LUNDIN GOLD
Fruta del Norte

Amended NI 43-101 Technical Report Fruta del Norte Mine Ecuador

885 West Georgia Street
Suite 2000
Vancouver, British Columbia
V6C 3E8

Effective Date: December 31, 2022
Issue Date: March 29, 2023

Ron Hochstein, P.Eng., Lundin Gold
Dorota El Rassi, P.Eng., SLR Consulting
Jason Cox, P.Eng., SLR Consulting
Neil Lincoln, P.Eng., G Mining Services
Neil Hemrajani Singh, P.Eng., Klohn

Notice to Reader

Due to corrections in the estimates of life of mine capital and operating costs, Lundin Gold Inc. has amended its "N.I. 43-101 Technical Report – Fruta del Norte Mine, Ecuador" which was previously filed on March 30, 2023.

This amended technical report supersedes the previously filed report in its entirety, and the reader is cautioned not to refer to the previously filed report.

Cautionary Note Regarding Forward-Looking Information

This report contains or incorporates by reference “forward-looking statements” and “forward-looking information” as defined under applicable Canadian securities legislation. All statements, other than statements of historical fact, which address events, results, outcomes or developments that Lundin Gold Inc. (“Lundin Gold” or the “Company”) expects to occur are, or may be deemed to be, forward-looking statements and are generally, but not always, identified by the use of forward-looking terminology such as "expect", “assume”, “believe”, “anticipate”, “intend”, “envisage”, “potential”, “plan”, “objective”, “predict”, “outlook”, “estimate”, “continue”, “ongoing”, “likely”, “forecast”, “budget”, “target” or variations of such words and phrases and similar expressions or statements that certain actions, events or results “may", “could”, “would”, "might" or "will" be taken, occur or be achieved or the negative connotation of such terms. Forward-looking statements contained in this report are based on expectations, estimates and projections as of the date of this report. Forward-looking statements in this report may include, without limitation, information as to strategy, plans, expectations or future financial or operating performance, such as expectations and guidance regarding: production outlook, including estimates of gold production, grades, recoveries and costs; estimates of Mineral Resources and Mineral Reserves; expansion plans; mining and recovery methods; mining and mineral processing and rates; tailings design and capacity; mine life; timing and the success of its exploration program at the Fruta del Norte mine and its other exploration activities; project-related risks as well as any other statements that express Lundin Gold’s plans and expectations or estimates of future performance.

Lundin Gold cautions that forward-looking statements are necessarily based upon a number of factors and assumptions that, while considered reasonable by Lundin Gold at the time of making such statements, are inherently subject to significant business, economic, technical, legal, political and competitive uncertainties and contingencies. Known and unknown factors could cause actual results to differ materially from those projected in the forward-looking statements, and undue reliance should not be placed on such statements and information. Such factors and assumptions underlying the forward-looking statements in this document include, but are not limited to: risks related to political and economic instability in Ecuador; risks associated with the Company's community relationships; risks related to estimates of production, cash flows and costs; risks inherent to mining operations; shortages of critical supplies; the cost of non-compliance and compliance costs; control of the Company's largest shareholders; volatility in the price of gold; failure of the Company to maintain its obligations under its debt facilities; risks related to Lundin Gold’s compliance with environmental laws and liability for environmental contamination; the lack of availability of infrastructure; the Company's reliance on one mine; security risks to the Company, its assets and its personnel; risks related to illegal mining; exploration and development risks; the impacts of a pandemic virus outbreak; risks related to the Company's ability to obtain, maintain or renew regulatory approvals, permits and licenses; uncertainty with and changes to the tax regime in Ecuador; the reliance of the Company on its information systems and the risk of cyber-attacks on those systems; the imprecision of Mineral Reserve and Resource estimates; deficient or vulnerable title to concessions, easements and surface rights; inherent safety hazards and risk to the health and safety of the Company's employees and contractors; risks related to the Company's workforce and its labour relations; key talent recruitment and retention of key personnel; volatility in the market price of the Company's shares; measures to protect endangered species and critical habitats; social media and reputation; the adequacy of the Company's insurance; risks relating to the declaration of dividends; uncertainty as to reclamation and decommissioning; the ability of Lundin Gold to ensure compliance with anti-bribery and anti-corruption laws; the uncertainty regarding risks posed by climate change; limits of disclosure and internal controls; the potential for litigation; and risks due to conflicts of interest.

For a more detailed discussion of such risks and other factors that may affect Lundin Gold's ability to achieve the expectations set forth in the forward-looking statements contained in this report, see Lundin Gold's latest Annual Information Form and Management's Discussion and Analysis, each under the heading "Risk Factors" available on the SEDAR website at www.sedar.com. The foregoing should be reviewed in conjunction with the information, risk factors and assumptions found in this report. Lundin Gold disclaims any intention or obligation to update or revise any forward-looking statements whether as a result of new information, future events or otherwise, except as required by applicable law.

NI 43-101 Technical Report – Fruta del Norte Mine

Revision #

Ecuador

Lundin Gold
885 West Georgia Street, Suite 2000
Vancouver, British Columbia V6C 3E8
Tel: 604-689-7842
E-mail**:** info@lundingold.com
Web Address: www.lundingold.com

March 29, 2023

Qualified Persons

Prepared by:

(signed and sealed) "Ron Hochstein" Date: March 29, 2023

Ron Hochstein, P.Eng.,
President & CEO
Lundin Gold Inc.

(signed and sealed) "Dorota El-Rassi" Date: March 29, 2023

Dorota El-Rassi, P.Eng.,
Principal Geologist
SLR Consulting Limited

(signed and sealed) "Jason Cox" Date: March 29, 2023

Jason Cox, P.Eng.,
Technical Director
SLR Consulting Limited

(signed and sealed) "Neil Lincoln" Date: March 29, 2023

Neil Lincoln, P.Eng.,
Vice President, Metallurgy
G Mining Services Inc.

(signed and sealed) "Neil Hemrajani Singh " Date: March 29, 2023

Neil K. Hemrajani Singh, P.Eng.,
Senior Geotechnical Engineer
Klohn Crippen Berger Ltd.

Qualified Persons Certificates

See following pages

CERTIFICATE OF QUALIFIED PERSON

This certificate applies to the technical report entitled, "Amended N.I. 43-101 Technical Report of the Fruta del Norte Mine" with an effective date of December 31, 2022 and a report date of March 29, 2023 (the "Amended Technical Report").

I, Ron Hochstein, P.Eng., do hereby certify that:

1. I am employed as President and Chief Executive Officer of Lundin Gold Inc. located at 2000 – 885 West Georgia St., Vancouver, BC, V6C 3E8.

2. I graduated from the University of Alberta in 1983 with a Bachelor of Science degree in Mineral Process Engineering.

3. I am a registered professional engineer in good standing with the Professional Engineers of Ontario (Reg.# 100018244). I have worked for mining companies for more than 40 years since my graduation. I have experience in project development, mining operations and technical services from employment at Noranda Minerals, Simons Mining Group, International Uranium Corporation, Denison Mines Inc. and Lundin Gold Inc., in various roles with increasing levels of responsibilities. As President and Chief Executive Officer of Lundin Gold Inc., I was responsible for developing Fruta del Norte into a producing gold mine and have ultimate responsibility for its operations.

4. As a result of my education, affiliation with a professional association and past relevant work experience, I am a Qualified Person as defined in National Instrument 43–101 *Standards of Disclosure for Mineral Projects* ("NI 43-101").

5. I visit Fruta del Norte on a regular basis, and my most recent visit was from January 24 to February 1 , 2023.

6. I am a contributing author for the preparation of the Amended Technical Report and am responsible for all sections of the Report, but for sections and subsections: 1.8, 1.12, 7 to 17, 20.4 and 27.

7. I have been an employee of Lundin Gold Inc. for 8 years.

8. I am not independent of Lundin Gold Inc. as independence is described by Section 1.5 of NI 43–101.

9. I have read NI 43-101 and believe that those sections of the Amended Technical Report for which I am responsible have been prepared in accordance with NI 43-101.

10. As of the effective date of the Amended Technical Report, to the best of my knowledge, information and belief, the sections and sub-sections of the Amended Technical Report for which I am responsible contain all scientific and technical information that is required to be

disclosed to make these sections and sub-sections of the Amended Technical Report not misleading.

Dated this 29th day of March 2023.

(Signed and Sealed) ***Ron Hochstein***

____

Ron Hochstein, P.Eng.
President and Chief Executive Officer

SLR Consulting (Canada) Ltd.
55 University Avenue, Suite 501,Toronto, ON M5J 2H7

CERTIFICATE OF QUALIFIED PERSON

This certificate applies to the technical report entitled, "Amended N.I. 43-101 Technical Report – Fruta del Norte Mine, Ecuador" with an effective date of December 31, 2022 and a report date of March 29, 2023 (the "Amended Technical Report").

I, Dorota El-Rassi, M.Sc., P.Eng., do hereby certify that:

1) I am currently employed as Principal Geologist with SLR Consulting (Canada) Ltd, of Suite 501, 55 University Ave., Toronto, ON M5J 2H7.
2) I graduated from the University of Toronto in 1997 with a B.A.Sc. (Hons.) degree in Geological and Mining Engineering and in 2000 with a M.Sc. degree in Geology.
3) I am a professional engineer in good standing with the Professional Engineers of Ontario (Reg.# 100012348).
4) I have practiced my profession in the mining industry continuously since graduation. I have over 24 years experience as a geologist. My relevant experience for the purpose of the Technical Report is:
    - Review and report on exploration and mining projects for due diligence and regulatory requirements
    - Mineral Resource estimates on a variety of commodities including gold, silver, copper, nickel, zinc, PGE, and industrial mineral deposits
    - Experienced user of Gemcom, Leapfrog, Phinar's x10-Geo, and Gslib software
    - Select gold projects I have worked on include:
        - Red Lake Gold Mine, Ontario
        - Douay Gold Project , Quebec
        - Pilar Gold Mine and Caeté Complex, Brazil
        - Aurora Gold Mine, Guyana
5) I have read the definition of "qualified person" set out in the National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements to be a qualified person for the purposes of NI 43-101.
6) I am a contributing author for the preparation of the Amended Technical Report and am responsible for the following sections and subsections: 7 to 12 and 14.
7) I have visited the site from November 15 to 18, 2022.
8) As of the effective date of the Amended Technical Report, to the best of my knowledge, information and belief, the sections and sub-sections of the Amended Technical Report listed in item 6 above contain all scientific and technical information that is required to be disclosed to make these sections and sub-sections of the Technical Report not misleading.
9) I have read NI 43-101 and believe that the sections and sub-sections of the Amended Technical Report listed in item 6 above have been prepared in accordance with NI 43-101.

10) I have not had prior involvement with the property that is the subject of the Amended Technical Report. I have read and understand NI 43 101 and I am considered independent of the issuer as defined in Section 1.5 of NI 43 101 Rules and Policies.

Dated this 29th day of March, 2023.

(Signed and Sealed) ***Dorota El-Rassi***

Dorota El-Rassi, M.Sc., P.Eng.
Principal Geologist
SLR Consulting (Canada) Ltd.

SLR Consulting (Canada) Ltd.
55 University Avenue, Suite 501,Toronto, ON M5J 2H7

CERTIFICATE OF QUALIFIED PERSON

This certificate applies to the technical report entitled, "Amended N.I. 43-101 Technical Report – Fruta del Norte Mine, Ecuador" with an effective date of December 31, 2022 and a report date of March 29, 2023 (the "Amended Technical Report").

I, Jason J. Cox, P.Eng., do hereby certify that:

1) I am currently employed as Global Technical Director – Canada Mining Advisory and Principal Mining Engineer with SLR Consulting (Canada) Ltd, of Suite 501, 55 University Ave., Toronto, ON M5J 2H7.
2) I graduated from Queen's University, Kingston, Ontario, Canada, in 1996 with a Bachelor of Science degree in Mining Engineering.
3) I am a professional engineer in good standing with the Professional Engineers of Ontario ("PEO") in Canada (no. 90487158).
4) I have practiced my profession in the mining industry continuously since graduation. I have over 25 years experience as a mining engineer. I have sufficient relevant experience, having worked on numerous projects and operations around the world and across many commodities. As a result of my experience and qualifications, I am a Qualified Person as defined in NI 43–101. Select gold projects include:
   - IAMGOLD's Côté Gold Project
   - Jaguar Mining's Turmalina and Pilar Mines
   - Austral Gold's Guanaco-Amancaya Operation
   - Barrick Gold's Goldstrike Mine
   - INV Metal's Loma Larga Project
5) I have read the definition of "qualified person" set out in the National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements to be a qualified person for the purposes of NI 43-101.
6) I am a contributing author for the preparation of the Amended Technical Report and am responsible for sections 15 and 16.
7) I have not visited the site.
8) As of the effective date of the Amended Technical Report, to the best of my knowledge, information and belief, the sections and sub-sections of the Amended Technical Report listed in item 6 above contain all scientific and technical information that is required to be disclosed to make these sections and sub-sections of the Technical Report not misleading.
9) I have read NI 43-101 and believe that the sections and sub-sections of the Amended Technical Report listed in item 6 above have been prepared in accordance with NI 43-101.

10) I have not had prior involvement with the property that is the subject of the Amended Technical Report. I have read and understand NI 43 101 and I am considered independent of the issuer as defined in Section 1.5 of NI 43 101 Rules and Policies.

Dated this 29th day of March, 2023.

(Signed and Sealed) ***Jason J. Cox***

Jason J. Cox, P.Eng.
Global Technical Director – Canada Mining Advisory and Principal Mining Engineer
SLR Consulting (Canada) Ltd.

CERTIFICATE OF QUALIFIED PERSON

This certificate applies to the technical report entitled, "Amended NI 43-101 Technical Report of the Fruta del Norte Mine" with an effective date of December 31, 2022 and a report date of March 29, 2023 (the "Amended Technical Report").

I, Neil Lincoln, P.Eng, do hereby certify that:

1) I am currently under contract as Vice President Metallurgy at G Mining Services located at 7900 Blvd Taschereau, Brossard, Quebec, J4X 1C2, Canada.
2) I graduated from the University of the Witwatersrand, South Africa, in 1994 with a Bachelor of Science in Metallurgy and Materials Engineering (Minerals Process Engineering) degree.
3) I am a professional engineer in good standing with the Professional Engineers of Ontario (PEO) in Canada (no. 100039153).
4) I have practiced my profession in the mining industry continuously since graduation. I have over 27 years experience as a metallurgist and study manager. I have sufficient relevant experience having worked on numerous projects ranging from scoping studies, prefeasibility and feasibility studies to project implementation related to mineral processing plants. My mineral processing commodity and unit operations experience includes precious metals, base metals and industrial minerals covering metallurgical test work to process plant design. As a result of my experience and qualifications, I am a Qualified Person as defined in NI 43-101. Select gold projects include:
   - Tocantinzinho Gold Project (Feasibility Study) for G-Mining Ventures, Brazil
   - Cerro Blanco Gold Project (Feasibility Study) for Bluestone Resources, Guatemala
   - Aurizona Gold Mine Expansion (Pre-Feasibility Study) for Equinox Gold Corp, Maranhão, Brazil
   - Natougou Gold Project (Feasibility Study) for Semafo (now Endeavour Mining), Burkina Faso
5) I have read the definition of "qualified person" set out in the National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements to be a qualified person for the purposes of NI 43-101.
6) I have participated in the preparation of the Amended Technical Report and am responsible for the supervision or creation of the following sections and sub-sections: 1.8, 1.12, 13, 17 and 27.
7) I visited the site during 26-29 April 2022 and inspected the process plant, paste plant and TSF.
8) As of the effective date of the Amended Technical Report, to the best of my knowledge, information and belief, the sections and sub-sections of the Amended Technical Report listed in item 6 above contain all scientific and technical information that is required to be disclosed to make these sections and sub-sections of the Amended Technical Report not misleading.
9) I have read NI 43-101 and believe that the sections and sub-sections of the Amended Technical Report listed in item 6 above have been prepared in accordance with NI 43-101.
10) I have read and understand the NI 43-101 and I am considered independent of the issuer as defined in section 1.5 of NI 43-101 Rules and Policies.

Dated this 29th day of March 2023.

(Signed and Sealed) ***Neil Lincoln***

Neil Lincoln, P.Eng.,
Vice President Metallurgy
G Mining Services

CERTIFICATE OF QUALIFIED PERSON

This certificate applies to the amended technical report entitled, "Amended N.I. 43-101 Technical Report of the Fruta del Norte Mine" with an effective date of December 31, 2022 and a report date of March 29, 2023 (the "Amended Technical Report").

I, Neil Kant Hemrajani Singh, M.Eng., P.Eng., do hereby certify that:

1) I am currently employed as Senior Geotechnical Engineer with Klohn Crippen Berger of Suite 500 - 2955 Virtual Way, Vancouver BC, V5M 4X6 Canada.
2) I graduated from the University of British Columbia in 1988 with a B.A.Sc. in Geological Engineering and in 1999 with a M.Eng. in Civil Engineering (Geotechnical).
3) I am a professional engineer in good standing with Engineers and Geoscientists British Columbia (Licence #20309).
4) I have practiced my profession in the geotechnical and mining industry for 34 years since graduation. I have been directly involved in geotechnical engineering in tailings and water dam design and construction, including construction monitoring, field investigations, design engineering, risk assessment, stability assessments, seismic hazard assessments, dam safety inspections, engineer of record, dam safety reviews and participation on review boards for a wide variety of projects. I have worked on projects in Canada, Ecuador, USA, PNG, Peru, Brazil, Cuba, Zambia, DRC, Namibia, and Mauritania.
   - Select tailings dam design and construction projects include:
     - Highland Valley Copper, British Columbia
     - Antamina, Peru
     - Moa Nickel, Cuba
     - Kerr Sulphurets Mitchell, British Columbia.
5) I have read the definition of "qualified person" set out in the National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements to be a qualified person for the purposes of NI 43-101.
6) I am a contributing author for the preparation of the Amended Technical Report and am responsible for the following sections and subsections: 20.4.
7) I have most recently visited the site from November 1 to 5, 2022 but have had several site visits since 2018.
8) As of the effective date of the Amended Technical Report, to the best of my knowledge, information and belief, the sections and sub-sections of the Amended Technical Report listed in item 6 above contain all scientific and technical information that is required to be disclosed to make these sections and sub-sections of the Amended Technical Report not misleading.
9) I have read NI 43-101 and believe that the sections and sub-sections of the Amended Technical Report listed in item 6 above have been prepared in accordance with NI 43-101.

10) I have been involved with the Project since 2018 as senior geotechnical reviewer during construction of the Starter Dam and through construction and operation of Stages 1, 2, and 3, and for design of Stage 4 raise. I have read and understand NI 43 101 and I am considered independent of the issuer as defined in Section 1.5 of NI 43 101 Rules and Policies.

Dated this 29th day of March, 2023.

