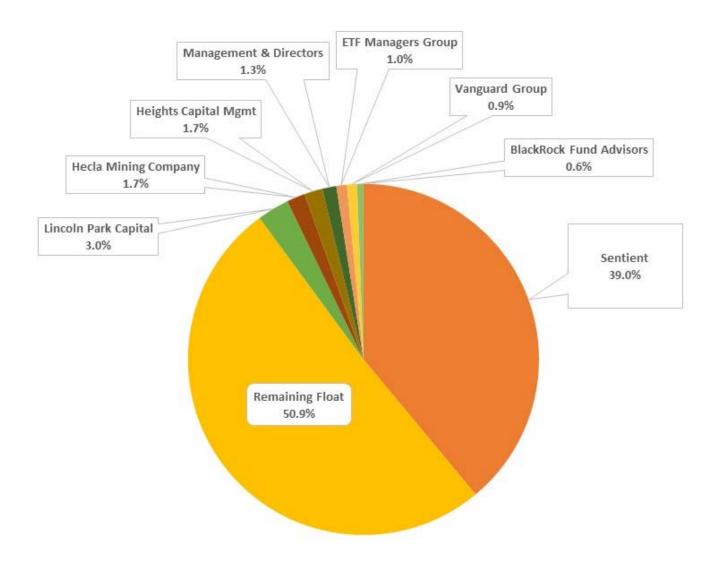


Source: Kitco.com for Ag prices; NYSE Connect for AUMN prices



## Strong Shareholder Base

## **AUMN**



- Figures per most recent public filings or other available records; Lincoln Park holding as of May 9, 2018
- Figures exclude KELTIP units, restricted stock units and warrants



# Precious metals focus in Mexico, Argentina and USA (Nevada)





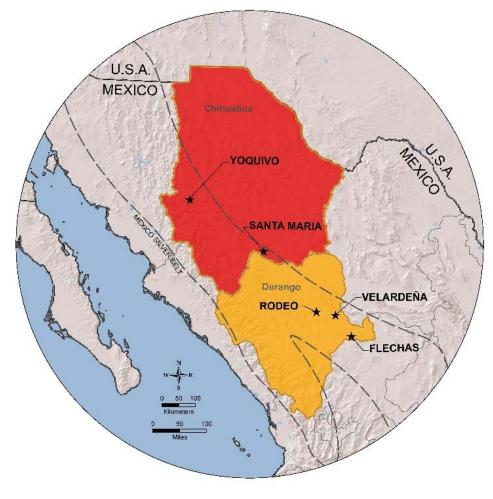
## Principal Projects in Mexico

#### **RODEO**

- Near-surface gold deposit
- Potential source of material for Velardeña oxide mill after Hecla lease concludes (2020)
- NI 43-101 resource reported Jan. 2017
- Permitting for mining in progress

#### Santa Maria

- Updated PEA and NI 43-101 resource reported Oct. 2018
- Completed ~4,850 m drilling program, 2017-18, with goal of expanding resource
- Test mined: 7,100 dry tonnes processed with grades of 338 g/t Ag and 0.8 g/t Au
- Optioned to Magellan Gold, sales price \$4M plus royalty stream



#### **V**ELARDEÑA

- Oxide plant leased to Hecla (\$3-4M annual net operating margin expected)
- Hecla has secured the right to use the plant through 2020, sulfide plant available for ore processing
- Ample equipment on hand to support new mine operation
- 2 silver and gold underground mines on care & maintenance
- Bio-oxidation test results on pyrite-arsenopyrite concentrates yield 91% Au and 92% Ag recovery from post oxidation cyanide leaching
- Updated PEA in progress

#### Yoquivo

- 1,975 ha property covering an unexplored gold-silver district adjacent to the Ocampo and Orisyvo deposits
- Surface sampling and mapping identified multiple high-grade epithermal veins
- Drilling anticipated to begin Q3, 2020



## Velardeña - Overview



Classification	Tonnes (M)	Ag (Moz)	Au (Moz)	AgEq (Moz)	Ag g/t	Au g/t
Measured	0.4	4.3	0.1	8.9	321	4.9
Indicated	1.0	9.5	0.1	18.4	311	4.1
Inferred	1.6	16.4	0.2	33.2	320	4.7

- Assumes prices current as of Dec. 2014 of \$17/oz Ag and \$1,250/oz Au
- Silver equivalents calculated at 70:1
- See Resource Footnotes page for additional information

