## LUNDINGOLD

Building a leading Gold Company through responsible mining

### Fruta del Norte – Creating a Grade Control Strategy from the Geological Model

December 16, 2020



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The technical information contained in this presentation relating to the Fruta Del Norte Project is based on a Technical Report prepared for the Company entitled "Fruta del Norte Project, Ecuador, NI 43-101 Technical Report on Feasibility Study" dated June 15, 2016 with an effective date of April 30, 2016 (the "Technical Report"). Information of a scientific and technical nature in this presentation was reviewed and approved by Ron Hochstein, P.Eng., Lundin Gold's President and Chief Executive Officer, who is a Qualified Persons within the meaning of National Instrument 43-101 - Standards of Disclosure for Mineral Projects ("NI 43-101").

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#### **Bringing Fruta del Norte Into Production**



- Completely covered and well-preserved epithermal Au-Ag deposit.
- Middle to Late Jurassic andesitic host rocks, crosscutting feldspar porphyry and associated phreatic breccias.
- The pull-apart basin was progressively filled by fluviatile conglomerate, dacitic ignimbrite flows, finer grained siliciclastic sedimentary rocks, and, finally, andesite flows.



#### **Bringing Fruta del Norte Into Production**

- Discovered by Aurelian in 2006 from an outcrop with epithermal textures and geochemistry (As, Sb and Hg).
- Discovery hole drilled underneath the outcrop through the central fault zone



#### **Bringing Fruta del Norte Into Production**

- 2014 Lundin Gold acquired Fruta del Norte from Kinross
- 2016 Lundin Gold completed the Feasibility Study
- 2017 Project Construction commenced
- 2019 (Nov) First gold poured
- Commercial Production announced in February 2020



Fruta del Norte drill core





# Fruta del Norte one of the Few Multi-Million Ounce, High-Grade Gold Assets in Production<sup>1</sup>

FDN has probable mineral reserves of 5 million ounces at 8.7 g/t Au and a

<sup>12</sup> combined indicated + inferred resource of 9.5 million ounces at 8.3 g/t Au.











#### Fruta del Norte Grade Control Protocols: TIMELINE

- The Mine Geology department was first created in November 2018.
- The First cross-cut into the orebody was mined in December 2018
- Stope Infill drilling commenced in March 2019 (exploration logging support)
- First stope mined in June 2019
- Full mine geology team July 2019
- The Onsite lab functional effective Q4 2019

Who doesn't love a challenge!





#### Fruta del Norte Grade Control Protocols:

We needed to take the exploration and resource models from a GLOBAL SCALE to

- a local scale and
- Ore / waste simplicity .....

FAST and made as simply as possible (K.I.S.S).

Can we recognize grade based on lithology Can we recognize grade based on geochemistry Can we recognize grade based on mineralisation style Can we recognize grade based on structural controls

Is visual even an option?!!



### Fruta del Norte Controls on Mineralogy<sup>1</sup>: LITHOLOGY



The 2016 Resource model Mineralisation domains were based on the 2015 SRK lithology model.

	Porphyry vein (Ip)/ phreatic breccia (Xp) hosted vein mineralisation (XP_IP)
	Hydrothermal Breccia and vein hosted mineralisation (XH_VN)
	Faults
	Volcanics (andesites)
	2016 Mineral Resource Drill holes
	1170 Level current development
$\bigcirc$	First Stope

#### Fruta del Norte Controls on Mineralogy<sup>1</sup>: LITHOLOGY



Hydrothermal Breccia (XH\_VN) = High Grade



#### Fruta del Norte Controls on Mineralogy<sup>1</sup>: VEINS



### Fruta del Norte Controls on Mineralogy<sup>1</sup>: GEOCHEMISTRY



In 2007 Kinross<sup>2</sup> completed a geochemical domain model, 4 distinct geochemically different domains (FDN1-4) were noticed within the orebody. These domains have been used in some metallurgical variability test works and are referred to by mine geology when entering new areas to better understand what we are to expect when mining.

FDN1 – Manganese Carbonate dominated
FDN2 – Chalcedony Marcasite dominated
FDN4 – Quartz Calcite dominated
Faults
2016 Mineral Resource Drill holes
1170 Level current development
First Stope

FDN1 and 2 have more sulphides associated on the footwall and hanging walls, and these are used as markers that you are approaching or leaving mineralisation. Geochemistry domains are more important for the Plant.



#### Fruta del Norte Controls on Mineralogy<sup>1</sup>: STRUCTURE



	Porphyry vein (Ip)/ phreatic breccia (Xp) hosted vein mineralisation (XP_IP)
	Hydrothermal Breccia and vein hosted mineralisation (XH_VN)
	Faults
	Volcanics (andesites)
/	2016 Mineral Resource Drill holes
	1170 Level current development
$\bigcirc$	First Stope

Ore development drives do not intersect the East Fault.

The Main structures are geotechnically significant. The west fault terminates the mineralisation and if intersected would be used as a marker to stop development.

The central fault in some areas appears to have a control on the grade profile but is not a large driver on the grade control strategy.



### Fruta del Norte Controls on Mineralogy: THE VERDICT

Can Grade Control of the FDN mineralisation be done visually?

Yes....

but....

1. It doesn't allow us to know the exact grade!

2. There are always exceptions (or surprises). Mining doesn't like surprises.

At FDN we are fortunate to have a sound global geological and resource model. This is thanks to:

- the nature of the deposit and
- the great work the exploration and project teams have done.

This allows us to broadly assign the development rounds into grade assignment stockpiles but does not give us the grade.

We need to use the model in combination with sampling and a solid stockpiling strategy

- If visuals don't match the model, stockpile until assay results are returned. ۲
- Chip sample both walls, every meter. ۲
- Chip samples and Diamond Drilling used in the grade control block model ۲



#### Fruta del Norte Controls on Mineralogy<sup>1</sup>: THE VERDICT



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# Thank You

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