(Signed and Sealed) ***Neil Singh***

Neil K Hemrajani Singh, M.Eng., P.Eng.

Senior Geotechnical Engineer
Klohn Crippen Berger

Table of Contents

List of Figures

List of Tables

1 SUMMARY

1.1 Introduction

Lundin Gold Inc. (Lundin Gold or the Company) has prepared this technical report for the purpose of supporting the public disclosure of the year end 2022 updated estimates of Mineral Resources and Mineral Reverses at the Fruta del Norte gold mine (FDN). Lundin Gold, headquartered in Vancouver, Canada, owns FDN located in southeast Ecuador.

The technical report outlines the technical basis establishing mineral resource and reserves for FDN. The reserves underpin a long-life, high-grade mining operation in Ecuador. There is good potential to continue to add mine life with successful conversion drilling and near-mine exploration potential. The Company's exploration programs include several untested targets with geological similarity to the main deposit at FDN.

This Technical Report was prepared by Lundin Gold and incorporates the work of Qualified Persons (QPs) from Lundin Gold, SLR Consulting (SLR), G Mining Services Inc. (GMS), and Klohn Crippen Berger Ltd. (KCB). The effective date of this Technical Report is December 31, 2022, and information in this Technical Report is current as of that date unless otherwise specified. This Technical Report was prepared following the Canadian disclosure requirements of National Instrument 43-101 (NI 43-101) and in accordance with the requirements of Form 43-101 F1.

1.2 Site Location

FDN site is situated in the province of Zamora Chinchipe, Ecuador about 142 km east–northeast of Loja, the nearest city to the mine site. FDN site is accessed by the Troncal Amazonica road in Southern Ecuador via the town of Los Encuentros and a private road.

The Cordillera del Cóndor consists of heavily dissected, steep ridges that rise from the Zamora River and Nangaritza River valleys (about 850 masl) to sharp ridges and flat-topped mesas, up to 2,400 masl, which lie along the border with Peru. The majority of the mine site, including the La Zarza concession, lies in the highlands south of the Zamora River, and east of the Nangaritza River, both of which flow into the Amazon River drainage system. Tropical rain forest canopies cover most of the region except where cleared for agriculture in the river valleys and adjacent slopes.

FDN is located near the equator and at moderate elevation of 1,400 masl. Daily average temperatures are fairly constant at approximately 16ºC. Annual precipitation is about 3,400 mm. Lower average daily temperatures and higher monthly rainfalls prevail at higher elevations on the La Zarza concession.

1.3 Mineral Tenure, Surface Rights, Royalties and Encumbrances

As at the date of this Technical Report, Lundin Gold's mineral tenure holdings currently comprise 28 metallic mining concessions and three construction materials concessions that cover an area of approximately 64,454 ha. These concessions are currently registered in the name of the Company's subsidiaries; Aurelian Ecuador S.A. (AESA) holds those concessions related to FDN, including La Zarza, Colibri 2, Colibri 4, Colibri 5, Rio La Zarza 1, Valle del Inca 2 and Condesa covering an area of approximately 5,566 hectares. The FDN deposit is hosted in the La Zarza concession. AESA holds one exploration concession, Princesa 1, which is unrelated to FDN. The remaining concessions are held by Aurelianmenor S.A. (AMSA) (15) and Surnorte S.A. (Surnorte) (8).

The majority of the concessions form a large contiguous block that extends from the Nangaritza River eastward to the international border with Peru.

Under the Mining Law, concessions are issued with a 25-year term, with each of the sequential mining phases set out in the Mining Law except for those concessions in the small-scale mining regime. In the small-scale mining regime, a concession holder may explore and exploit a concession simultaneously without the requirement for sequential phase changes. In the small-scale mining regime, the initial 25-year term can be extended with regulatory approval for a further 25 years. All of the concessions of two of Lundin Gold's subsidiaries, AMSA and Surnorte, and some concessions of the Company's major operating subsidiary, AESA, are in the small-scale mining regime.

Under the Mining Law, concessions under the medium-scale and large-scale mining regime are divided into two stages: an exploration stage and an exploitation stage. The exploration stage is further subdivided into shorter phases (initial exploration, advanced exploration and economic evaluation) based on the achievement of stipulated milestones. Any failure to achieve these milestones and successfully advance to the next stage by the phase deadline can result in forfeiture of the concession.

In order to move to a concession in large-scale mining to the exploitation stage, within six months of grant of the resolution the concession holder has to sign an exploitation agreement with the Government of Ecuador, through the Ministry of Energy and Mining (MEM). The exploitation of concessions in the medium-scale mining regime does not require an exploitation agreement; instead, the exploitation of these concessions is dictated by the Mining Law.

Prior to the expiry of a concession in the large-scale mining regime, the concession holder may apply to the MEM to have the concession term renewed for a further 25 years, provided the concession is in good standing including payment of fees and compliance with phase change requirements. Two of the concessions related to FDN, being the La Zarza and the Colibrí 5 concession, are under the large-scale mining regime.

Lundin Gold's mining concessions have different expiry dates. The La Zarza concession expires in October 2031. Other concessions related to the operation at FDN expire between 2031 and 2035. Under the Mining Law, AESA may apply to have these concession terms extended time prior to their expiry. In addition, where an exploitation agreement has been executed in respect of a concession, such as for the La Zarza concession, the concession holder may apply to MEM to extend the term of the exploitation agreement beyond its original term if the concession holder has identified additional mineral resources in the contract area. In this case, MEM is obligated to extend the concession term to match the new term of the exploitation agreement, provided the concession is in good standing.

Surface rights must be obtained to support mining project development either through the land acquisition or by an easement (agreed with the land titleholder or imposed by the MEM). Lundin Gold, through its subsidiary Ecoaurelian Agricola S.A. (Ecoaurelian), currently holds 75 plots of lands (surface rights) that cover an area of approximately 4,800 ha. Lundin Gold holds sufficient surface for its operations and the related infrastructure.

A 1% net revenue royalty is payable in perpetuity on production from Lundin Gold's current mining concessions, including the La Zarza concession, under a royalty agreement dated November 16, 2007 among Lundin Gold's subsidiaries (Aurelian Resources Inc. (Aurelian), Aurelian Resources Corporation Ltd. (ARCL), and AESA) and two individuals, being Keith M. Barron and Patrick F.N. Anderson. As of the date of this Technical Report, Mr. Barron's portion of the royalty has been assigned to Sandstorm Gold Ltd. and Mr. Anderson's portion of the royalty has been assigned to Osisko Gold Royalties Ltd. In addition, the royalties payable on production from Lundin Gold's concessions not related to FDN and held by AMSA and Surnorte were assigned by AESA to AMSA and Surnorte, respectively.

In connection with the acquisition of land and surface rights, AESA granted a 2% net smelter royalty is payable for any metallic minerals mined from the Rio Zarza and Valle del Inca 1 concessions acquired from Condor Gold, pursuant to a net smelter royalty agreement dated August 4, 2017.

In order to develop and construct FDN, the Company secured project financing which comprised: (i) a gold prepay credit facility for $150 million (the Prepay Loan) and a stream loan credit facility of $150 million (the Stream Loan) and an offtake agreement for 50% of gold production from FDN up to a maximum of 2.5 million ounces; and (ii) a syndicated senior secured project finance facility of $350 million to fund the balance of the development and construction of FDN (the Senior Facility). As of the date of this Technical Report, the Senior Facility and the Stream Loan are secured by way of a charge over the assets of Lundin

Gold's subsidiaries related to FDN, by trusts and pledges of the shares of those subsidiaries and limited recourse guarantees of the Company and those subsidiaries. As of the date of this Technical Report, the Prepay Loan was repaid in full.

1.4 Exploitation and Other Agreements

In addition to the royalties to outlined above, pursuant to the exploitation agreement dated December 14, 2016 and amended June 10, 2017 for FDN (the Exploitation Agreement) with the Government of Ecuador, AESA is subject to a 5% net smelter royalty to the Government of Ecuador from production from FDN. In accordance with the Exploitation Agreement, advance royalty payments totaling $65 million have been paid to the Government of Ecuador. The advance royalty payments are being deducted against royalties payable at a rate equal to the lesser of 50% of the actual future royalties payable in a six-month period or 10% of the total advance royalty payment.

The additional key terms of the Exploitation Agreement are as follows:

- The right to develop and produce gold from FDN for 25 years, which may be renewed.
- The Government of Ecuador's share of cumulative benefits derived from FDN will not be less than 50%. To the extent that the Government of Ecuador's cumulative benefit falls below 50%, the Company will be required to pay an annual sovereign adjustment.
- A commitment from the Government of Ecuador to take measures to compensate the Company in the event of economic imbalance resulting from changes in certain taxes, laws and regulations as prescribed under Exploitation Agreement.

Shortly after the execution of the Exploitation Agreement, AESA signed its Investment Protection Agreement (the IPA) with the Government of Ecuador, which provides further legal and tax stability for the Company, in conjunction with the EA and existing laws in Ecuador. The key terms of the IPA are as follows:

- Income tax rate fixed at 22%.
- Exemption from the capital outflow tax of 5% on payments of principal and interest to financial institutions outside of Ecuador.
- The ability to obtain benefits granted by the Government of Ecuador through future investment protection agreements with other investors in similar projects in Ecuador.
- No restrictions to transfer or assign all or part of the investment.
- Other benefits granted to the Company include no restriction to:
    - produce and sell minerals

- o import and export goods; and
- o establish, maintain, control, or transfer funds abroad, provided statutory remittances and obligations have been met.

AESA has entered into an exploitation agreement with the Municipality of Yantzaza, pursuant to which royalties are payable at a rate of 10% calculated on production costs to operate the Mountain Pass Quarry (on the Colibrí 5 concession).

1.5 History

The Cordillera del Cóndor was first explored by Spanish conquistadors in the 1500s. There is evidence that pre-Colombians mined both hard rock and alluvial gold in the area. Spanish mining activity ceased about 1620, following conflict with local Indian tribes that had been enslaved to work in the mines. Artisanal alluvial miners began to prospect the Cordillera del Cóndor as early as 1935, both in Peruvian and Ecuadorian territory.

Companies involved prior to Lundin Gold's interest in FDN included Minerales del Ecuador S.A. (Minerosa), from 1986–1992; Amlatminas S.A. (Amlatminas) from 1996–2002; Minera Climax del Ecuador (Climax), a subsidiary of Climax Mining Ltd. of Australia from 1996–1998; ARCL from 2003–2008; and Kinross Gold Corporation (Kinross) from 2008–2014.

Completed activities have included stream sediment, rock chip, grab, soil and trench sampling, reconnaissance exploration, geological and structural mapping, ground and airborne geophysical surveys, genesis and modelling studies, core drilling, metallurgical test work and project design studies. Kinross completed a pre-feasibility study in 2009 (2009 Kinross PFS), and a feasibility study in 2011 (2011 Kinross FS). Lundin Gold undertook a feasibility study in 2015–2016 (2016 FS) and subsequently developed the mine and constructed a process plant, Tailings Storage Facility (TSF) and related infrastructure and achieved commercial production in February 2020.

1.6 Geology and Mineralization

The FDN deposit is located within a 150 km long copper–gold metallogenic sub-province located in the Cordillera del Cóndor region of Ecuador. The deposit is hosted by andesites of the Santiago Formation and feldspar porphyry intrusions.

The FDN deposit is a North-South trending intermediate-sulphidation epithermal gold–silver deposit measuring approximately 1,300 m along strike, 400 m down dip and generally ranging between 80 m and

300 m wide. The top of the deposit is located beneath approximately 200 m of post-mineralization cover rocks. The eastern and western limits of the deposit are defined by two faults that together form part of the Las Peñas fault system that is thought to control the gold–silver mineralization. The southern limit of the mineralization along the fault system has not been fully defined by exploration activities. The most intense alteration, veining, brecciation, greatest mineralogic complexity, and highest grades occur in the 300 m long, high-grade core, which contains most of the current Mineral Resource.

Mineralization is characterized by intense, multi-phase quartz–sulphide ± carbonate stockwork veining and brecciation over broad widths, typically between 100–150 m wide in the coherent central and northern parts of the system where the gold and silver grades are highest. Mineralized shoots are typically present within dilatant zones developed along inflections of vein strike or dip where the geometry permits maximum opening at the time of mineralization.

The mineralogy of FDN consists of chalcedonic to crystalline quartz, manganese-carbonates, calcite, adularia, barite, marcasite, and pyrite, as well as subordinate sphalerite, galena, and chalcopyrite, and traces of tetrahedrite and silver sulphosalts. The bulk of the gold is microscopic and associated with quartz, carbonates and sulphides. Much of the gold is free milling, but the mineralization is moderately refractory, with approximately 40% of the gold locked in sulphides. However, coarse visible gold is commonly observed. Individual gold grains range from discrete specks less than 0.1 mm in size to broccoli-like, arborescent crystals >10 mm across. Visible gold occurs in all mineralized zones, in quartz or carbonate, as well as within pyrite or silver sulphosalt clusters.

Exploration has delineated a number of additional epithermal-style targets and prospects.

In the opinion of the QPs, the knowledge of the deposit settings, lithologies, mineralization style and setting, ore controls, and structural and alteration controls on mineralization is sufficient to support Mineral Resource and Mineral Reserve estimation.

1.7 Exploration

Since the discovery of FDN, exploration has targeted the Suárez Basin geological setting, where the same mineralizing processes that created the deposit are thought to have led to the formation of other buried and preserved epithermal systems. The Lundin Gold exploration team have employed a wide range of exploration techniques at the site, such as geological mapping, stream sampling, soil sampling, rock-chip sampling and core drilling. Multiple geophysical techniques were used, including a Z axis tipper electromagnetic survey (ZTEM), airborne magnetic and radiometric survey, and Gradient Array induced polarization (IP) survey. Exploration was conducted by trained geologists and technicians using established standard operating procedures.

Since 2015, Lundin Gold exploration activities focused on the southern portion of the Suárez Basin, termed "Southern Basin", exploring a very similar geological setting to that of FDN (Barbasco, Barbasco Norte, Puma, Puente Princesa, and Quebrada La Negra targets). Additionally, exploration programs were carried out in areas adjacent to the Suárez Basin, targeting for shallower epithermal systems in younger magmatic environments (Robles, Emperador, Chanchito, and Gata Salvaje).

Since 2021, exploration programs carried out at FDN have focused on upgrading Inferred Mineral Resources to the Measured or Indicated categories. The programs have improved confidence in, and have provided further support to, the geological model of the deposit.

In 2022, a near-mine exploration program was initiated, with a focus on targets within and around the existing operation and on sectors in the continuities of the FDN deposit and along the extension of major structures. Several sectors adjacent to the operating mine and exhibiting similar geological conditions to those at FDN remain generally untested.

1.8 Drilling and Sampling

Drilling completed to date at FDN sums to 719 drill holes totalling 250,796 m, which includes 212 drill holes totalling 70,445 m completed by Lundin Gold since its acquisition of FDN in 2014. Lundin Gold carried out various drilling program types such as geometallurgy, exploration, geotechnical and conversion. The geotechnical drilling was carried out on FDN and adjacent areas, and Colibri concessions while the exploration programs were completed on near mine targets such as the Rio Blanco, Puma, Barbasco and Puente Princesa targets located in the Southern Basin.

Drill programs that were initiated between 2021 and 2022 are the largest drill campaigns finalized by Lundin Gold so far, accounting for 60% of the total drilling (by length) executed by the Company.

During the Lundin Gold drill programs between 2015 and 2022, core recoveries ranged between 91% and 97%, and are considered acceptable. Most of the exploration drilling used HQ (63.5 mm core diameter) and NQ (47.6 mm) core sizes, other drill sizes i.e., HQ3–NQ3, NTW (56 mm) and BTW (42 mm) were used for geotechnical drilling.

A number of independent laboratories have been used for the drilling campaigns. Since 2019, Lundin Gold has only employed ALS and Inspectorate laboratories which used inductively-coupled plasma (ICP), inductively-coupled plasma - atomic emission spectroscopy (ICP-AES), and atomic absorption spectroscopy (AAS) analytical methods.

The quality control (QC) program implemented has varied considerably over time in terms of the frequency of insertion and the source of the certified reference materials (CRMs) Programs typically included submission of blank samples, CRMs, field and reject duplicates and pulp check assaying. Ongoing monitoring of the program was performed by the operators, with spurious results being investigated and changes implemented when required.

The quantity and quality of the lithological, geotechnical, collar and downhole survey data collected in the exploration and conversion drill programs conducted by Aurelian–Kinross and Lundin Gold are sufficient to support Mineral Resource and Mineral Reserve estimation. Sample collection, sample preparation, analytical methods and sample security for operator drill programs are in line with industry-standard methods for epithermal gold–silver deposits and can support Mineral Resource and Mineral Reserve estimates.

1.9 Metallurgical Test Work

Significant metallurgical test work has been completed on ore samples from various parts of the ore deposit. Detailed summaries of historical metallurgical test work programs can be found in previous technical reports such as Amec Foster Wheeler et al, 2016. Subsequent metallurgical test work programs were undertaken to support the current process plant design.

No significant metallurgical test work programs have been completed since the process plant was commissioned. However, FDN Operations has commenced with implementing a geometallurgical procedure for predicting plant metallurgical performance. Chemical analysis and assays, gravity tests, flotation bench scale tests, leach tests and environmental tests are completed at the onsite metallurgical laboratory. Any grindability, mineralogy, deportment studies or specialized tests are completed at external laboratories as required.

The process plant has been generally treating ore feed grades of approximately 11 g/t Au and achieving approximately 89-90% average gold recovery. The life of mine average gold and silver metallurgical recoveries are 89% and 82% respectively.

Select core samples from the south zone were recently tested at FDN's on-site metallurgical laboratory and confirmed similar metallurgical response of ore via the existing treatment route. Additional metallurgical test work as part of the site's ongoing geometallurgical procedure is recommended to further characterize the ore from this new future mining zone.

1.10 Mineral Resources

Lundin Gold provided SLR with a Leapfrog Geo (Leapfrog) project that included the drill hole database, wireframes of the domain boundaries, and a complete block model. SLR reviewed all aspects of the resource model, made some minor adjustments, and reported Mineral Resources. The Mineral Resources estimate uses available drill hole data as of October 1, 2022. The Mineral Resource estimate is based on a validated resource database containing 74,537 assays from 294 drill holes (120,236 m).

A total of seven mineralization domains representing hydrothermal events were defined in Leapfrog, while sub-block model estimates were completed within Leapfrog Edge, using two meters capped composites and an ordinary kriging (OK) interpolation approach. The block model was constrained by three dimensional (3D) wireframes encompassing the zones of mineralization. The block parent size is 4 m x 10 m x 10 m, with sub-block minimum sizes of 1 m x 2.5 m x 2.5 m. Blocks were classified considering local drill hole spacing, geological continuity, geostatistical spatial continuity and proximity to existing development. Class groupings were based on criteria developed using continuity models (variograms) and modified to reflect geological understanding and to ensure cohesive classification shapes. Wireframe and block model validation procedures were completed including but not limited to statistical comparisons with composites, nearest neighbor (NN) and inverse distance squared (ID^2) estimates, wireframe to block volume confirmation, swath plots, visual reviews in 3D, longitudinal, cross section, and plan views.