- 560 ha Ag/Au property with two underground mines and two processing plants
- Updated PEA underway Q1 2020; will reflect bio-oxidation process designed specifically to address past challenges with Au recovery
  - Current test results confirm previous studies and show bio-oxidation & subsequent leaching of pyrite concentrates from Velardeña achieved 91% Au and 92% Ag recovery from pyrite –arsenopyrite concentrates
- Mines on care and maintenance until current metals prices and mine plans indicate sustainable positive operating margin





- Successful partnership with Hecla since mid-2015
- Oct. 2018: Hecla secured use of the plant through 2020
- Q2 2017: Hecla completed tailings impoundment expansion
- Q1 2020 PEA will incorporate processing of Rodeo material through oxide plant (to begin at end of Hecla lease)



Oxide plant

Source of cash: \$3-4M annual net operating margin, comprised of fixed & variable fees



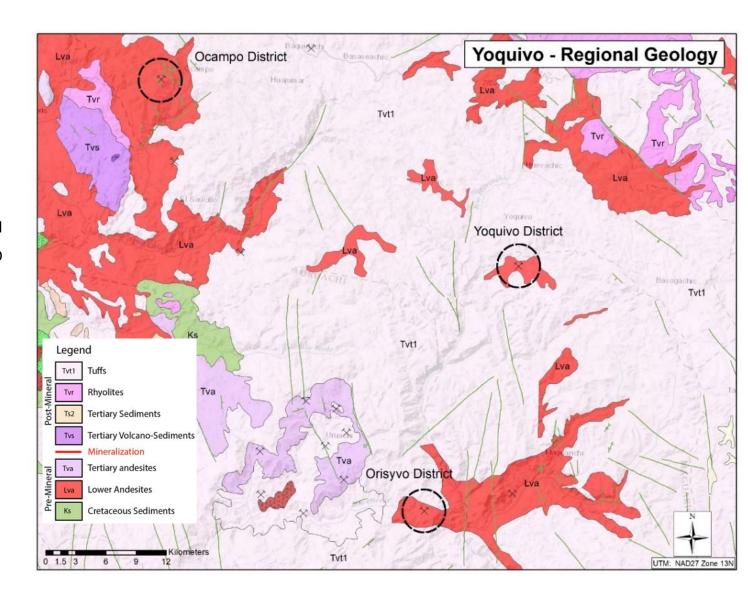
## **Excellent** neighborhood

- Ocampo Mine (acquired by Minera Frisco in 2012 for US\$750M) 25km to the northwest
- Orisyvo Deposit (9.6Moz Au

   Fresnillo) located 18km to
   the south

## **Great geology**

- Geology similar to Ocampo and Orisyvo districts
- Mineralization hosted in andesites beneath postmineral rhyolites and tuffs





## Large property

7 concessions totaling 1,975 hectares

## Low acquisition costs

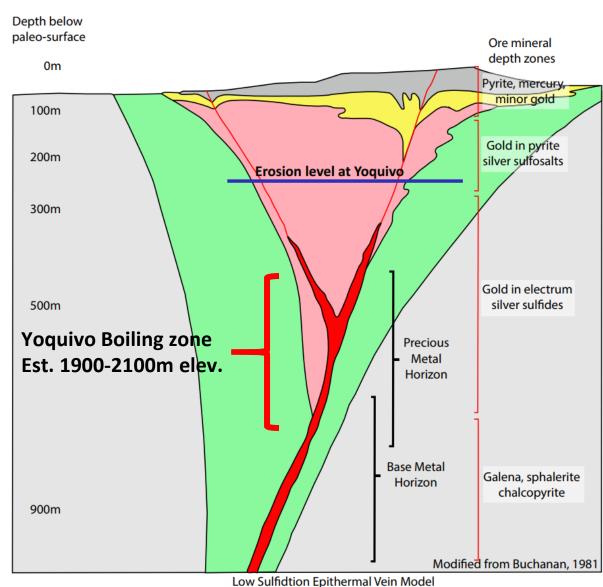
 US\$0.75M over 4 years with a capped 2% NSR royalty

## Excellent exploration potential

- Golden Minerals controls 95% of an emerging low-sulfidation epithermal vein district
- Fluid Inclusion data shows that the limited historic mining occurred above the boiling zone
- High-grade mineralization is virtually untouched