The QP for the estimate is Mrs. Dorota El-Rassi, M.Sc., P.Eng., an SLR Principal Geologist. The estimate has an effective date of December 31, 2022.

Mineral Resources are reported inclusive of Mineral Reserves at a block cut-off grade of 3.4 g/t Au, assuming underground mining methods.

Mineral Resources summarized in Table 1.1, are inclusive of Mineral Reserves, depleted by the mining activities to December 31, 2022, and have been classified in accordance with the 2014 CIM Definition Standards.

Table 1.1: Mineral Resource Statement – December 31, 2022

Category	Tonnage	Grade	Contained Metal	Grade	Contained Metal
	(M t)	(g/t Au)	(M oz Au)	(g/t Ag)	(M oz Ag)
Measured	9.3	12.09	3.6	12.8	3.8
Indicated	13.7	7.25	3.2	11.6	5.1
Measured and Indicated	23.0	9.20	6.8	12.1	8.9
Inferred	9.2	5.64	1.7	11.8	3.5

Notes:

1 *2014 CIM Definitions Standards were followed for the classification of Mineral Resources.*
2 *Mineral Resources are estimated at a cut-off grade of 3.4 g/t Au.*
3 *The cut-off grade was calculated using a long-term gold price of $1,600/ounce.*
4 *The Mineral Resource estimate uses drill hole data available as of October 1, 2022.*
5 *The Mineral Resources depleted by mined out shapes to December 31, 2022*
6 *Mean interpolated bulk density of 2.73 t/m^3.*
7 *Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.*
8 *Numbers may not add due to rounding.*

Factors which may affect the Mineral Resource estimates include: metal price assumptions, changes to the assumptions used to generate the cut-off grade value, changes in local interpretations of mineralization geometry and continuity of mineralization zones, density and domain assignments, changes to design parameter assumptions that pertain to stope designs, changes to geotechnical, mining and metallurgical recovery assumptions, assumptions as to the continued ability to access the site, retain mineral and surface rights titles, obtain environmental and other regulatory permits, and obtain the social licence to operate.

1.11 Mineral Reserves

The Mineral Reserves for FDN total approximately 18 Mt at an average grade of 8.7 g/t Au and 11.4 g/t Ag, containing approximately 5.02 Moz of gold and 6.59 Moz of silver in the Proven and Probable categories. Mineral Reserves consist of an update of the previously-estimated North and Central Zones, based on current operations, and new additions in the South Zone.

Mineral Reserves are based on the mining design parameters of the current operation for longhole mining (Transverse and Longitudinal configurations) and D&F mining, including development and stope dimensions, dilution and extraction results, and cut-off grade inputs. The South Zone is lower-grade and less continuous, and alternative mining methods were evaluated before extending the current design parameters for longhole mining methods. The analysis confirmed that the proposed production rate of 4,400 tpd is achievable, ore continuity is sufficient for economic extraction, and that the orebody can be sequenced properly to ensure continued ore supply throughout the life of the mine. The new estimate includes appropriate factors for planned dilution, unplanned dilution and ore recovery, all aligned with the existing production reconciliations of FDN's continuous operation of the mine since 2020.

The Mineral Reserve has been prepared in accordance with CIM definition standards for Mineral Reserves. The QP who has reviewed and approved the Mineral Reserve estimate and the life of mine plan is Mr. Jason Cox, P.Eng., SLR (Canada) Ltd., who is an independent Qualified Person as defined by NI 43--101. The effective date of the mineral reserve is December 31, 2022.

The Mineral Reserve has been estimated using accepted industry practices for underground mines, including appropriated modifying factors and cut-off values based on detailed cost estimation considering actual mining performance. The identified economic mineralization was subjected to mine design, scheduling and the development of a cash flow model incorporating technical and economic projections for the mine for the duration of the Life of Mine. The stope optimization was run based on the cost estimates, metallurgical recoveries of 89.5% for gold, and a metal price forecast of USD 1,400 per ounce of gold. Mineral Reserves are summarized in Table 1.2.

Table 1.2: Mineral Reserves

Probable Mineral Reserves(1)(2)(3)(4)(5)(6)(7)(8)					
	Mt	**Au (g/t)**	**Au (koz)**	**Ag (g/t)**	**Ag (koz)**
Proven	10.75	9.95	3,437	11.6	3,997
Probable	7.23	6.81	1,584	11.2	2,594
Total	17.98	8.68	5,020	11.4	6,594

Notes:
1. *CIM Definitions Standards on Mineral Resource and Reserves have been followed.*
2. *The Qualified Person for the Mineral Reserve estimate is Mr. Jason Cox P.Eng., an SLR (Canada) Ltd. employee.*
3. *Mineral Reserves have an effective date of December 31, 2022.*
4. *Mineral Reserves were estimated using a $1,400/oz gold price. Mining cost assumptions for transverse stoping (TS) USD 50.7/t; mining costs for drift-and-fill (D&F) stoping USD 76.5/t. Other costs and factors common to both mining methods were process, Surface Ops, and G&A USD 65/t, dilution factor 8%, concentrate transport and treatment charges of USD 80/oz. A royalty of USD 76/oz/t , Au metallurgical recovery of 88.49% was assumed.*
5. *Gold cut-off grades were 4.19 g/t for TS and 5.0 g/t for the D&F.*
6. *Silver was not used in the estimation of cut-off grades but is recovered and contributes to the revenue stream.*
7. *Tonnages are rounded to the nearest 1,000 t, gold grades are rounded to two decimal places, and silver grades are rounded to one decimal place. Tonnage and grade measurements are in metric units; contained gold and silver are reported as thousands of troy ounces.*
8. *Rounding as required by reporting guidelines may result in summation differences.*

Factors that may affect the Mineral Reserves include: long-term commodity price assumptions and long-term consumables price assumptions. Other factors that can affect the estimates include changes to: Mineral Resources input parameters, constraining stope designs, cut-off grade assumptions, geotechnical and hydrogeological factors, metallurgical and mining recovery assumptions, and the ability to control unplanned dilution.

1.12 Mining Methods

Development of FDN began in 2017, with first ore produced in 2019, and commercial production achieved in February 2020. The current mining method is longhole transverse stoping in fair to good ground and D&F stoping in poor ground.

The life of mine includes continuing to use longhole and drift-and-fill mining methods as follows:

- North and Central area: transverse longhole open stoping with paste backfill on 25 m levels in fair to good ground conditions, and drift-and-fill in poor ground conditions
- South area: transverse and longitudinal open stoping with paste backfill on 25 m levels in fair to good ground conditions. Production in the South Zone is currently scheduled to begin in 2028.

Originally designed for a 3,500 tpd underground production rate, the mining rate was increased to 4,200 tpd in 2021, and is currently operating at a production rate of 4,400 tpd. Additional debottlenecking and engineering studies are underway to evaluate going to a production rate of 5,000 tpd.

FDN relies on mobile equipment to haul mined materials to surface instead of permanent infrastructure. Haul trucks are maintained in a surface maintenance facility. Load–haul–dump vehicles (LHDs), drills, explosive carriers and scissor trucks are repaired/maintained underground or driven to the surface shop for major work.

The paste plant is a batch-type backfill plant. When paste fill is scheduled for underground, approximately half of the tailings stream is pumped 3.4 km to the paste plant for further dewatering. Excess process water is pumped back from the paste plant to the process plant using a second pipeline. When no paste fill is required underground, the entire tailings stream is pumped to the TSF.

Mine ventilation at FDN utilizes a north to south sweeping action with fresh air entering both ramps, passing onto levels on the north end, flowing toward the ventilation raises on the south of each level, to then exhaust the mine via the South Ventilation Raise (SVR). Once a level has access to both the intake and exhaust raises (north and south end of each level), level ventilation is controlled via mechanical regulators on the south end of each level.

1.13 Recovery Methods

The FDN process plant treats ore via a conventional gravity-flotation-cyanidation process. Run-of-mine (ROM) ore is processed via a conventional primary crusher and SAG-Ball mill comminution circuit followed by gravity circuit. Gravity tailings are treated in a conventional rougher-cleaner flotation circuit to produce gold concentrate for sale. Flotation tailings are treated via a CIL process and associated gold recovery and carbon handling circuits to produce gold doré. CIL tailings are treated via cyanide destruction process prior to use at the paste plant or stored in the TSF.

The process plant was constructed and commissioned in 2019 and achieved nameplate of 3,500 tpd in 2020. The process plant was subsequently expanded in 2021 to treat 4,200 tpd. Debottlenecking work was carried out in 2022 and the plant is currently operating at an average throughput rate of 4,400 tpd. Studies and engineering will commence in 2023 to debottleneck the process plant to reliably achieve 5,000 tpd. No flowsheet changes nor significant process plant upgrades are expected due to the treatment of ore from the south zone of the mine.

The process plant consists of the following unit operations:

- Primary crushing and associated material handling equipment
- Crushed ore stockpile and associated feed and reclaim systems
- Grinding circuit consisting of a SAG mill, ball mill, cyclone classification and associated pumping and material handling systems
- Gravity circuit with intensive leach reactor
- Rougher and cleaner flotation circuits to produce a gold concentrate for sale
- Gold concentrate dewatering (thickener and filters) and concentrate loadout
- Flotation tailings pre-leach thickener and CIL circuit to treat flotation tailings
- Acid wash and elution circuit to recover gold from the CIL circuit
- Electrowinning and smelting to produce gold doré
- Carbon reactivation
- Cyanide destruction
- Tailings handling

1.14 Project Infrastructure

FDN includes the following major infrastructure:

- Main access road
- Underground mine
- Process plant
- Main grid power line
- Mobile equipment maintenance shop
- The Mine Office/Dry building
- Main office building
- Fixed plant maintenance, fabrication and electrical workshops
- Laboratory
- Warehouse and laydown area
- Short term concentrate container storage
- Permanent camp and kitchen facilities
- Greenhouse
- Communications and IT systems
- Security access control at the main gate along the access road and at the process plant. Only authorized personnel are permitted on site.
- Waste storage facilities
- Quarry
- Stockpiles
- TSF

1.15 Markets and Contracts

The principal commodities produced at FDN are gold and silver in the form of doré bars and gold-silver concentrate. Gold produced from doré bars are sold under the terms of the Offtake agreement with Newcrest Mining. The concentrate is sold under the terms of contracts covered in Section 19. Several contracts are in place for the FDN operations.

1.16 Environmental, Permitting and Social Considerations

1.16.1 Permitting and Authorizations

Ministry of Environment, Water and Ecological Transition issued the environmental license for FDN exploitation phase in October 2016. Additional to this license and according to the national regulation, FDN has received twelve major authorizations for its normal operation. However, none of these permits are required to be updated for the increase in the throughput to 4,400 tpd.

1.16.2 Environment Monitoring

FDN mining operations complies with the national and local environmental requirements and decided to voluntarily comply with the International Financial Corporation (IFC) performance standards. Lundin Gold monitors the environmental aspects with the support of external labs certified by the national authority. Reports to the authority are submitted on a quarterly basis. The aspects monitored and managed include air quality, environmental noise, vibration, water quality, industrial and sewage treated water discharges, underground water quality, sediments, biodiversity, waste and archeology. In addition to this environmental monitoring, geotechnical and geochemical monitoring has been defined for the TSF.

1.16.3 Closure Plan

Closure planning has been undertaken to a conceptual level and will be continually updated throughout the mine life. The conceptual Closure Plan was developed in accordance with Article 125 of the Environmental Regulations for Mining Activities (RAAM) and Title X of the Mining Safety Regulations. Definitive closure plan will be developed two years prior to cessation of operations as established in the regulation.

1.16.4 Sustainability Strategy

Upon entering the operational phase at FDN, Lundin Gold commenced the development of a 5-year Sustainability Strategy. This strategy was built around the inputs from a range of internal stakeholders, internal processes and external stakeholders. The strategy includes the following eight pillars: Climate change, Community infrastructure, Community well-being, Environmental stewardship, Health and safety, Human rights, Lasting economic opportunities, Responsible resource management. The strategy includes a monitoring and evaluation framework for each pillar which includes KPIs and specific targets.

Since 2015, Lundin Gold has prioritized stakeholder engagement as a means to understand the perceptions, challenges, and opportunities that the construction and operation of a large-scale mine represents for local communities. This process started in 2016 and became the foundation for the five community roundtables currently active today. The Company's community investment strategy is informed by discussions at the roundtables. Examples of such investments include infrastructure, education, and economic development.

Lundin Gold also has an IFC-complaint grievance mechanism that has been in place since 2016.

The Company has observed increasing levels of informal and illegal mining in the province of Zamora Chinchipe since 2015. When the informal miners are local community members, the Company seeks to formalize their mining activities. This requires the artisanal miners to comply with all relevant laws and regulations, and the Company monitors their activities to ensure that such compliance is met. However, when the miners in question are not operating at an artisanal scale and / or when they are not local community members, the Company files legal complaints with the mining regulator, who then seeks to ensure that the illegal mining activities cease.

1.17 Markets and Contracts

The principal commodities produced at FDN are gold and silver in the form of doré bars and gold-silver concentrate. Gold produced from doré bars are sold under the terms of the Offtake agreement with Newcrest Mining. The concentrate is sold under the terms of contracts covered in Section 19. Several contracts are in place for the FDN operations.

1.18 Capital and Operating Cost Estimates

Total planned capital cost spending for FDN from 2023-2034 is estimated at $285M.

Total planned operating cost spending for FDN from 2023-2034 is estimated at $2,557M.

1.19 Interpretation and Conclusions

The QPs note the following interpretations and conclusions in their respective areas of expertise, based on the review of data available for this Report.

1.19.1 Geology and Mineralization

- The FDN deposit and many prospects that have been identified in close proximity to the deposit are classified as intermediate sulphidation-style epithermal systems The FDN deposit is an intermediate sulphidation epithermal gold-silver deposit measuring 1,300 m along strike, 400 m down dip, and generally ranging between 80 m and 300 m wide. The top of the deposit is located beneath approximately 200 m of post-mineralization cover rocks.

- The eastern and western limits of the deposit are defined by two faults which together form part of the Las Peñas fault system which is thought to control the gold-silver mineralization.
- The Central fault displaces the FDN system between the West fault and East Fault Zones and appears to be the source of the hydrothermal activity. Gold grades tend to be higher near the Central fault.
- The mineralization is characterized by intense, multi-phase quartz-sulphide ± carbonate stockwork veining and brecciation. Hydrothermal alteration consists primarily of a silica (quartz, chalcedony)–illite–pyrite (±marcasite)–carbonate mineral assemblage formed by relatively low acidity fluids.
- The southern limits of the mineralization along the fault system have not been fully defined by exploration activities.
- Knowledge of the FDN deposit settings, lithologies, mineralization style and setting, and structural and alteration controls on mineralization is sufficient to support Mineral Resource and Mineral Reserve estimation.

1.19.2 Exploration, Drilling and Analytical Data Collection in Support of Mineral Resource Estimation

- Since the last Mineral Resource update Lundin Gold completed 212 drill holes totalling 70,445.5 m.
- Since 2020 Lundin Gold has been advancing its conversion drill program at the FDN, with the objective of upgrading Inferred Mineral Resources to Indicated. To date, a total of 18,340 m of underground drilling in 88 drill holes has been completed by Lundin Gold
- Lundin Gold's exploration drilling focused on Southern Basin at Rio Blanco, Puma, Barabasco and Puente Princesa targets totalled 32,695.6 m in 41 drill holes. The near mine exploration program including FDN North depth extension and FDN South targets totalling 8,646.6 m in 19 drill holes were completed in 2022.
- Most drill holes intersect the mineralized zones at an angle, and the drill hole intercept widths reported for FDN are greater than true widths.
- Sample security procedures, sample storage procedures and storage areas are consistent with industry standards.

- No material issues have been identified by SLR during the extensively conducted data verification program.
- The lithological and mineralization models have been diligently constructed and have been prepared using industry-standard practices.
- Data collected have been sufficiently verified that they can support Mineral Resource and Mineral Reserve estimation and be used for mine planning purposes.

1.19.3 Mineral Resources

- Mineral Resources for the FDN were estimated using drill hole data available to October 1, 2022 consisting of 294 drill holes (120,326 m).
    - The Mineral Resource estimate was prepared by Lundin Gold. 3D solid models of the lithology, degradation, faults and alteration were constructed; compositing, exploratory data analysis including variography; interpolation; statistical validation; and resource classification were completed. Validation of the resulting model was performed. The estimated elements in the model, using an OK estimator, are gold, silver, and sulfur. Density data was estimated employing the ID^2 interpolation method to convert volume to tonnes.
    - Mineral Resources have had reasonable prospects of eventual economic extraction considerations applied. Mineral Resources were reported at a block cut-off grade of 3.4 g/t Au. Silver was not included in the cut-off grade calculation due to its relatively low grade and small contribution to the value of the mineralization.
    - Mineral Resources are reported inclusive of Mineral Reserves and depleted by the mining activities until December 31, 2022. Mineral Resources have been estimated using standard practices for the industry, and conform to the 2014 CIM Definition Standards
    - Factors which may affect the estimates include: metal price assumptions, changes to the assumptions used to generate the cut-off grade value, changes in local interpretations of mineralization geometry and continuity of mineralization zones, density and domain assignments, changes to design parameter assumptions that pertain to stope designs, changes to geotechnical, mining and metallurgical recovery assumptions, assumptions as to the continued ability to access the site, retain mineral and surface rights titles, obtain environmental and other regulatory permits, and maintain the social license to operate.

1.19.4 Mineral Reserves

- The mine plan is based on Measured and Indicated Mineral Resources. The Inferred Mineral Resources grades were set to zero for the purposes of Mineral Reserve estimation.
- The Mineral Reserve estimates are based on the most current knowledge, and actual operational experience. Mineral Reserves have been estimated using standard practices for the industry, and conform to the 2014 CIM Definition Standards.
- Reconciliation to production indicates that Mineral Reserve parameters and estimates are working well, and providing a good model of production results.
- The South Zone is lower grade and less continuous than the currently mined North & Central Zone. Considerable quantities of marginal mineralization are present, and further conversion to Mineral Reserves in this area is likely in scenarios with lower cut-off grades (higher gold prices or reduced unit operating costs).
  - Factors that may affect the Mineral Reserves include long-term commodity price assumptions, and long-term consumables price assumptions. Other factors that can affect the estimates include changes to: Mineral Resources input parameters, constraining stope designs, cut-off grade assumptions, geotechnical and hydrogeological factors, metallurgical and mining recovery assumptions, and the ability to control unplanned dilution.

1.19.5 Mineral Processing

- The FDN process plant currently treats ore via a conventional flotation-cyanidation process and has been in commercial production since 2020.
- The process plant has consistently processed ore and currently treats ore at a throughput rate of 4,400 t/d.
- Gold recoveries since 2020 range from 88 to 90%.
- Studies and engineering will commence in 2023 to debottleneck the process plant to reliably achieve 5,000 tpd.
- No material flowsheet changes nor significant process plant upgrades are expected due to the treatment of ore from the south zone of the mine.

2 INTRODUCTION

2.1 Terms of Reference

The firms and consultants who are providing QPs responsible for the content of this Report are Lundin Gold, SLR, GMS, and KCB.

The FDN site is wholly-owned by Lundin Gold, through its indirectly-held subsidiary, AESA. For the purposes of this Report, Lundin Gold is used interchangeably for the parent and subsidiary companies, unless specified.

Aurelian was previously owned and operated by Aurelian Resources, and by Kinross.

Currency is expressed in USD (US dollars) unless stated otherwise; units presented are typically metric units, such as metric tonnes, unless otherwise noted.

2.2 Qualified Persons

The QPs for this Technical Report, as defined in National Instrument 43-101, Standards of Disclosure for Mineral Projects, and in compliance with Form 43-101F1, are provided in Table 2.1.

Table 2.1: FDN Technical Report Qualified Persons and Areas of Responsibility

Name	Professional Designation	Title	Responsible for Sections
Ron Hochstein	P.Eng.	President & CEO Lundin Gold	all Sections of the Report, excluding 1.8, 1.12, 7 to 17, 20.4, and 27.
Dorota El-Rassi	P.Eng.	Senior Geologist SLR Consulting Limited	7-12, 14
Jason Cox	P.Eng.	Technical Director SLR Consulting Limited	15, 16
Neil Lincoln	P.Eng.	Vice President, Metallurgy G Mining Services Inc.	1.8, 1.12, 13, 17, 27
Neil K. Hamrajani Singh	P.Eng.	Senior Geotecnical Engineer Klohn Crippen Berger Ltd.	20.4

2.3 Site Visits and Scope of Personal Inspection

QPs have conducted site visits to FDN as shown in Table 2.2.

Table 2.2: Site Visit Dates

Name	Site Visit	Duration and Dates
Ron Hochstein	Multiple occasions	Current President & CEO and routinely visits FDN
Dorota El-Rassi	Yes	15-18 November 2022
Jason Cox	Not visited the Site	-
Neil Lincoln	Yes	26-29 April 2022
Neil Singh	Multiple occasions	Engineer of Record for TSF, monitor site data weekly and monthly, and site visit at least once per year (last visit November 1-5, 2022)

2.4 Effective Dates

The effective date of the mineral resource and reserve estimate is December 31, 2022.

The effective date of the Report is March 29, 2023.

2.5 Previous Technical Reports

The most recent Technical Report filed by Lundin Gold was Lipiec, I., Brown, J., Allard S., et al, 2016, Technical Report on Feasibility Study, Fruta del Norte Project, Ecuador, for Lundin Gold, effective date April 30, 2016.

Lundin Gold, under its former name of Fortress Minerals Corp., filed a Technical Report for FDN as follows:

- Evans, L., Ross, D., and Scholey, B., 2014: Technical Report on The Mineral Resource Estimate, Fruta del Norte Project, Ecuador: technical report prepared by RPA Inc. for Fortress Minerals Corp., effective date October 21, 2014.

Kinross had previously filed Technical Reports for FDN as follows:

- Henderson, R., 2009: Fruta del Norte Project, Ecuador, NI 43-101 Technical Report: technical report prepared for Kinross Gold Corporation, effective date December 31, 2009.

- Hennessey, T., Puritch, E., Gowans, R., and Leary, S., 2008: A Mineral Resource Estimate for the Fruta del Norte Deposit, Cordillera del Cóndor Project, Zamora-Chinchipe Province, Ecuador: technical report prepared by Micon International Ltd. for Aurelian Resources Inc., readdressed to Kinross Gold Corporation, effective date November 15, 2007, amended October 21, 2008.

Aurelian Resources, prior to the take-over by Kinross, had also filed the following Technical Reports for FDN as follows:

- Hennessey, T., Puritch, E., Gowans, R., and Leary, S., 2008: A Mineral Resource Estimate for the Fruta del Norte Deposit, Cordillera del Cóndor Project, Zamora-Chinchipe Province, Ecuador: technical report prepared by Micon International Ltd. for Aurelian Resources Inc., effective date November 15, 2007.

- Hennessey, B.T. and Stewart, P.W., 2007: A Review of the Geology of, and Exploration and Quality Control Protocols Used at the Fruta del Norte Deposit, Cordillera del Cóndor Project, Zamora-Chinchipe Province, Ecuador: technical report prepared by Micon International Ltd. for Aurelian Resources Inc., dated December 2006, effective date January 9, 2007.

- Hennessey, B.T. and Puritch, E., 2005: A Mineral Resource Estimate for the Bonza-Las Peñas Deposit, Cordillera del Cóndor Project, Zamora-Chinchipe Province, Southeastern Ecuador: technical report prepared by Micon International Ltd. for Aurelian Resources Inc., effective date January 13, 2005.

- Mullens, P., 2003: Geological Report on Exploration at the Cordillera del Cóndor Project, Zamora-Chinchipe Province, Southeastern Ecuador: technical report prepared for Aurelian Resources Inc., effective date December 16, 2003.

- Stewart, P. W., 2003: Geological Report on Exploration at the Cordillera del Cóndor Project, Zamora-Chinchipe Province, Southeastern Ecuador: technical report prepared for Aurelian Resources Inc., effective date April 16, 2003.

2.6 Units of Measure, Abbreviations and Nomenclature

The units of measure presented in this Report, unless noted otherwise, are in the metric system.

A list of the main abbreviations and terms used throughout this Report is presented in Table 2.3**.**

Table 2.3: List of Main Abbreviations

Abbreviations	Full Description
Ag	Silver
As	Arsenic
Au	Gold
C	Carbon
CAD	Canadian Dollar
CIL	Carbon-in-leach
CoG	Cut-off Grade
Cu	Copper
DD	Diamond Drilling
DGPS	Differential Global Positioning System
ETP	Effluent Treatment Plant
F	Degrees Fahrenheit
FA	Fire Assay
Fe	Iron
FS	Feasibility Study
G	Giga – (000,000,000's)
g	Gram
gpt or g/t	Grams per tonne
g/l	Gram per litre
G&A	General & Administration
GMS	G Mining Services Inc.
gpm	Gallons per minute (US)
GPS	Global Positioning System
ha	Hectares
h	Hour
h/d	Hours per day
h/y	Hours per year

Abbreviations	Full Description
h/wk	Hours per week
HDPE	High-Density Polyethylene
hp	Horsepower
Hz	Hertz
IRR	Internal Rate of Return
ISO	International Organization for Standardization
k	Kilo – (000's)
kg	Kilograms
kg/t	Kilograms per tonne
kV	Kilovolts
km	Kilometre
km/h	Kilometre per hour
kPa	Kilopascal
kW	Kilowatts
kWh	Kilowatts per hour
l	Litre
M	Mega or Millions (000,000's)
masl	Metres above sea level
m	Metre
m/min	Metre per minute
m/s	Metre per second
m^2	Square metre
m^3	Cubic metre
mg	Milligram
mg/L	Milligram per litre
mm	Millimetre
ml	Millilitre
min	Minute
Mo	Month

Abbreviations	Full Description
Mt	Million tonnes
Mtpd	Metric tonne per day
Mtpy	Metric tonne per year
MVA	Megavolt-ampere
MW	Megawatt
NI 43-101	National Instruments 43-101- Canadian Standards of Disclosure for Mineral Projects
NPI	Net Profit Interest
NPV	Net Present Value
NQ	Drill Core Diameter (47.6 mm)
Ø	Diameter
OK	Ordinary Kriging Methodology
OPEX	Operating Expenditures
oz	Troy Ounce (31.10348 grams)
OCR	Off-Channel Reservoir
PEA	Preliminary Economic Assessment
PFS	Pre-feasibility Study
Pb	Lead
PLC	Programmable Logic Controller
ppb	Parts per Billion
ppm	Parts per Million
psi	Pounds per Square Inch
PV	Present Value
RC	Reverse Circulation
RoM	Run-of-mine
rpm	Revolutions per Minute
S	Sulphur
Sec	Second (time)
STP	Sewage Treatment Plant

Abbreviations	Full Description
t	Tonnes (1,000 kg) (metric ton)
t/y or tpy	Tonnes per year
t/d or tpd	Tonnes per day
t/h or tph	Tonnes per hour
t/m^3	Tonnes per cubic metre
TRS	Tailings Reclaim Sump
TSF	Tailings Storage Facility
TTP	Thickened Tailings Plant
TWSP	Treated Water Storage Pond
USD	United States Dollar
V	Volt
VAT	Value Added Tax
wk	Week
XRF	X-ray Fluorescence
y	Year

3 RELIANCE ON OTHER EXPERTS

The QPs have fully relied upon, and disclaim responsibility for, information derived from Lundin Gold and experts retained by Lundin Gold for information related to environmental, permitting and closure planning through the following documents:

- Cardno Entrix, 2016: Update of the Environmental Impact Study of the Fruta del Norte Mining Project, for the Exploitation Phase and Inclusion of the Beneficiation, Smelting and Refining Phases of Metallic Minerals in the Operational Area of the La Zarza Concession (Code 501436) and Complementary Infrastructure in the Colibri 2 (Code 501389) and Colibri 4 (Code 501433). Concessions (501436) and Complementary Infrastructure in the Colibrí 2 (Code 501389) and Colibrí 4 (Code 501433) Concessions, in addition to the Exploitation of Construction Materials in the Colibrí 4 (Code 501433) Concession: report prepared by Cardno Enxtri for Aurelian, March 2016.
- G Mining Services, 2023: Closure Plan – Fruta del Norte: report prepared by G Mining Services Inc. for Lundin Gold, January 2023.
- Kuusa Soluciones Ambientales, 2021: Update of the environmental management plan for the Fruta del Norte Mining Project. Phases of: Exploitation, Beneficiation, Smelting and Refining of metallic minerals in the operational area of the La Zarza Concession (Code 501436), construction of complementary infrastructure Colibri 2 (Code 501389) and Colibri 4 (Code 501433) concessions: report prepared by Kuusa Soluciones Ambientales for Aurelian, March 2021.

4 PROPERTY DESCRIPTION AND LOCATION

4.1 Property Location

The La Zarza concession, which hosts the FDN deposit, is situated between approximately 9575900N to 9585000N and 781000E to 773000E of UTM zone 17S (PSAD 1956 datum).

4.2 Property and Title in Ecuador

Information in this subsection has been derived from the Mining Law of Ecuador statutes and regulations (2009), as amended, from the public domain and from information provided by the Company's local counsel in Ecuador, AVL Abogados. Information obtained from the public domain has not been independently verified by Lundin Gold.

Mining in Ecuador is principally governed by the Mining Law, issued on January 29, 2009, as amended, and the General Regulation of the Mining Law, issued on November 16, 2009, as amended, which regulate activity as a whole.

Mining activities under the Mining Law are classified based on production levels as: large-scale mining (underground: >1,000 t/d; open-pit: >2,000 t/d), medium-scale mining (underground: between 301-1,000 t/d; open-pit: between 1,001–2,000 t/d), small-scale mining (underground: <300 t/d; open-pit: <1,000 t/d), and artisanal mining. The Mining Law also sets out classifications for various mining stages over a mining life cycle as: prospecting, exploration (initial and advanced, and economic evaluation of the deposit), exploitation, beneficiation, smelting, refining, commercialization, and closure.

The key administrative bodies include the Ministry of Energy and Mining (MEM) and the Energy and Non-Renewable Natural Resources Regulation and Control Agency (ARCERNNR, using the Spanish acronym).

4.2.1 Mineral Title

Mining concessions can be obtained through public bidding process (new areas) or public auction (where an area has expired or was reverted to the state). Grant of a concession provides the holder with a mining title that allows an exclusive right to prospect, explore, exploit, beneficiate, smelt, refine, market and sell all existing minerals obtained from a particular area. The mining concession is an administrative act that grants a mining title, over which the holder has a personal right, which is transferable subject to the approval of the sectorial minister. Concessions can range from 1 ha to a maximum of 5,000 ha in size. As of the date of this Technical Report, however, the mining cadastre in Ecuador is closed, and no new mining concessions can be obtained through the public bidding process.

Under the Mining Law, concessions are issued with a 25-year term, with each of the sequential mining phases set out in the Mining Law except for those concessions in the small-scale mining regime. In the small-scale mining regime, a concession holder may explore and exploit a concession simultaneously without the requirement for sequential phase changes. In the small-scale mining regime, the initial 25-year term can be extended with regulatory approval for a further 25 years. All of the concessions of two of Lundin Gold's subsidiaries, AMSA and Surnorte, and some concessions of the Company's major operating subsidiary, AESA, are in the small-scale mining regime.

Under the Mining Law, concessions under the medium-scale and large-scale mining regime are divided into two stages: an exploration stage and an exploitation stage. The exploration stage is further subdivided into shorter phases (initial exploration, advanced exploration and economic evaluation) based on the achievement of stipulated milestones. Any failure to achieve these milestones and successfully advance to the next stage by the phase deadline can result in forfeiture of the concession.

The phases of exploration are as follows:

- Initial exploration: maximum period of up to four years. Once the initial exploration has been completed, and prior to initiating the advanced exploration phase, the Mining Law requires mandatory relinquishment of a portion of the total concession area.
- Advanced exploration: maximum period of up to four years.
- Economic evaluation: maximum period of two years, which may be extended for up to an additional two years. On completion of this work segment, an application for exploitation stage can be made to the Government of Ecuador. A resolution is issued by the Government of Ecuador if the exploitation application is approved.

In order to move to a concession in large-scale mining to the exploitation stage, within six months of grant of the resolution the concession holder has to sign an exploitation agreement with the Government of Ecuador, through the MEM. The exploitation agreement defines the terms, conditions, and time periods for the stages of construction and assembly, extraction, transportation and sale of the minerals obtained within the boundaries of the mining concession. If an exploitation agreement is signed, the concession term will be negotiated under the exploitation agreement. The exploitation of concessions in the medium-scale mining regime does not require an exploitation agreement; instead, the exploitation of these concessions is dictated by the Mining Law.

Prior to the expiry of a concession in the large-scale mining regime, the concession holder may apply to the MEM to have the concession term renewed for a further 25 years, provided the concession is in good standing including payment of fees and compliance with phase change requirements. Two of the concessions related to FDN, being the La Zarza and the Colibrí 5 concession, are under the large-scale mining regime.

4.2.2 Surface Rights

Under Ecuadorian laws, surface rights are independent of mineral rights conveyed by mining concessions under the Mining Law. Agreements must be reached with surface-rights owners through acquisitions, leases or easements, which can be negotiated or imposed, and appropriate compensation is typically negotiated in the agreement.

4.2.3 Water Rights

Water rights are governed by the 2014 Water Resources and Water Use Organic Law, as amended. The Government of Ecuador agency in charge of water is the Ministry of Environment, Water and Ecological Transition (MAATE). All MAATE decisions related to conferment of water use permits must be supported by the Agencia de Regulación y Control del Agua (ARCA; Water Regulation and Control Agency). Water use permits are granted for defined terms, and annual water usage fees must be paid. Permits define specific catchment points for usage monitoring purposes.

4.3 Property Ownership

Lundin Gold conducts its business activities through various subsidiaries. The Operating Subsidiaries (as defined below) are those entities in Canada and Ecuador whose business purpose is related to FDN. The Exploration Subsidiaries (as defined below) are related to Lundin Gold's exploration activities.

The **Operating Subsidiaries**:

- AESA, which holds the concessions underlying FDN in Ecuador, is the Company's major operating subsidiary. It is wholly-owned by Lundin Gold through Aurelian and ARCL, which are both Canadian subsidiaries. At the time of this Technical Report, the shares of AESA are held through fiduciaries, as part of the security package granted to the project finance lenders.
- Condor Finance Corp. (Condor) is a Canadian wholly-owned subsidiary of Lundin Gold. Condor's principal purpose is to provide lending, working capital and financial services to the Company's subsidiaries.

- Ecoaurelian, which owns certain land rights related to FDN, is a subsidiary of Aurelian Ecuador Holding S.A. and AESA. At the time of this Technical Report, the shares of Ecoaurelian are held through fiduciaries, as part of the security package granted to the project finance lenders.

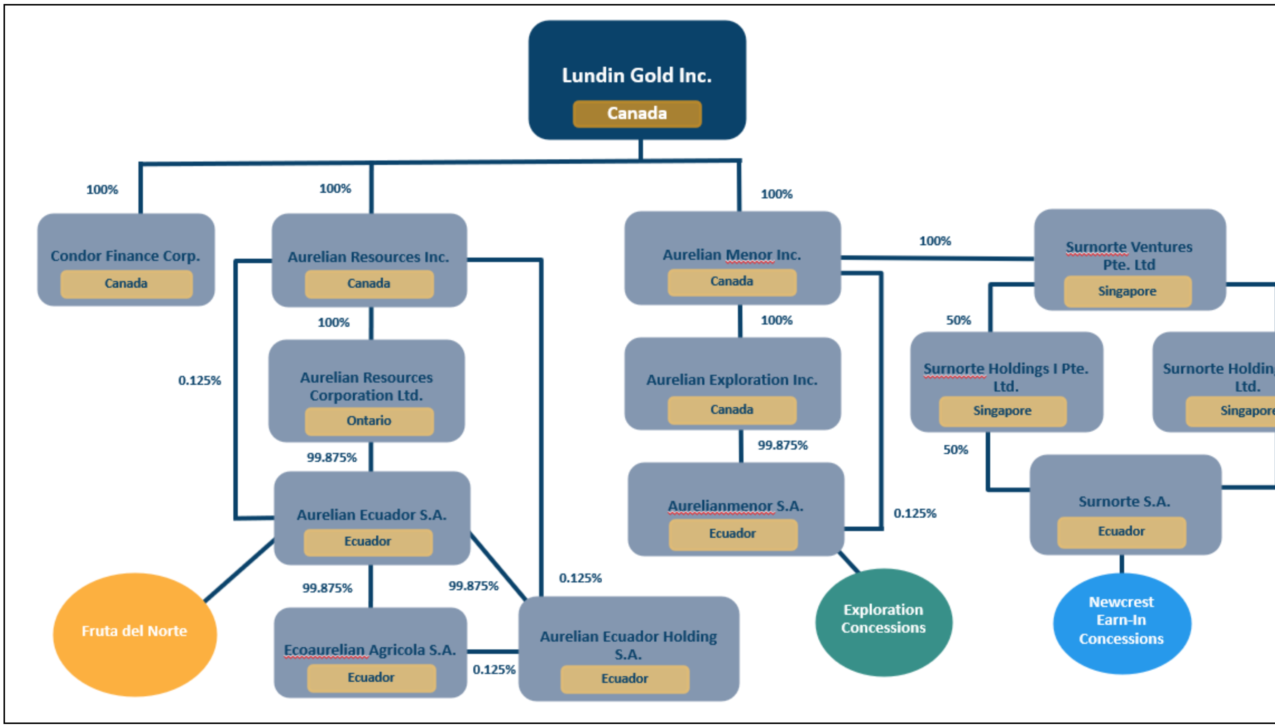
The **Exploration Subsidiaries:**

- AMSA holds 15 of the Company's exploration concessions. It is wholly-owned by Lundin Gold through Aurelian Exploration Inc. and Aurelianmenor Inc., which are both Canadian subsidiaries of the Company.
- Surnorte holds eight exploration concessions. Surnorte is a subsidiary of two Singaporean holding companies, Surnorte Holdings I Pte. Ltd. and Surnorte Holdings II Pte. Ltd. These two holding companies are in turn, owned by Surnorte Venture Pte. Ltd., a Singaporean joint venture company established under an earn-in agreement with Newcrest Mining Limited (Newcrest). Pursuant to the earn-in agreement dated November 5, 2018 (the Newcrest Earn-In Agreement), Newcrest is currently the operator, and can earn up to a 50% interest in Surnorte Ventures Pte. Ltd.