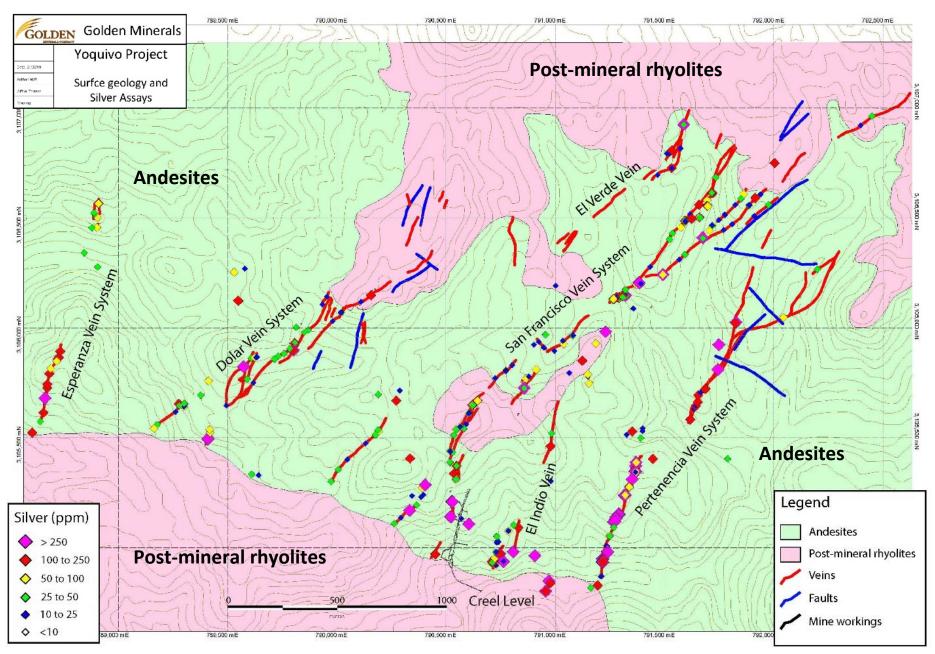
## **Significant results include:**

- 4m assaying 2.3 g/t Au and 489 g/t Ag
- 2.9m assaying 2.3 g/t Au and 345 g/t Ag
- 6m assaying 1.7 g/t Au and 399 g/t Ag
- 3.4m assaying 0.2 g/t Au and 384 g/t Ag





## Yoquivo – Silver Assays





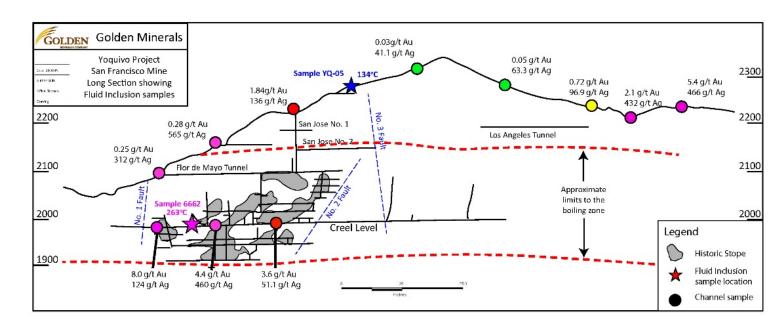
## Yoquivo – Boiling Zones

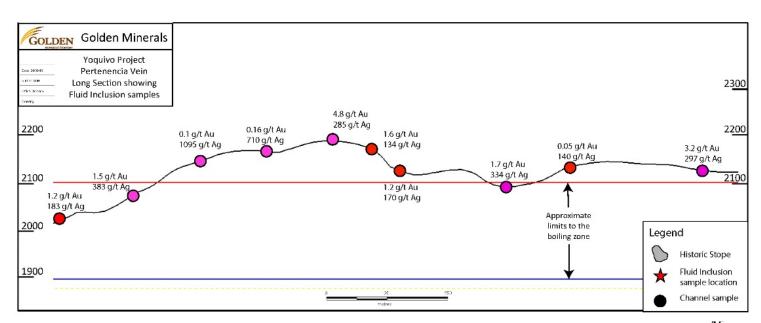
#### Long Section – San Francisco Vein

- Mining occurred between 2,100m and 1,900m
- Sampling returned highgrade Au-Ag values close to 2,100m elevation
- Majority of vein exposed >2,200m elevation

## Long Section – Pertenencia Vein

- Silver dominant mineralization
- Minimal historic mining
- High-grade sampling close to 2,100m elevation
- Minimal sampling below 2100m elevation
- Undrilled