The following diagram depicts the corporate structure of Lundin Gold and its subsidiaries as of December 31, 2022, including the name, jurisdiction of incorporation and proportion of ownership interest in each.

Figure 4.1 shows the ownership interest.

Figure 4.1: Ownership Interest



Source: Lundin Gold, 2022

4.4 Tenure History

In 2001, Patrick Anderson and Keith Barron co-founded ARCL, a Canadian private company, and began compiling a land package in the Cordillera del Cóndor region in the southeast corner of Ecuador through staking. Adding to its growing land position, in 2002 ARCL purchased the La Zarza concession containing the FDN deposit from Amlatminas, a private Ecuadorian company. A small concession, Reina Isabel, was also acquired during the same year. By the end of 2002, ARCL had acquired an aggregate of 39 concessions.

In 2003, ARCL was acquired by Aurelian, an entity listed on the TSX-Venture Exchange. Aurelian subsequently graduated to the TSX in February 2007.

Kinross Gold Corp. acquired 100% of Aurelian via takeover during 2008, and Aurelian was delisted from the TSX in October 2008. Earlier in 2008, the Government of Ecuador imposed a moratorium on mineral exploration pending the development of new mining legislation. The Mining Law was passed at the start of 2009 and Kinross resumed exploration at the FDN.

In June 2013, Kinross elected not to continue with the FDN, citing unsuccessful negotiations with the Government of Ecuador for the exploitation phase.

In 2014, Lundin Gold (then named Fortress Minerals Corp.) purchased Aurelian from Kinross, thereby acquiring Kinross' land position in Ecuador. At the time of acquisition, Kinross' land position included 39 mining concessions that covered an area of approximately 86,000 ha.

Since acquiring Aurelian, Lundin Gold has rationalized its concession holdings. During the rationalization process, a number of concessions have been relinquished, and some concessions have been incorporated into the La Zarza concession. An area of the La Zarza concession which overlapped with the Refugio de Vida Silvestre El Zarza (La Zarza Wildlife Refuge) was reduced. Lundin Gold also identified some small artisan concessions that were excised from the overall concession holdings. In 2017, concessions not related to FDN were transferred to one of Lundin Gold's Exploration Subsidiaries, AMSA. Eight of those concessions were subsequently transferred to Surnorte in 2020, a wholly-owned subsidiary of Lundin Gold, which was created in connection with the Newcrest Earn-In Agreement.

4.5 Mineral Tenure

As at the date of this Technical Report, Lundin Gold holds 28 metallic mining concessions and three construction materials concessions that cover an area of approximately 64,454 ha (Table 4.1, Table 4.2, Table 4.3, and Figure 4.2). These concessions are currently registered in the name of the Company's subsidiaries; AESA holds those concessions related to FDN, including La Zarza, Colibri 2, Colibri 4, Colibri 5, Rio La Zarza 1, Valle del Inca 2 and Condesa covering an area of approximately 5,566 ha. The FDN deposit is located in the La Zarza concession. AESA also holds one exploration concession, Princesa 1, which is unrelated to FDN. The remaining concessions are held by AMSA (15) and Surnorte (8).

On December 31, 2022, Lundin Gold also owned one metallic mining concession, Rey, which was in process of renouncement. This concession has not been included in Lundin Gold's concession total and was formally renounced subsequent to year end.

Lundin Gold's mining concessions have different expiry dates. The expiry dates indicated in Table 4.1, Table 4.2 and Table 4.3 reflect the remaining term of each concession from their registration in the Mining Registry under the current Mining Law.

The La Zarza concession expires in October 2031. Other concessions related to the operations at FDN expire between 2031 and 2035. Under the Mining Law, AESA may apply to have these concession terms extended time prior to their expiry. In addition, where an exploitation agreement has been executed in respect of a concession, such as for the La Zarza concession, the concession holder may apply to MEM to extend the term of the exploitation agreement beyond its original term if the concession holder has identified additional mineral resources in the contract area. In this case, MEM is obligated to extend the concession term to match the new term of the exploitation agreement, provided the concession is in good standing.

Obligations that must be met to retain a concession include:

- Payment of annual holding fees
- Completion of annual reports on exploration work completed and proposed investment plans.

The majority of the mining concessions form a large, mostly contiguous block that extends from the Nangaritza River eastward to the international border with Peru.

In Ecuador mining concessions are “map-staked”, and boundaries are defined by UTM coordinates.

Lundin Gold, through its subsidiary Ecoaurelian, currently holds 75 plots of lands (surface rights) that cover an area of approximately 4,800 ha (Table 4.4). Lundin Gold holds sufficient surface rights for its operations and the related infrastructure. Additional surface rights, if needed, could be acquired through negotiation, or by direct request to the MEM to impose easements over the required lands.

Table 4.1: Metallic Mineral Tenure – AESA Concessions

Concession Name	Holder	Date of Grant	Title Area (ha)	Registration Information	Mining Regime and Phase	Expiry Date
Condesa	AESA	4 May, 2017	528.00	Incorporated with the Seventeen Public Notary of Quito's Protocol 4 May, 2017; Registered with Agency for Mining Regulation and Control – Zamora Province 2 June, 2017	Small Scale	15 June, 2032
La Zarza	AESA	15 April, 2010	4,627.92	Incorporated with the Third Public Notary of Quito's Protocol 23 April, 2010; Registered with Agency for Mining Regulation and Control – Zamora Province 18 May, 2010	Exploitation Phase	9 October, 2031
Princesa 1	AESA	28 July, 2016	180	Incorporated with the Seventeen Public Notary of Quito's Protocol 3 August 2016; Registered with Agency for Mining Regulation and Control – Zamora Province 10 August, 2016	Application pending to be declared as initial exploration phase	5 September, 2038
Rio Zarza 2	AESA	2 May, 2017	132.00	Incorporated with the Twenty First Public Notary of Quito's Protocol 3 May 2017; Registered with Agency for Mining Regulation and Control – Zamora Province 2 June, 2017	Small Scale	23 June, 2035
Valle del Inca 2	AESA	11 May, 2017	8.00	Incorporated with the Second Public Notary of Zamora's Protocol 17 May 2017; Registered with Agency for Mining Regulation and Control – Zamora Province 23 May, 2017	Small Scale	23 June, 2035

Table 4.2: Metallic Mineral Tenure – AMSA and Surnorte Concessions

Concession Name	Holder	Date of Grant	Title Area (ha)	Registration Information	Mining Regime and Phase	Expiry Date
Alberto	Surnorte	16 April 2010	3,359.168	Incorporated with the Third Public Notary of Quito's Protocol 23 April, 2010; Registered with Agency for Mining Regulation and Control – Zamora Province 18 May, 2010	Small Scale	13 July, 2032
Baron	AMSA	15 April, 2010	4,350.00	Incorporated with the Third Public Notary of Quito's Protocol 23 April, 2010; Registered with Agency for Mining Regulation and Control – Zamora Province 18 May, 2010	Small Scale	22 May, 2032
Baronesa	AMSA	15 April, 2010	2,584.00	Incorporated with the Third Public Notary of Quito's Protocol 23 April, 2010; Registered with Agency for Mining Regulation and Control – Zamora Province 18 May, 2010	Small Scale	22 May, 2032
Cacique 1	AMSA	16 April, 2010	130.00	Incorporated with the Third Public Notary of Quito's Protocol 23 April, 2010; Registered with Agency for Mining Regulation and Control – Zamora Province 18 May, 2010	Small Scale	15 June, 2032
Cacique	AMSA	16 April, 2010	700.00	Incorporated with the Third Public Notary of Quito's Protocol 23 April, 2010; Registered with Agency for Mining Regulation and Control – Zamora Province 18 May, 2010	Small Scale	15 June, 2032
Emperador	AMSA	15 April, 2010	4863.50	Incorporated with the Third Public Notary of Quito's Protocol 23 April, 2010; Registered with Agency for Mining Regulation and Control – Zamora Province 18 May, 2010	Small Scale	9 July, 2031
Guacamayo	AMSA	15 April, 2010	2,928.82	Incorporated with the Third Public Notary of Quito's Protocol 23 April, 2010; Registered with Agency for Mining Regulation and Control – Zamora Province 18 May, 2010	Small Scale	14 September, 2032
La Orquideas	AMSA	16 April, 2010	4,402.00	Incorporated with the Third Public Notary of Quito's Protocol 23 April, 2010; Registered with Agency for Mining Regulation and Control – Zamora Province 18 May, 2010	Small Scale	19 July, 2032

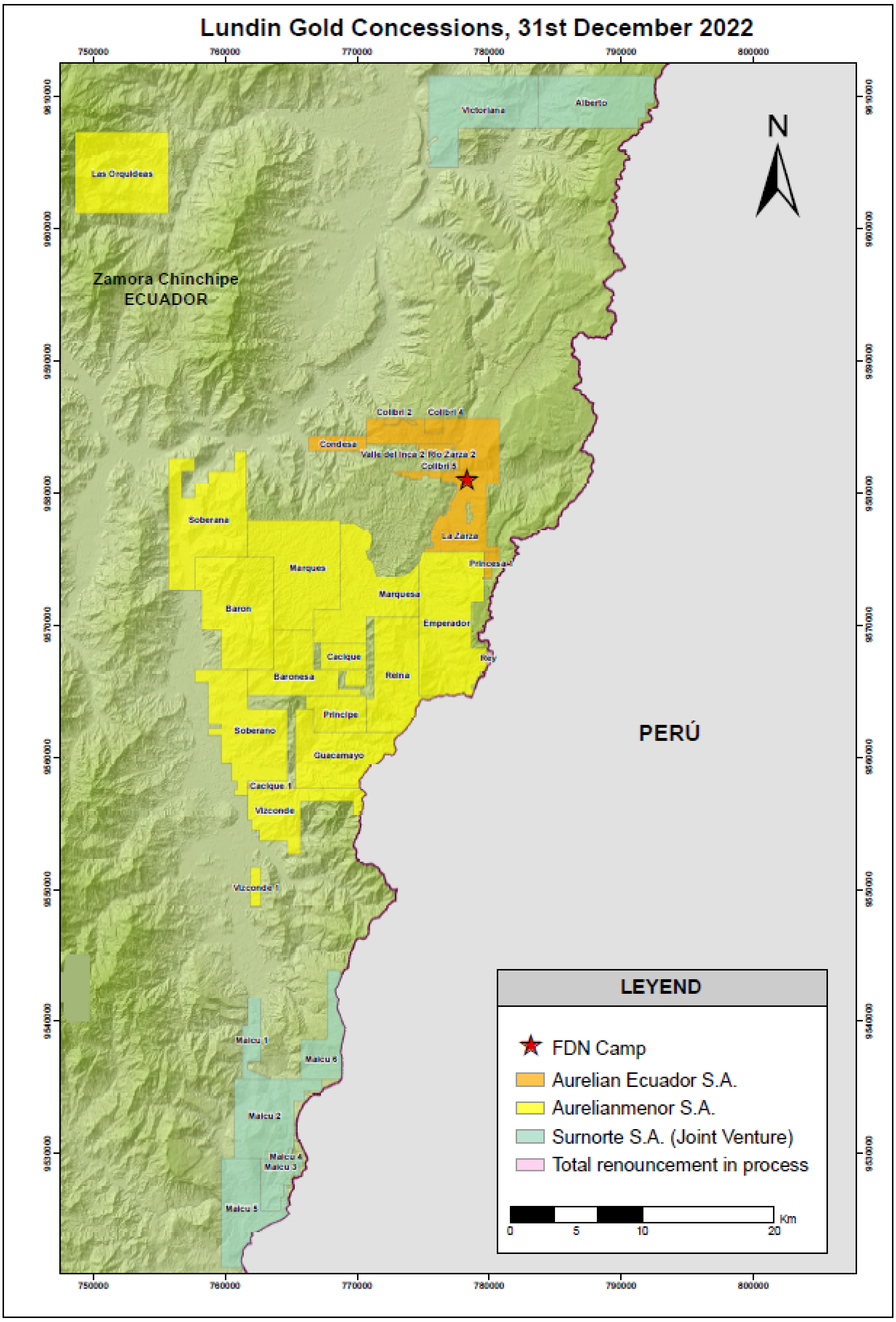
Concession Name	Holder	Date of Grant	Title Area (ha)	Registration Information	Mining Regime and Phase	Expiry Date
Maicu 1	Surnorte	16 April, 2010	693.00	Incorporated with the Third Public Notary of Quito's Protocol 23 April, 2010; Registered with Agency for Mining Regulation and Control – Zamora Province 18 May, 2010	Small Scale	28 February 2034
Maicu 2	Surnorte	16 April, 2010	2,828.00	Incorporated with the Third Public Notary of Quito's Protocol 23 April, 2010; Registered with Agency for Mining Regulation and Control – Zamora Province 18 May, 2010	Small Scale	28 February, 2034
Maicu 3	Surnorte	16 April, 2010	848.00	Incorporated with the Third Public Notary of Quito's Protocol 23 April, 2010; Registered with Agency for Mining Regulation and Control – Zamora Province 18 May, 2010	Small Scale	28 February, 2034
Maicu 4	Surnorte	16 April, 2010	74.00	Incorporated with the Third Public Notary of Quito's Protocol 23 April, 2010; Registered with Agency for Mining Regulation and Control – Zamora Province 18 May, 2010	Small Scale	28 February, 2034
Maicu 5	Surnorte	16 April, 2010	2,436.74	Incorporated with the Third Public Notary of Quito's Protocol 23 April, 2010; Registered with Agency for Mining Regulation and Control – Zamora Province 18 May, 2010	Small Scale	28 February, 2034
Maicu 6	Surnorte	16 April, 2010	1,457.50	Incorporated with the Third Public Notary of Quito's Protocol 23 April, 2010; Registered with Agency for Mining Regulation and Control – Zamora Province 18 May, 2010	Small Scale	3 November 2033
Marques	AMSA	15 April, 2010	4,410.00	Incorporated with the Third Public Notary of Quito's Protocol 23 April, 2010; Registered with Agency for Mining Regulation and Control – Zamora Province 18 May, 2010	Small Scale	12 June, 2032
Marquesa	AMSA	15 April, 2010	3,701.258	Incorporated with the Third Public Notary of Quito's Protocol 23 April, 2010; Registered with Agency for Mining Regulation and Control – Zamora Province 18 May, 2010	Small Scale	16 June, 2032

Concession Name	Holder	Date of Grant	Title Area (ha)	Registration Information	Mining Regime and Phase	Expiry Date
Principe	AMSA	15 April, 2010	1,180.00	Incorporated with the Third Public Notary of Quito's Protocol 23 April, 2010; Registered with Agency for Mining Regulation and Control – Zamora Province 18 May, 2010	Small Scale	16 June, 2032
Reina	AMSA	16 April, 2010	3,061.44	Incorporated with the Third Public Notary of Quito's Protocol 23 April, 2010; Registered with Agency for Mining Regulation and Control – Zamora Province 18 May, 2010	Small Scale	15 June, 2032
Soberana	AMSA	15 April, 2010	4,405.00	Incorporated with the Third Public Notary of Quito's Protocol 23 April, 2010; Registered with Agency for Mining Regulation and Control – Zamora Province 18 May, 2010	Small Scale	22 May, 2032
Soberano	AMSA	16 April, 2010	3,896.00	Incorporated with the Third Public Notary of Quito's Protocol 23 April, 2010; Registered with Agency for Mining Regulation and Control – Zamora Province 18 May, 2010	Small Scale	7 June, 2032
Victoriana	Surnorte	16 April, 2010	3,939.00	Incorporated with the Third Public Notary of Quito's Protocol 23 April, 2010; Registered with Agency for Mining Regulation and Control – Zamora Province 18 May, 2010	Small Scale	13 July, 2032
Vizconde I	AMSA	16 April, 2010	240.00	Incorporated with the Third Public Notary of Quito's Protocol 23 April, 2010; Registered with Agency for Mining Regulation and Control – Zamora Province 18 May, 2010	Small Scale	7 June, 2032
Vizconde	AMSA	16 April, 2010	2,149.35	Incorporated with the Third Public Notary of Quito's Protocol 23 April, 2010; Registered with Agency for Mining Regulation and Control – Zamora Province 18 May, 2010	Small Scale	7 June, 2032

Table 4.3: Construction Materials Mineral Tenure

Concession Name	Holder	Date of Grant	Title Area (ha)	Registration Information	Mining Regime and Phase	Expiry Date
Colibrí 2	AESA	June 17, 2013	83	Incorporated to the Third Public Notary of Quito's Protocol on June 20, 2013; Registered on July 3, 2013 with the Agency for Mining, Regulation and Control, Zamora Province	Small Scale	10 January 2036
Colibrí 4	AESA	February 4, 2016	154	Incorporated to the Seventeenth Public Notary of Quito's Protocol on February 10, 2016; Registered on February 19, 2016 with the Agency for Mining Regulation and Control, Zamora Province	Small Scale	7 November 2032
Colibrí 5	AESA	September 13, 2017	34	Incorporated with the Twenty First Public Notary of Quito's Protocol September 19, 2017; Registered with Agency for Mining Regulation and Control – Zamora Province September 29, 2017	Exploitation Phase	7 October 2031