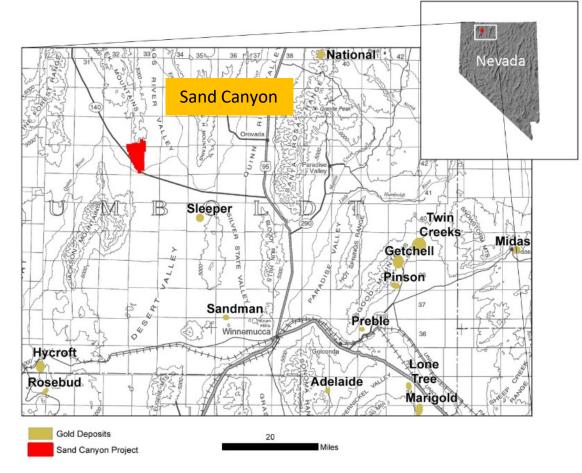






## New Project: Sand Canyon – Nevada, USA

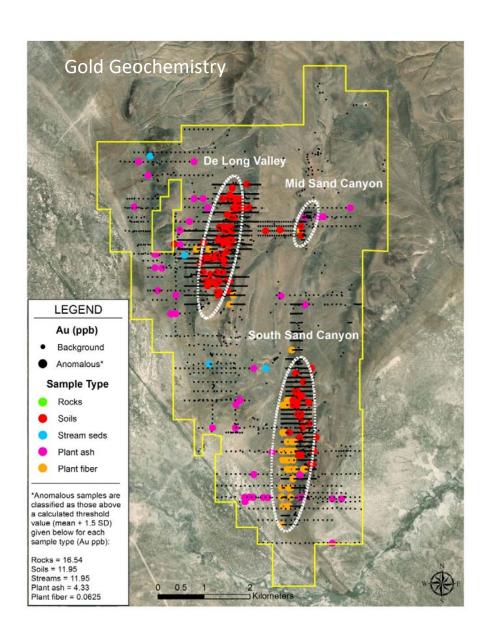
- Gold-silver project located ~18 miles NW of the historic Sleeper Mine in NW Nevada
- 526 claims / 16 sq miles
- Mapping/sampling have identified multiple epithermal veins exposed at surface
- Strength of system expressed by clear geochemical anomalies
- Targets appear to be similar in surface expression to those seen in outcrops related to nearby Sleeper Mine
- Drilling planned for Q1 2020

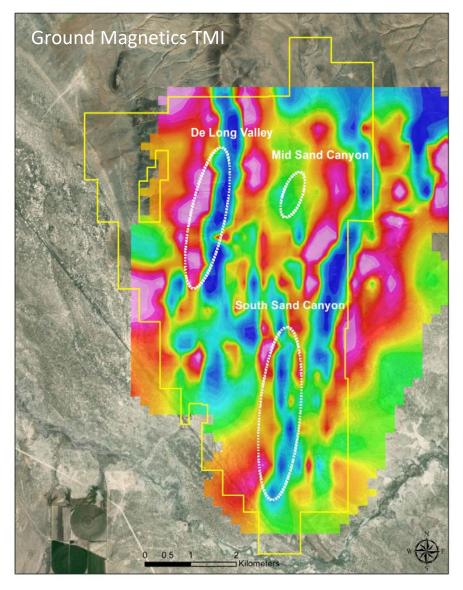


- Golden holds an option to earn 60% interest in the project
- Requires spending \$2.5M in exploration expenses over four years + \$0.14M in cash payments spread over 2020-2022.
  - Minimum exploration spend \$0.5M in year one
  - Paid \$25k cash + \$50k in reimbursed exploration expenditures to acquire the option



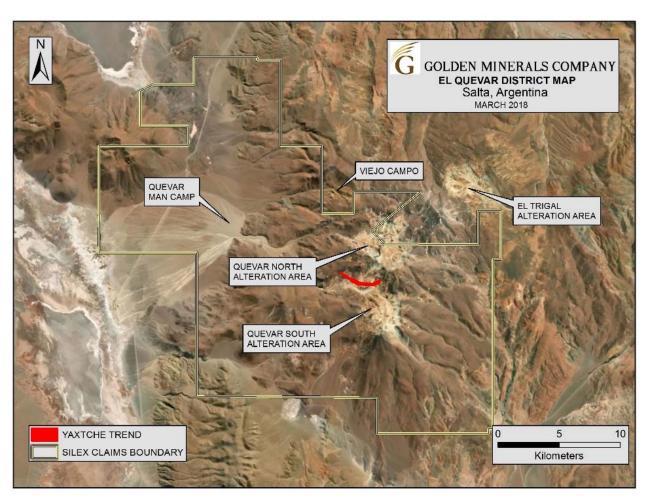








## El Quevar - District Potential



## Significant expansion potential

- Silver project in Salta Province,
   57,000 ha
- 43-101 resource covers only the Yaxtché deposit – 2km strike length deposit within much larger property
- Much of the area outside Yaxtché remains underexplored
- Deposit open to the east and west
- Additional high-grade silver targets have been identified by drilling and through geophysical studies

## El Quevar – 2018 PEA Results

## **PEA Results**

- 4.8 M oz Ag annual production
- 487 g/t Ag M&I resource grade
- \$9.45 per oz Ag AISC
- \$44.9M NPV5 at \$16.66/oz Ag
- NPV increases by about \$15M per \$1 increase in price per oz of silver
- Significant potential to expand through further exploration



# Project is very sensitive to silver price: an increase in the price of silver will greatly enhance the economics of the project.

Notes: PEA based on underground mining of sulfide material at 1,200 tpd and producing a single product flotation concentrate containing 11.5 kg/t Ag over a 6-year mine life. \$97M initial capital cost includes \$16M in contingency. 3-year trailing average Ag price used: \$16.66 /oz. See Resource Footnote page for additional information.



## El Quevar – 2018 Resource Estimate

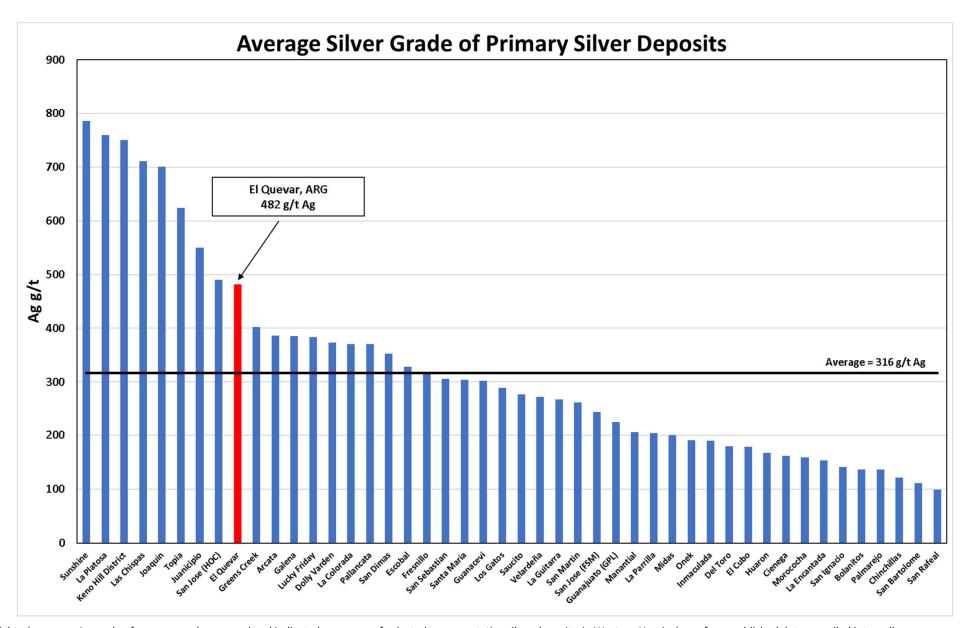
Classification	Cut-off Ag (g/t)	Tonnes (M)	Ag Grade (g/t)	Ag (M oz)
Indicated				
Sulfide	250	2.63	487	41.1
Oxide	250	0.30	434	4.2
Inferred				
Sulfide	250	0.31	417	4.1

- Based on new indicator model using tighter controls and modeling approach designed to better delineate the higher-grade mineralization
- Used 250 g/t Ag cutoff
- New estimate retains 80% of the Ag oz at 3x the grade of the 2012 resource estimate

Recent re-modeling project achieved resource goal of 3M tons at >400 g/t Ag



## El Quevar - High-Grade Resource



Weighted average Ag grade of reserves and measured and indicated resources of selected representative silver deposits in Western Hemisphere, from published data compiled internally.