Figure 4.2: Tenure Location Plan



Source: Lundin Gold, 2022

Table 4.4: Surface Rights

N°	Owner	Cadastral Plot Number	Registration Date	Area (ha)
1	Ecoaurelian	1905535103001303000	10/08/2011	0.70
2	Ecoaurelian	1905535103001956000	08/01/2010	25.00
3	Ecoaurelian	1905535103001316000	29/06/2009	46.80
4	Ecoaurelian	1905535103001310000	29/06/2009	28.46
5	Ecoaurelian	1905535103001325000	09/04/2009	78.80
6	Ecoaurelian	1905535103001329000	29/06/2009	34.30
7	Ecoaurelian	1905535103001419000	8/11/2010	87.43
8	Ecoaurelian	1905535103001938000	21/10/2010	88.29
9	Ecoaurelian	1905535103001955000	08/01/2010	644.18
10	Ecoaurelian	1905535103002030000	10/5/2011	65.41
11	Ecoaurelian	1905535103002028000	26/04/2011	65.60
12	Ecoaurelian	1905535103002027000	19/05/2011	61.26
13	Ecoaurelian	1905535103002024000	19/05/2011	82.97
14	Ecoaurelian	1905535103001947000	23/08/2010	61.56
15	Ecoaurelian	1905535103001946000	23/08/2010	9.60
16	Ecoaurelian	1905535103001945000	23/08/2010	60.63
17	Ecoaurelian	1905535103001944000	23/08/2010	64.55
18	Ecoaurelian	1905535103001369000	16/01/2012	61.85
19	Ecoaurelian	1905535103002083000	26/10/2011	50.35
20	Ecoaurelian	1905535103002084000	06/10/2011	39.45

N°	Owner	Cadastral Plot Number	Registration Date	Area (ha)
21	Ecoaurelian	1905535103001754000	24/04/2009	59.55
22	Ecoaurelian	1905535103001761000	30/10/2008	99.96
23	Ecoaurelian	1905535103001762000	30/10/2008	92.26
24	Ecoaurelian	1905535103001764000	30/10/2008	77.84
25	Ecoaurelian	1905535103001763000	30/10/2008	84.95
26	Ecoaurelian	1905535103001696000	07/08/2007	60.48
27	Ecoaurelian	1905535103001692000	07/08/2007	91.95
28	Ecoaurelian	1905535103001695000	07/08/2007	69.59
29	Ecoaurelian	1905535103001694000	07/08/2007	89.23
30	Ecoaurelian	1905535103002085000	06/10/2011	38.39
31	Ecoaurelian	1905535103002029000	05/05/2011	72.14
32	Ecoaurelian	1905535103002086000	06/10/2011	62.30
33	Ecoaurelian	1905535103002023000	26/04/2011	19.38
34	Ecoaurelian	1905535103001693000	07/08/2007	54.28
35	Ecoaurelian	1905535103001691000	28/09/2007	63.12
36	Ecoaurelian	1905535103001690000	28/09/2007	83.70
37	Ecoaurelian	1905535103001689000	28/09/2007	98.03
38	Ecoaurelian	1905535103002007000	24/03/2011	52.77
39	Ecoaurelian	1905535103001652000	24/04/2009	57.41
40	Ecoaurelian	1905535103001653000	15/06/2009	55.81
41	Ecoaurelian	1905535103001068000	09/01/2007	54.20

N°	Owner	Cadastral Plot Number	Registration Date	Area (ha)
42	Ecoaurelian	1905535103001041000	02/09/2010	55.30
43	Ecoaurelian	1905535103001012000	09/01/2007	55.30
44	Ecoaurelian	1905535103001020000	09/01/2007	52.20
45	Ecoaurelian	1905535103001062000	02/09/2010	53.30
46	Ecoaurelian	1905535103001367000	30/10/2007	71.59
47	Ecoaurelian	1905535103001355000	14/07/2011	42.39
48	Ecoaurelian	1905535103001366000	10/10/2007	54.68
49	Ecoaurelian	1905535103001352000	12/07/2011	40.73
50	Ecoaurelian	1905535103001916000	12/07/2011	59.76
51	Ecoaurelian	1905535103001850000	12/07/2011	22.60
52	Ecoaurelian	1905535103001005000	02/09/2010	84.52
53	Ecoaurelian	1905535103001006000	02/09/2010	88.53
54	Ecoaurelian	1905535103001209000	6/11/2007	42.05
55	Ecoaurelian	1905535103001952000	09/11/2010	63.30
56	Ecoaurelian	1905535103001359000	10/12/2007	39.70
57	Ecoaurelian	1905535103002031000	26/04/2016	62.13
58	Ecoaurelian	1905535103002013000	01/04/2016	97.90
59	Ecoaurelian	1905535103001365000	24/11/2016	24.90
60	Ecoaurelian	1905535103002315000	03/04/2017	40.86
61	Ecoaurelian	1905535103002200000	29/1/2019	5.98
62	Ecoaurelian	1905535103002211000	29/1/2019	2.08

N°	Owner	Cadastral Plot Number	Registration Date	Area (ha)
63	Ecoaurelian	1905535103002283000	29/1/2019	2.09
64	Ecoaurelian	190553510300234000	6/4/2021	72.69
65	Ecoaurelian	190553510300233000	6/4/2021	77.61
66	Ecoaurelian	190553510300232000	9/4/2021	60.00
67	Ecoaurelian	1905535103002428000	14/4/2021	6.64
68	Ecoaurelian	1905535103001708000	7/5/2021	70.91
68	Ecoaurelian	N/A (posesión)	6/5/2021	
69	Ecoaurelian	190553510300291000	7/6/2021	61.81
70	Ecoaurelian	190553510300210000	14/7/2021	86.90
71	Ecoaurelian	1905535103002257000	19/7/2021	49.08
72	Ecoaurelian	1905535103002258000	19/7/2021	8.41
73	Ecoaurelian	1905535103002011000	21/9/2021	31.93
74	Ecoaurelian	1905535103002457000	21/9/2021	31.93
75	Ecoaurelian	1905535103002014000	7/7/2022	88.34
		Total		4,802.63

Total may not add due to rounding.

.

4.6 Royalties and Encumbrances

A 1% net revenue royalty is payable in perpetuity on production from Lundin Gold's current mining concessions, including the La Zarza concession, under a royalty agreement dated November 16, 2007 among Lundin Gold's subsidiaries Aurelian, ARCL and AESA and two individuals, being Keith M. Barron and Patrick F.N. Anderson.

As of the date of this Technical Report, Mr. Barron's portion of the royalty (0.9 of 1%) has been assigned to Sandstorm Gold Ltd. and Mr. Anderson's portion of the royalty (0.1 of 1%) has been assigned to Osisko Gold Royalties Ltd. In addition, the royalties payable on production from Lundin Gold's concessions unrelated to FDN and held by AMSA and Surnorte were assigned by AESA to AMSA and Surnorte, respectively.

In connection with the acquisition of land and surface rights, AESA granted a 2% net smelter royalty is payable for any metallic minerals mined from the Rio Zarza and Valle del Inca 1 concessions acquired from Condor Gold, pursuant to a net smelter royalty agreement dated August 4, 2017.

In order to develop and construct FDN, the Company secured the necessary financing in 2018 and 2019, as follows:

- In May 2017, Lundin Gold secured an initial project finance package (the GPP Stream Financing) with Orion Mine Finance Group and Blackstone Tactical Opportunities, which was drawn by early 2018. The GPP Stream Financing was comprised of a gold prepay credit facility for $150 million (the Prepay Loan) and a stream loan credit facility of $150 million (the Stream Loan) and an offtake agreement for 50% of gold production from FDN, up to a maximum of 2.5 million ounces (the Offtake Agreement). The GPP Stream Financing was purchased by an affiliate of Newcrest in 2020. As of the date of this Technical Report, the Prepay Loan was repaid in full.
- In 2018, Lundin Gold closed a senior secured project finance facility of $350 million to fund the balance of the development and construction of FDN (the Senior Facility) with a syndicate of lenders (the Senior Lenders), which was drawn by the end of 2019.

As of the date of this Technical Report, the Senior Facility and the Stream Loan is secured by way of a charge over the Operating Subsidiaries' assets, trusts and pledges of the shares of the Operating Subsidiaries and limited recourse guarantees of the Company and the Operating Subsidiaries.

4.7 Exploitation and Other Agreements

In addition to the royalties to outlined above, pursuant to the exploitation agreement for FDN (the Exploitation Agreement) which was signed with the Government of Ecuador in 2016, AESA is subject to a 5% net smelter royalty to the Government of Ecuador from production from FDN. In accordance with the Exploitation Agreement, advance royalty payments totaling $65 million have been paid to the Government of Ecuador . The advance royalty payments are being deducted against royalties payable at a rate equal to the lesser of 50% of the actual future royalties payable in a six-month period or 10% of the total advance royalty payment.

The additional key terms of the Exploitation Agreement dated December 14, 2016 and amended June 10, 2017 are as follows:

- The right to develop and produce gold from FDN for 25 years, which may be renewed.
- The Government of Ecuador's share of cumulative benefits derived from FDN will not be less than 50%. To the extent that the Government of Ecuador's cumulative benefit falls below 50%, the Company will be required to pay an annual sovereign adjustment. Each year, the benefits to the Company will be calculated as the net present value of the actual cumulative free cash flows of FDN from its inception. The Government of Ecuador's benefit will be calculated as the present value of cumulative sum of taxes paid including corporate income taxes, royalties, labour profit sharing paid to the State, non-recoverable VAT, and any previous sovereign adjustment payments.
- A commitment from the Government of Ecuador to take measures to compensate the Company in the event of economic imbalance resulting from changes in certain taxes, laws and regulations as prescribed under Exploitation Agreement.

Shortly after the execution of the Exploitation Agreement, AESA signed its Investment Protection Agreement (the IPA) with the Government of Ecuador, which provides further legal and tax stability for the Company, in conjunction with the Exploitation Agreement and existing laws in Ecuador. The key terms of the IPA are as follows:

- Income tax rate fixed at 22%.
- Exemption from the capital outflow tax of 5% on payments of principal and interest to financial institutions outside of Ecuador.
- The ability to obtain benefits granted by the Government of Ecuador through future investment protection agreements with other investors in similar projects in Ecuador.
- No restrictions to transfer or assign all or part of the investment, including the right to assign its rights to any financing parties.

- Other benefits granted to the Company include no restriction to:
    - produce and sell minerals;
    - import and export goods; and
    - establish, maintain, control, or transfer funds abroad, provided statutory remittances and obligations have been met.

In 2018, after receiving the license for its Mountain Pass Quarry (on the Colibrí 5 concession), AESA entered into an exploitation agreement with the Canton GAD (Gobierno Autonomo Descentralizado) of the Municipality of Yantzaza (the Quarry Exploitation Agreement). Under the Quarry Exploitation Agreement, royalties are payable to the Yantzaza GAD at a rate of 10% calculated on production costs to operate the Mountain Pass Quarry. Production costs include all direct and indirect costs including depreciation and amortization.

There is active artisanal mining on the Company's properties. The Company is also aware that there are illegal miners on its properties. See further discussion in Section 6 of this Technical Report.

4.8 Permits

Permitting considerations for the site are discussed in Section 20.

4.9 Environmental Liabilities

The environmental status of the site and artisanal mining activity in the area of influence of FDN are discussed in Section 20.

4.10 Social Licence

The social licence considerations for the site are discussed in Section 20.

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURES AND PHYSIOGRAPHY

5.1 Accessibility

FDN is located about 142 road kilometres (approximately a four-hour drive) east–northeast of Loja, the largest city near FDN. The closest serviced town is Yantzaza.

Vehicular access from Loja to the FDN site is via a 121 km long paved highway (Highway 45) to the town of Los Encuentros, followed by a 21 km long gravel road that connects FDN to the highway.

Figure 5.1: Location Plan

Source: Map sourced from Mappery.com, 2016, and amended by Amec Foster Wheeler

Loja has daily scheduled air service from the national capital Quito. Additional information on access to FDN is included in Section 18.

5.2 Climate

The climate at FDN is characterized by wet weather throughout the year and is classified into two bio-climate sub-categories: temperate rainy and humid sub-tropical. The annual rainfall is around 3,400 mm. The average annual temperature is between 16°C and 18°C and remains fairly constant throughout the day.

Lower average daily temperatures and higher monthly rainfalls prevail at higher elevations on the La Zarza concession.

5.3 Local Resources and Infrastructure

FDN is isolated from major public infrastructure. The FDN infrastructure is detailed in Section 18 of this Report.

5.4 Physiography

The Cordillera del Cóndor is a mountain system situated east of, and parallel to, the axis of the Andes Mountains. It defines the international border with Peru in southeastern Ecuador. The Cordillera del Cóndor consists of heavily dissected, steep ridges that rise from the Zamora and Nangaritza River valleys (about 850 masl) to sharp ridges and flat-topped mesas, up to 2,400 masl in elevation, which lie along the Ecuador–Peru border. FDN, including the entire La Zarza concession, lies in the highlands south of the Zamora River, east of the Nangaritza River, both of which flow into the drainage system of the Amazon River.

Nationally-protected areas are located to the northeast (Bosque Protector Cordillera del Cóndor or the Cordillera del Cóndor Protected Forest) and the southwest (Refugio de Vida Silvestre El Zarza or the El Zarza Wildlife Refuge) of FDN.

Tropical rainforest canopies cover most of the region except where cleared for agriculture in the river valleys and adjacent slopes. The flat-topped mesas along the international border are covered by low shrubs. Typically, over half-a-metre of composting vegetation overlies several tens of metres of saprolite.

Saprolite is produced by tropical weathering of bedrock to clay which variably preserves original rock textures. Landslides are common, transporting soil, weathered bedrock and vegetation down slope to locally exposed relatively fresh rock on hill slopes. Variably-weathered bedrock is also locally exposed in mountain streams within ravines (quebradas).

5.5 Seismicity

A site-specific seismic hazard assessment was completed by URS Corporation (URS) in 2008, which concluded that "the site will be subjected to future strong ground shaking generated by large earthquakes" (URS, 2008).

The most significant known seismically active fault is located about 18 km from FDN and has a reported maximum magnitude M 7.3 earthquake.

The standard US practice is to design mining facilities for approximately 1:500 and 1:2,500 return event periods and this was used as a consideration for infrastructure.

- The design of the surface facilities used the 1:500 and 1:2,500-year return event period, and incorporated design criteria from the Ecuadorian Code and the International Building Code.
- Underground excavations were considered to be less vulnerable to earthquakes, as they cannot move independently of the surrounding rock. URS concluded that, based on a 1:2,500-year return event, the local stress situation, and the approach of installing ground support throughout the mine, the impact of an earthquake on the underground mining operation will be limited.
- The TSF was designed using a 1:10,000-year return event, due to the significant consequences that would result in the event of a failure.

Standard industry practice is to review and update a seismic hazard assessment every 10 years, or after a large earthquake has occurred. Following the earthquake in April 2016 that had an epicenter close to the coast of Ecuador and which caused serious damage in that area, a seismic review was carried out to confirm the design criteria. A high-level assessment of the seismic design was carried out assuming that the peak ground acceleration could increase. It was determined that this would have minimal, if any, impact on the structural design. Seismic design is more critical for structures than for the underground mine or the TSF.

Additional seismic deformation analysis will be completed at the detailed engineering stage for critical infrastructure.

6 HISTORY

6.1 Early History

The Cordillera del Cóndor was first explored by Spanish conquistadors in the 1500s. There is evidence that pre-Columbians mined both hard rock and alluvial gold in the area. Spanish mining activity ceased around 1620, following conflict with local indigenous tribes that had been enslaved to work in the mines. Artisanal alluvial miners began to prospect the Cordillera del Cóndor as early as 1935, both in Peruvian and Ecuadorian territory.

6.2 Work Completed

A summary of the modern exploration activity at FDN is provided in Table 6.1.

Table 6.1: Exploration History

Company	Active Period	Work Completed
Minerosa	1986–1992	Establishment of a base camp on the east bank of the Blanco River, transportation of equipment to support alluvial mining, stream sediment sampling, and test pits excavated into alluvial terraces. Rock chip sampling, geological mapping and four Acker drill holes (each 15 m to 20 m long) were completed to evaluate primary gold mineralization exposed in the Quebrada Astudillo area, the site of the Castillo prospect (previously called the Ubewdy prospect).
Amlatminas	1996–2002	Generation of a topographic base map, stream sediment sampling (15 samples), rock chip sampling (152 samples), and geological mapping, in and near the Quebrada Astudillo area. Brief field assessments were undertaken by a number of companies in support of potential option agreements over the Project.
Climax	1996	Reconnaissance, leading to signing of an option agreement with Amlatminas.
	1997–1998	Work completed by Climax included gridding (total of 138 line km), geological mapping, stream sediment sampling (208 samples), regional and infill soil sampling (1,380 auger samples), rock chip and grab sampling (480 samples), test pits (658 pits), trenching (total 874 m; 223 samples), adit channel sampling at Bonza (seven adits; 72 samples), Induced polarization (IP) geophysical surveying (73.8 line km of gradient array, 2.15 line km of dipole and 36.5 line km of magnetometer), and core drilling programs (22 drill holes for approximately 3,562 m; 16 at Bonza-Las Peñas and six at Castillo, on the La Zarza concession.

Company	Active Period	Work Completed
		Work was primarily conducted over the Castillo, Bonza–Las Peñas, Princesa (Jardin del Cóndor), Rio Negra and Tranca Loma prospects, where precious and base metal geochemical anomalies were defined in areas that displayed features such as quartz veins with pyrite and local silicification and brecciation or clay–silica–pyrite alteration. The IP survey outlined a strong co-incident resistivity and chargeability anomaly above silicified conglomerates of the Suárez Formation. No drill testing was performed, and the concession reverted to Amlatminas in early 1999.
Aurelian	2002	Aurelian purchased the Project from Amlatminas. Confirmation chip sampling (20 grab samples).
	2003–2005	Outcrop examination, gridding, geological mapping, regional geochemical stream sediment sampling, rock chip, channel and grab sampling of outcrop, artisanal workings and trenches, a magnetometer and IP geophysical survey, and core drilling of prospects that either were known previously through Climax's work before 1999 or were discovered by artisanal miners in the period 1999 to 2002.
	2003	14 holes (1,161 m approx.) at Aguas Mesas Sur and Norte prospects*
	2004	34 holes (7,676 m) at the Bonza–Las Peñas, and Aguas Mesas Norte prospects. Nine holes (1,266 m approx.) at Puente prospect. Initial Mineral Resource estimate for the Bonza–Las Peñas area.
	2004–2005	Geological re-interpretation
	2005	17 holes (3,256 m approx.) at the Bonza–Las Peñas, Tranca Loma and Castillo prospects.
	2006–2008	Core drilling, geological modelling and genesis studies, metallurgical test work, and initial geotechnical investigations. Discovery of the FDN deposit in 2006. A first-time Mineral Resource estimate was prepared for Aurelian in late 2007. Regional exploration during the same time period comprised additional soil, rock chip and grab sampling, geological and structural mapping, genesis and modelling studies, and geophysical surveys.
	2006	48 core holes (23,579 m approx.) at FDN, Bonza and Las Arenas areas.
	2007	101 core holes (52,020 m approx.) at FDN, Las Arenas and Papaya; 12 core holes (3,730 m) at El Tigre.
	2008	47 core holes (23,609 m approx.) at FDN, Bonza and La Negra.
Exploration Moratorium	2008	On May 6, 2008, the Ecuadorian Government announced a moratorium on mining and exploration activity, pending development of a new mining code. This was lifted in 2009.

Company	Active Period	Work Completed
Kinross	2008–2009	Desktop studies to support a pre-feasibility study. Kinross also submitted core samples from 58 drill holes that had been completed prior to the imposition of the moratorium, but which had not been analyzed or incorporated into the Project database at the time of the 2007 Mineral Resource estimate.
	2009	Core drilling to support Mineral Resource delineation, assess infill targets, and provide samples for metallurgical test work; program comprised four exploration drill holes (approx. 2,056 m), and five metallurgical drill holes. Updated Mineral Resource estimate. Completion of a pre-feasibility study (2009 Kinross PFS)
	2010	Core drilling to support updated Mineral Resource estimates, metallurgical and geotechnical drilling. Program consisted of 45 exploration drill holes (18,738 m approx.), four metallurgical drill holes (1,681 m approx.), and 19 geotechnical drill holes (4,142 m approx.).
	2010–2011	Completion of a feasibility study (2011 Kinross FS) based on an updated Mineral Resource and Mineral Reserve estimate.
	2011	Four exploration drill holes (2,457 m approx.) and 19 geotechnical drill holes (1,162 m approx.). This drilling included a long exploration hole to test the west side of the West Fault at depth (FN3490e01; 1,096 m), seven geotechnical holes (total 1,044 m) to provide information in the South Portal area, and three holes (FN 3835d01, FN3835d02, FN4150d01; total 1,356 m) to test for the northern strike extension of the FDN deposit. Results from the west exploration hole and the northernmost exploration hole were negative. However, two of the northern step out holes confirmed mineralization in this area (FN3835d02, FN4150d01). The portal geotechnical holes confirmed previously known Bonza mineralization and justified additional exploration drilling in the Bonza North area.
	2012–2013	12 exploration drill holes (6,112 m approx.). This drilling explored targets located in the north of FDN (Sachavaca). Underground-based deposit delineation drilling program was planned that focused primarily on the southern portion of the FDN deposit. The decline advanced approximately 600 m (734 m of total development), but no delineation drilling was performed.
	2013	Kinross elected not to continue Project development in June.
Lundin Gold	2014	Acquired Project interest
	2015	Drilling in support of feasibility-level studies; including 11 metallurgical drill holes (5,344 m approx.); 24 drill holes (4,296 m approx.) for geotechnical purposes including portal location, ventilation evaluation, and plant site design; 10 drill holes (1,216 m approx.) for hydrogeology; four structural drill holes (1,674 m approx.); and 15 drill holes (1,374 m) for the Hollin Borrow Pit area.

Company	Active Period	Work Completed
	2015	Completion of geophysical surveys (IP), detailed prospecting and mapping of key targets, and initial exploration of those concessions that had limited available mapping and structural data but covered favourable geology. The principal objective was to better define and rank key targets and prepare these for drill testing in 2016. More regional initial exploration work activities focused principally on concessions known to be dominated by S Formation volcanic rocks (the host rocks of the FDN deposit) in order to develop additional exploration targets. This work included initial geological mapping and prospecting, as well as soil geochemical surveys to define new target areas.
	2016	Completion of a feasibility study (2016 FS); updated Mineral Resource and Mineral Reserve estimates. Channel sampling completed on two targets (Emperador and Robles) in advance of drilling. Key targets were optimized and prepared for drilling, with drilling planned for May 2016.

Note: The mineral concessions at the time of the Aurelian and Kinross programs included concessions that Lundin Gold is formally relinquishing at the Report effective date. The Aguas Mesas Sur and Norte prospects south of the FDN deposit are not within the current tenure holdings at the Report effective date.

Companies involved prior to Lundin Gold's Project interest included Minerosa, from 1986–1992; Amlatminas from 1996–2002; Minera Climax del Ecuador, a subsidiary of Climax Mining Ltd. of Australia (Climax) from 1996–1998; ARCL from 2003–2008; and Kinross from 2008–2014. A location plan showing the prospects discussed in the table is included in Section 7.4.

Kinross completed a pre-feasibility study in 2009 (2009 Kinross PFS), and a feasibility study in 2011 (2011 Kinross FS). Lundin Gold completed a feasibility study in 2015–2016, the results of which were documented in the previous National Instrument 43-101 Report dated April 30, 2016.

In October 2016, the Government of Ecuador approved the Environmental Impact Assessment for FDN and the environmental license was issued. In December 2016, the Company signed the Exploitation Agreement and the Investment Protection agreement with the Government of Ecuador.

In May 2017, the start of construction was announced. Over a two-and-a-half-year period, the underground mine was developed, process plant facilities, camp facilities, project infrastructure and starter tailings dam were constructed. First ore was fed to the process plant in October 2019 and first gold produced in November 2019.

6.3 Production

Commercial production was achieved in February 2020. One month after that, the operations were shut down due to COVID-19, which caused all transportation to cease in Ecuador. The operations remained shut down for three months. After the development of COVID protocols and a revised operating plan, the operations were restarted in July 2020 and have been in operation since that date.

Table 6.2 shows the FDN production from commercial production to the end of 2022.

Table 6.2: FDN Production

	Units	2020	2021	2022
Tonnes Mined	t	672,906	1,557,859	1,492,230
Tonnes Milled	t	724,007	1,415,634	1,559,178
Average Grade	g/t Au	10.0	10.6	10.6
Average Recovery	%	87.2%	88.6%	89.5%
Gold Production	oz	202,830	428,514	476,329

7 GEOLOGY AND MINERALIZATION

7.1 Regional Geology

The FDN deposit is located in the remote, jungle-covered Cordillera del Condor mountain range in the Andes of southeastern Ecuador, six kilometres from the border with Peru. The Cordillera del Condor region consists of sub-Andean deformed, metamorphosed Palaeozoic and Mesozoic sedimentary, and Mesozoic arc-related lithologies that formed between the eastern flank of the Cordillera Real, and west of the flat-lying strata of the Amazon basin. The sub-Andean zone was the site of Late Permian-Triassic rifting (Balkwill et al., 1995), Late Triassic to Early / Middle Jurassic post rift sag-phase carbonate platform sedimentation and volcanism (Tschopp, 1953), Middle to Late Jurassic subaerial magmatic arc development (Litherland et al., 1994; Romeuf et al., 1995) and Late Jurassic tectonic inversion triggered by plate reorganization at the northern Pacific margin and initial opening of the Central Atlantic Ocean (Jaillard et al., 2000; Caputo, 2014; Barragan and Baby, 2017; Zamora and Gil, 2018). A regional unconformity separates the Jurassic arc and older rocks from Early Cretaceous fluvial to shallow-marine quartz sandstone from the Hollín Formation and younger Cretaceous and Cenozoic sedimentary formations (Tschopp, 1953; White et al., 1995; Jaillard, 1997).

7.2 District Geology

In the Cordillera del Condor, the main expression of the Mesozoic arc magmatism is the over 200-km-long, north-northeast-trending Zamora Batholith, which is an I-type, calc-alkaline pluton of predominantly intermediate composition. The Zamora Batholith has an elongated north–northeast axis that parallels the Ecuadorian Andes and is the plutonic expression of a Jurassic-aged, subduction-related, continental magmatic arc established on the western margin of the Amazonian Craton (Leary et al., 2020). In the area of the FDN deposit, the batholith consists of phases of monzonite, diorite and granodiorites with local porphyritic and aplitic dikes and breccia zones.

There are several roof pendants present within the Zamora Batholith, which are comprised of dominantly andesitic volcanic rocks assigned to the Santiago Formation. These are a melange of volcanic, volcaniclastic / epiclastic, and intrusive rocks that range in composition from alkali basalt to dacite and crop out as approximately north–south-aligned supra-crustal pendants within the largely contemporaneous Zamora Batholith. With increasing frequency to the south and east, the Santiago Formation contains interbeds of volcanics and with marine sediments consisting of calcareous black shales, siltstones, sandstones, occasional conglomerates, limestone, and tuffaceous sediments.

A sequence of coarse-grained, siliciclastic sedimentary rocks (the Suárez Formation, or Basin sediments) lies unconformably within one of the large volcanic pendants, defining the fault-bounded Suárez Basin, shown by recent mapping to be approximately 16 km long and nearly 2 km wide (Figure 7.1 and Figure 7.2). The Basin is interpreted to be a pull-apart structure formed as the result of localized extension due to a step-over on a Late Jurassic sinistral strike-slip regional fault (the Las Peñas fault zone) that runs approximately north-south through the mine area for over 80 km. Prior to the deposition of the Suárez sedimentary rocks, an episode of andesitic volcanic activity deposited generally porphyritic andesites as intrusive, lava and pyroclastic rocks locally around and within the Basin. The volcanic activity is interpreted to be related to the emplacement of magma below the Basin during early basin-related dilutional faulting.

The Suárez Basin sediments are overlain and cut by the more aphanitic FDN andesites that occur as massive lavas and dike units typically trending northwest to north-northwest. A significant lava flow occurs just west of FDN, and multiple dikes and lava flows have been mapped in the central and southern portion of the Basin.

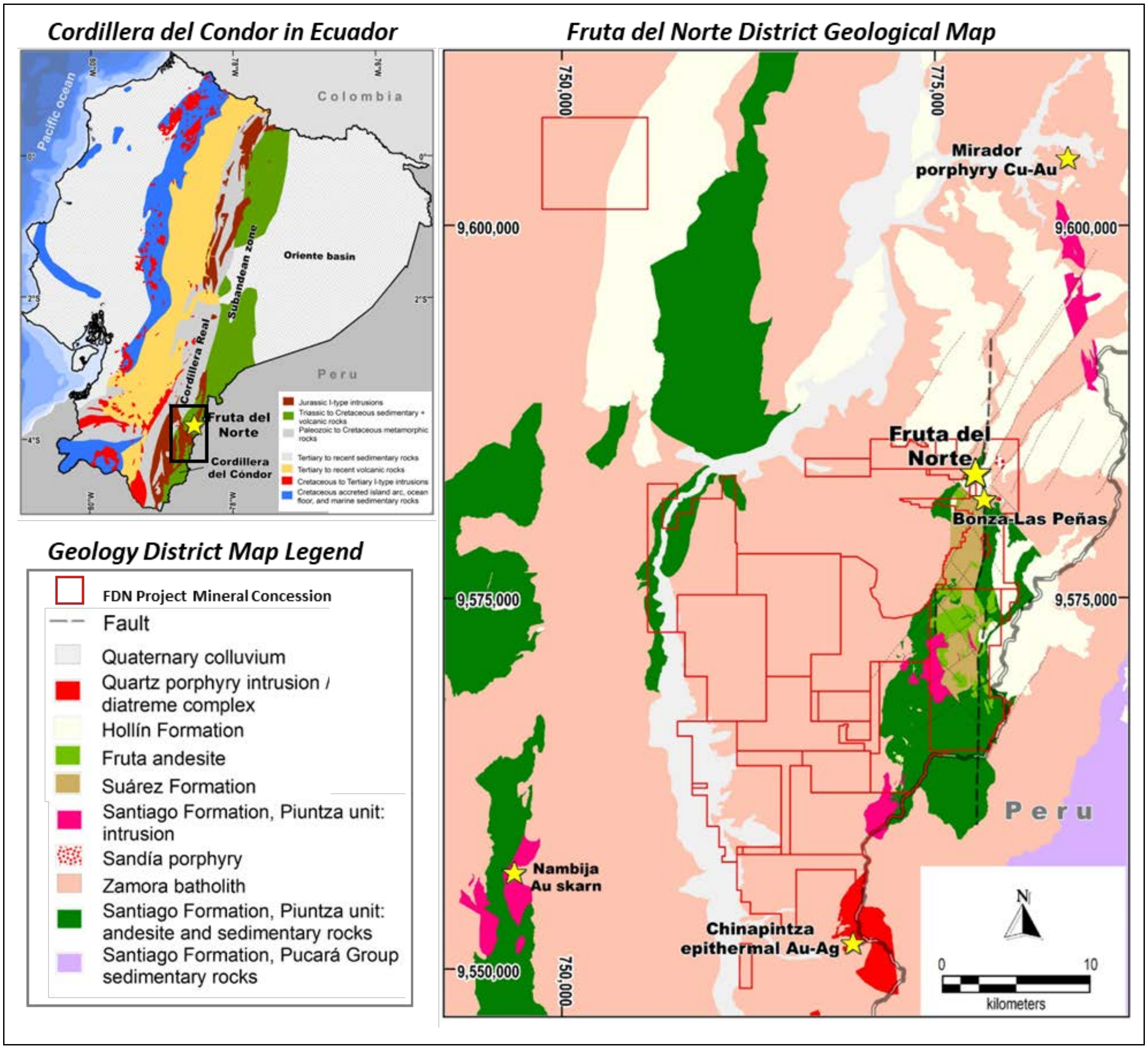
Pre-Andean arc sedimentary and volcanic belts flank, and locally occur, within the batholith. The arc was denuded before the Early Cretaceous deposition of alluvial to shallow-water conglomerate and quartz sandstone of the Hollín Formation. Within the FDN area, mesa-like outliers of Hollín Formation quartz arenite may be up to 110 m high, fronted by vertical escarpments. Marine transgression is indicated by the deposition of overlying Early to Mid-Cretaceous mudstones and limestones. Late Cretaceous to Cenozoic uplift shed voluminous amounts of detritus from the emerging Andes Mountains across the region (Prodeminca, 2000; Quispesivana, 1996).

Quartz porphyry felsic dikes that occur locally farther south from the mine are often associated with sub-vertical diatreme breccia bodies and are interpreted as Tertiary in age.

Recently, the subduction-related Andean orogeny deformed the sub-Andean units into a back-arc fold and thrust belt. This has resulted in a number of generally north-northeast-striking, shallow to moderate dipping thrust faults cutting across the site. Major drainages commonly follow north- to northeast- striking faults. Thrust faults have also been interpreted based on elevation changes to the Hollín Mesas, but limited outcrop hinders the confirmation of these structures in field mapping. A steep to moderate west-dipping and north-south-striking reverse structure cuts above the northern part of FDN and has offset the Suárez-Santiago Formation contact by up to 120 m. The compressional tectonic setting has also gently warped the Cretaceous cover around northeast-striking fold axes, with the majority of the site shallowly (approximately 5º) tilted toward the west.

On a regional and deposit scale, the Las Peñas fault zone is an important structural control on mineralization in the Cordillera del Cóndor. It strikes north–south and can be traced for approximately 80 km. The location of the FDN deposit at the intersection of the north-trending Las Peñas fault zone with northeast-trending secondary faults and other east-west-orientated lineaments attest to the distinct structural context of the epithermal system, which is assumed to have been localized along a precursor normal fault during the incipient stages of pull-apart basin evolution. The FDN deposit developed within the northeastern corner of the Suárez pull-apart basin.

Figure 7.1: District Geology of the Cordillera del Cóndor



Source: Lundin Gold, 2022

7.3 Property Geology

The FDN deposit is an intermediate-sulphidation epithermal gold–silver deposit measuring approximately 1,300 m along strike, 400 m down dip, and 80 m to 300 m wide. The top of the deposit is located beneath approximately 200 m of post-mineralization cover rocks. The eastern and western limits of the deposit are defined by two faults that together form part of the Las Peñas fault system, which is thought to control the gold–silver mineralization. The southern limit of the mineralization along the fault system has not been fully defined by exploration activities.

7.3.1 Lithostratigraphic Units

FDN is buried beneath 130 m to 400 m of Suárez and Hollín Formation cover. Many aspects of the structure, stratigraphy and geological history of the deposit are therefore interpreted from drill core rather than geological mapping.

Partial erosion of the Hollín Formation in the general vicinity of FDN exposed mainly medium to coarse grained granodiorite, tonalite, and diorite of the Zamora Batholith along with most of the Santiago volcanic rock pendant and overlying Suárez Basin fill. Hollín Formation quartz sandstone is preserved across the southern portion of the FDN deposit, locally increasing the thickness of post-mineralization cover.

Drill core logging indicates that the FDN deposit is hosted by Santiago volcanic rocks, composed of typically fine-grained, hornblende-phyric, basaltic andesite to andesite flows and cross-cutting bodies of feldspar porphyry and hydrothermal breccia, formed between strands of the Las Peñas fault zone (the East and West fault zones).

The lithostratigraphy is discussed in the following sub-sections, from youngest to oldest. A summary lithostratigraphic column for FDN is included in Table 7.1, and a geology plan and geological section of the FDN deposit are shown in Figure 7.2 and in Figure 7.3, respectively.

7.3.1.1 Hollín Formation

The Hollín Formation is composed predominantly of stacked, cross-bedded quartz sandstones, thinner intervals of interbedded mudstone and sandstone with subordinate shales and associated thin (typically 2 cm to 5 cm thick) seams of high-vitrinite coals and dark organic mudstones.