## EL QUEVAR - Q1

Announcement of partner with whom project will be advanced

## SAND CANYON - Q1

Phase one drilling + results

## Velardeña - Q1

Publish updated PEA

## SANTA MARIA - Q1

Exercise of purchase option by Magellan

## RODEO – Q3

- Permitting for mining
- Timeline of advancement toward intended 2021 production

## Yoquivo – Q3

• Phase one drilling + results



## **Total Company Resources**

			Grade			
	Tonnes	Silver	Gold	AgEq.	Silver	Gold
	(M)	(M oz)	(K oz)	(M oz)	g/t	g/t
<u>VELARDEÑA</u>						
Measured	0.4	4.3	65.0	8.9	321	4.9
Indicated	1.0	9.5	126.0	18.4	311	4.1
Inferred	1.6	16.4	239.0	33.2	320	4.7
<b>EL QUEVAR</b>						
Indicated	2.9	45.3	-	45.3	482	n/a
Inferred	0.3	4.1	-	4.1	417	n/a
SANTA MARIA						
Measured	0.0	0.4	1.1	0.5	271	0.8
Indicated	0.2	1.6	5.7	2.0	291	1.0
Inferred	0.3	2.3	7.6	2.9	272	0.9
RODEO				Gold Eq.		
				(K oz)		
Indicated	0.4	0.2	46.0	47.8	11	3.3
	M Tonnes	Silver Moz	Gold koz	Moz AgEq.		
Total Company M&I	4.9	61.3	243.8	78.6		

- Velardeña resources per Tetra Tech NI 43-101, 2/20/2015. Silver equivalents calculated at 70:1.
- El Quevar resources per Amec Foster Wheeler E&C Services, Inc., a Wood Group PLC company. NI 43-101, 02/26/2018. Cutoff grade 250 gpt Ag.
- Santa Maria resources per Tetra Tech NI 43-101 & PEA, 09/14/2018. Silver equivalents calculated at 74:1. Cutoff grade 180 gpt.
- Rodeo resources per Tetra Tech NI 43-101, 01/26/2017. Gold equivalents calculated at 72:1. Cutoff grade 0.83 gpt Au.



#### ACCOMPANYING NOTES TO EL QUEVAR 2018 RESOURCE TABLE

- The Company retained Amec Foster Wheeler E&C Services, Inc., a Wood Group PLC company ("Wood"), to complete an updated Mineral Resource estimate in accordance with Canadian National Instrument 43-101 ("NI 43-101"). The estimate is based on the same drilling data as the 2012 technical report prepared by RPMGlobal (formerly Pincock Allen & Holt; "RPM") but uses updated geologic controls and a modeling approach designed to delineate the higher-grade mineralization.
- The 2018 El Quevar model was constructed using a hybrid approach that combined the efficiency of implicit modeling with the fine-tuning capabilities of probability-assigned constrained kriging (PACK). Structural trends were first constructed to define the orientation of the mineralization. These trends were then imported into implicit modeling software to construct wireframes that defined the limits of the silver mineralization. PACK was then used to estimate tonnes and grades within the wireframes through initially outlining the economic mineralization using indicator blocks, and then estimating grade within the blocks using ordinary kriging.
- The independent Qualified Person who prepared the Mineral Resource estimate is Gordon Seibel, a Registered Member of the Society for Mining, Metallurgy and Exploration, RM SME, who is a Principal Geologist with Wood.
- The effective date of the estimate is February 26, 2018. Mineral Resources are estimated using the CIM Definition Standards for Mineral Resources and Reserves (2014). The PEA is dated September 4, 2018.
- Reported Mineral Resources contain no allowances for hanging wall or footwall contact boundary loss and dilution. No mining recovery has been applied.
- Rounding as required by reporting guidelines may result in apparent differences between tonnes, grade and contained metal content.



#### **PEA AND RESOURCE INFORMATION:**

#### **EL QUEVAR:**

- PEA: Wood Group. NI 43-101 Technical Report on PEA. Sept. 4, 2018. NPV calculated using 5% discount rate.
- Resource: Amec Foster Wheeler E&C Services Inc. a Wood Group PLC company. NI 43-101 Technical Report on Updated Mineral Resource Estimate. Feb. 26, 2018.

#### SANTA MARIA:

 PEA: Tetra Tech. NI 43-101 Technical Report & Updated PEA. Sept. 14, 2018. NPV calculated using 5% discount rate.

#### VFI ARDEÑA:

- PEA and resource: Tetra Tech. NI 43-101
   Technical Report PEA. Feb. 20, 2015.
- Assumes prices current as of Dec. 2014: \$17/oz Ag and \$1,250/oz Au. Silver equivalents calculated at 70:1.





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