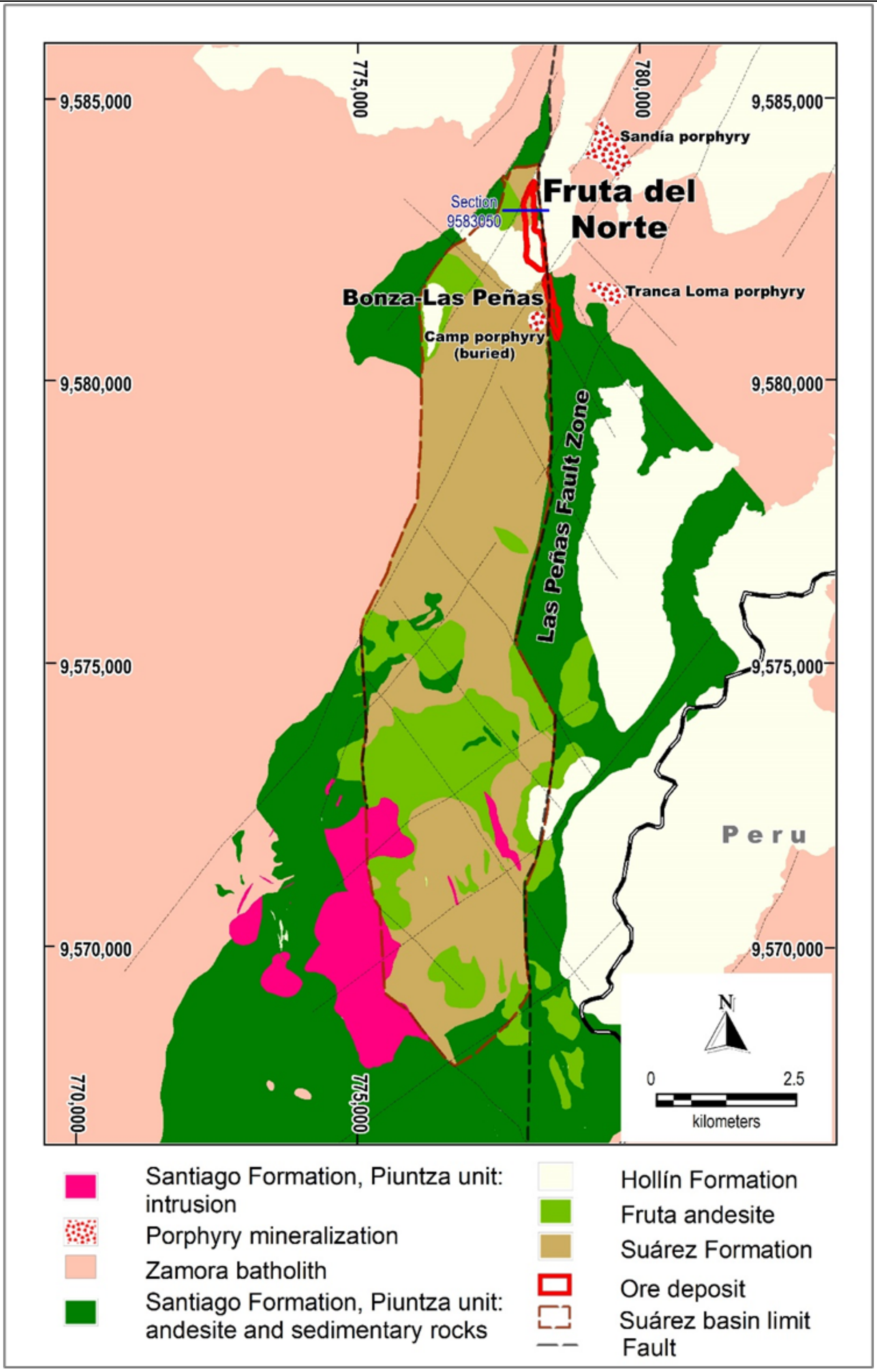
Throughout the Cordillera, the Hollín Formation stratigraphy is disrupted by major north- and north–northeast-trending lineaments and is locally tilted by up to 7º due to the regional uplift and residual activity along the Las Peñas fault zone and other fault zones that intersect it. The Hollín Formation stratigraphy typically exhibits a horizontal to sub-horizontal attitude attaining a thickness of between 100 m and 110 m along the mesa highs. A tongue-shaped mesa of the Hollín Formation separates the known extent of the FDN deposit from the Bonza–Las Peñas deposit to the south.

Table 7.1: Summary Stratigraphy of the FDN Deposit

Age		Formation	Member	Thickness (m)	Description
Early	Cretaceous	Hollín	Upper Sandstone	>60	Quartz sandstone: white, variable yellow brown and banded red- brown-purple iron staining
			Middle	≈20	Grey to black mudstone and siltstone, minor sandstone beds
			Lower Sandstone	≈25	Quartz sandstone; white, variable yellow brown and red brown iron staining
Late		~~~~~~~~~~~~~~~~ Regional Unconformity ~~~~~~~~~~~~~~~~			
	Jurassic	Suarez	Fruta Andesite	≈250	Massive, light green to green-grey, fine-grained to feldspar-hornblende porphyritic lava with exposed columnar joints
			Upper Mixed	≈250	Rhythmically bedded mudstone, siltstone, sandstone and conglomerate; lower contact is defined where polymict basal conglomerate becomes subordinate
			Machinaza Tuff	≈20	Brown to grayish, to whitish massive beds, very fine-grained with feldspar (minor hornblende and quartz) phenocrysts (<5 mm); distinctive texture and color differs from associated sedimentary beds. Strongly magnetic
			Lower Conglomerate	≈220	Massively bedded, immature (rounding, size and composition of clasts) polylithic conglomerate; matrix to clast-supported clasts (up to >1 m core lengths) of andesite, andesite porphyry, medium-grained granitoid, black mudstone and rare epithermal quartz vein and sinter fragments; minor interbeds of sandstone and Machinaza Tuff
		~~ Local Unconformity ~~~~~~~~~~~~~~~~~			
		Santiago	Sinter-Mud Pool Facies	<20	Laminated to disaggregated pearl white to grey opal-A sinter, locally enriched in deep green celadonite. Includes dark grey sandy relict mud pool, geyserite deposits and surficial hydrothermal breccias
Mid			~~~~~~~~~~~~~ Local Unconformity ~~~~~~~~~~~~~		
			Andesite	?	Dark green, massive, aphanitic to feldspar-hornblende porphyritic andesite; includes volcanic breccia; typically, strongly altered at FDN; grades to feldspar porphyry

Source*: Lundin 2023*

Figure 7.2: Surface Geology of the FDN and Bonza – Las Peñas Area



Source: Lundin Gold 2022

7.3.1.2 Suárez Formation

The Suárez Formation is a volcano-sedimentary sequence which unconformably overlies the Santiago Formation, essentially burying and preserving the FDN epithermal system. The fault-disrupted facies architecture of the Suárez Formation is characterized by four distinct stratigraphic sub-units:

1. Fruta Andesite
2. Mixed Sequence (upper member)
3. Machinaza Tuff Member
4. Polymict Basal Conglomerate (lower member)

Spatially, the Suárez Formation is confined to the namesake pull-apart basin which covers a surface area of approximately 35.2 km² and is 2.2 km wide (east to west) and approximately 16 km long (north to south). At FDN, the Suárez Formation may reach up to 400 m thick in areas west of the West fault, thinning to the east and disappearing at the East fault zone. The formation thins and wedges out to the north at the northern limit of the FDN deposit.

Basin-wide, the Suárez Formation shows a consistently mappable change upward from lower units consisting of more massive, polymict, coarse pebble conglomerates to more thinly bedded upper beds which consists of greater than 50% sandstone, siltstone, and mudstone (with small coal seams) and subordinate conglomerate horizons. Conglomerates display a range of provenance, including clasts of diorite / monzonite and granodiorite derived from the Zamora Batholith, and black mudstone / siltstone clasts that are believed to be derived from the Triassic Pucará Formation in Peru. The lower conglomerate underlies and forms the eastern boundary of the basin over the entire length of FDN.

The formation contains several intercalated syn-basinal ignimbrite and other tuffaceous horizons, overlain by the lavas of the Fruta Andesite. The ignimbrite of the Machinaza Tuff Member forms a basin-wide marker in the lower unit. The Fruta Andesite is the most significant lava unit consisting of a massive hornblende, plagioclase-phyric lava flow, which locally contains irregular enclaves of dioritic/monzonitic rock similar to that of the Zamora Batholith.

7.3.1.3 Sinter and Mud Pool Facies

The fault-disrupted sinter facies are located at the unconformable contact between the Suárez Formation and the underlying Santiago Formation. This horizon, ranging from one metre to 33 m thick, consists of variable proportions of laminated silica sinter, pale- to dark-grey mudstone, tuffaceous sandstone, and hydrothermal eruption breccia. The sinter horizon was intersected by at least one drill hole in every 100 m section over a 1.1 km strike length. This is readily correlated as one continuous, shallowly west-dipping layer for over 200 m east-west, but it is also common for the sinter to occur as north-south belts at different elevations within fault blocks and separated by the West or Central faults.

In the south, the sinter horizon is interbedded with the Suárez conglomerate up to 20 m above the base of the Suárez sediments, both east and west of the West fault, suggesting that paleosurface silica deposition continued briefly after the onset of Suárez sedimentation.

7.3.1.4 Santiago Formation

The Santiago Formation is dominated by a thick sequence of light greyish green to dark green coloured hornblende-plagioclase-phyric andesites and basaltic andesites, feldspar porphyritic andesitic intrusive rocks, locally voluminous phreatic breccia zones, and lesser intrusions. Rare marine sedimentary beds comprising black calcareous shale and limestone occur locally at FDN and more commonly in the Santiago Formation further south and east, where varied lithologies including tuffaceous horizons are interbedded.

At FDN, this formation locally crops out as intensively fractured wall rocks east of the deposit and the East fault. The Santiago volcanic rocks underwent textural obliteration due to intense and pervasive hydrothermal alteration, most notably in the uppermost part of the deposit. There, the protolith is commonly obscured and andesitic flows and breccias are generally inferred. There is local textural evidence for thinly bedded levels that appear to include tuffaceous sedimentary strata as well as massive andesite. The base of the Santiago Formation has not been intersected by drilling at FDN.

7.3.1.5 Footwall Feldspar Porphyry

A distinct, medium-grained feldspar porphyry body lies northwards from section 3200 N. This and other distinctive medium- to coarse-grained porphyritic andesite intrusives around the basin are interpreted to have resulted from the volcanic activity that occurred just before mineralization during early basin development. The feldspar porphyry crops out east of the East fault zone and underlies the Suárez Formation in the downthrown block to the west. The contact with the Santiago Formation andesites is locally sharp and often brecciated. The intrusive contact dips between 65º and 70º to the west where it has been intensively faulted.

Drill hole data suggest that the intrusion is lensoid in shape, elongated north–south, and forms the eastern (footwall) margin of the FDN deposit. In places, multiple planar intrusions cut the volcanic rocks at the contact, which is almost entirely masked by intense veining and mineralization between sections 3200 N and 3800 N. This can complicate distinguishing the porphyry from Santiago Formation volcanic rocks of otherwise similar composition. High-grade, crustiform–colloform-textured veining is best developed at, and above, the intrusive contact in this segment of the deposit. The footwall porphyry narrows north of section 3900 N, where drilling indicates that it is also fault-disrupted and truncated. It is difficult to trace the porphyry intrusion south of line 3200 N where a complex mixture of volcanic rocks and intrusions prevail, rather than one coherent body. It appears that the unit trends eastward away from the mineralization. The intrusion appears to be the widest in the central section of FDN, where the eastern margin of the porphyry has not yet been defined.

The rheological contrast between intrusive and finer grained volcanic units to the west appears to have resulted in enhanced dilation and has allowed hydrothermal fluid flow along and adjacent to the contact during tectonism in the Las Peñas fault zone.

7.3.1.6 Phreatic Breccia

The phreatomagmatic breccia is the most prevalent breccia type at FDN. It is characterized by pale grey to white, sub-rounded to sub-angular fragments of both feldspar porphyry and hornblende-phyric andesite, supported in a fine grain silica–illite–pyrite ± carbonate altered rock-flour matrix. The fragments often present intensive heavily illitization.

The dominant clast type reflects the host rock in which the breccia developed. Where the breccia occurs wholly within the feldspar porphyry, clasts are exclusively of that material. Conversely, where the breccia was emplaced along the feldspar porphyry / andesite contact, the breccia is polymictic. Where the breccia crosscuts both rock units, it becomes progressively richer in host rock clasts with increasing distance from the lithological contact.

Epithermal veins are best developed along or adjacent to the breccia / wall rock contacts and can be very poorly developed within the rock flour matrix dominant breccia itself. Breccia zones are best developed on the east side of the deposit, near the intrusive / volcanic contact where it attains a stratigraphic height of several hundreds of metres and continues beyond the current depth of drilling.

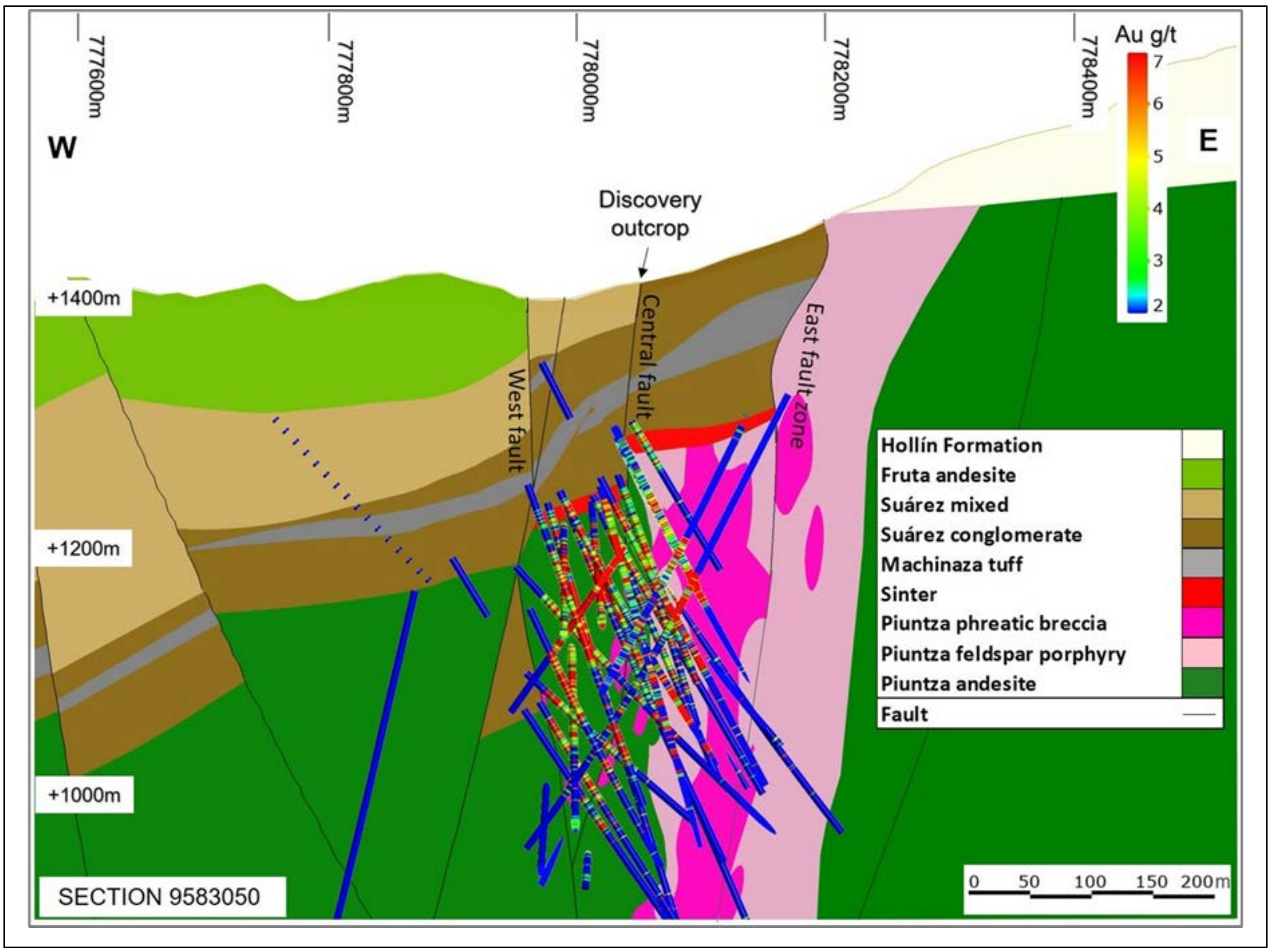
7.3.1.7 Hydrothermal Breccia

Hydrothermal breccias are characterized by intense silica and silica-marcasite matrix. They are generally matrix supported, with polymictic clasts including vein fragments, and altered volcanic rock fragments. There are numerous episodes of cross-cutting veins and stockwork associated with multiple mineralizing events as a product of the hydrothermal process.

Hydrothermal breccias are directly associated with the mineralization process and contribute most to the gold reported as Mineral Resources. The breccias vary in colour from near black (central part of the deposit) to light grey, and white, largely depending on the marcasite content within the silica component. The hydrothermal breccias can be sub-divided into two types:

- Hydrothermal explosion breccias that were formed during the main phase of epithermal mineralization. These have complex mutual overprinting features including clasts which are cut by new veins, stockwork, and other alteration.
- Vein breccias that are believed to be related to later-stage mineralization and cut all other epithermal features. Vein breccias are typically associated with crystalline quartz–calcite–barite and base metal sulphides and commonly occur in the deeper parts of the deposit.

Figure 7.3: Representative E-W Geologic Section of the FDN Deposit, Showing the Host Rocks, Volcano-Sedimentary Cover, Main Faults, and Gold Grades



Source: Lundin Gold 2022

7.3.2 Structural Geology

The FDN deposit is located near the northern extremity of the Suárez Basin. The gold mineralization is confined to a 250 m to 300 m wide fault block between the East and West faults, north-striking strands of the Las Peñas fault zone that can be traced over the full length of the deposit. The Central fault, which displaces the mineralization, is interpreted as a small splay between the East and West faults.

Based on drill core correlations, the East, Central, and West faults are mapped as sub-vertical structures. The East fault is a diffuse, mesh-like array, up to 100 m wide, of anastomosing, heavily damaged crush zones, faults, and shears, with intervening panels of less-deformed andesite from the Santiago Formation and feldspar porphyry. In contrast, the West fault is one or more distinct and well-defined crush and gouge zones that are typically less than 10 m wide. The West and East faults have been traced in drill holes to vertical depths of over 500 m. The Central fault is a discrete structure, generally less than one metre wide, that incorporates crushed vein and silicified material and displaces mineral zones, providing clear evidence for post mineralization motion.

The three faults show apparent down-to-the-west movement, but with variable displacements over the 1.3 km length of the deposit. The West fault shows a relatively constant 130 m to 150 m of displacement in the southern and central parts of the deposit, where it juxtaposes mineralization and barren rock. This relationship suggests that the westernmost part of the deposit may have been offset. Exploratory drilling to depths greater than one (1) kilometre has so far failed to locate any displaced mineralization west of the West fault. The Central fault attains a maximum displacement of the lower Suárez conglomerate contact of approximately 70 m in the north that decreases southward as the structure swings east. The East fault appears to have the greatest dip-slip displacement of the base of the Suárez conglomerate, typically over 200 m. Although drill control is limited, minor vertical displacement of the lower Hollín Formation contact and minor local tilting of Hollín Formation blocks are interpreted directly above the East fault.

The Suárez sediments and sinter horizons above FDN may have been deposited roughly horizontal, but now dip between 20º and 30º to the west. It is therefore evident that the whole of the FDN deposit and overlying Suárez sediments have been tilted to the west. This is likely to be due to block rotation during late-stage pull-apart basin development, a common feature in sandbox modelling of pull-apart structures. It is also likely that this tilting post-dates the West and Central faults, which now appear to be steep eastly dipping reverse structures, they were likely steep westerly dipping structures when they formed. The broad East fault zone is probably the pivot zone for the tilted block. The Las Peñas fault zone has a protracted, but poorly constrained movement history that likely preceded, accompanied, and post-dated formation of the Suárez Basin. The results of structural mapping in the FDN area suggest dominantly sinistral displacement with extension related to the left-stepping character of the Las Peñas fault zone at the FDN deposit.

7.3.3 Hydrothermal Alteration

At FDN, hydrothermal alteration consists primarily of a silica (quartz, chalcedony), sericite (illite), clay-pyrite (± marcasite), ± carbonate mineral assemblage. The intensity of alteration is such that it is often difficult to conclusively discern the protolith given the levels of textural destruction.

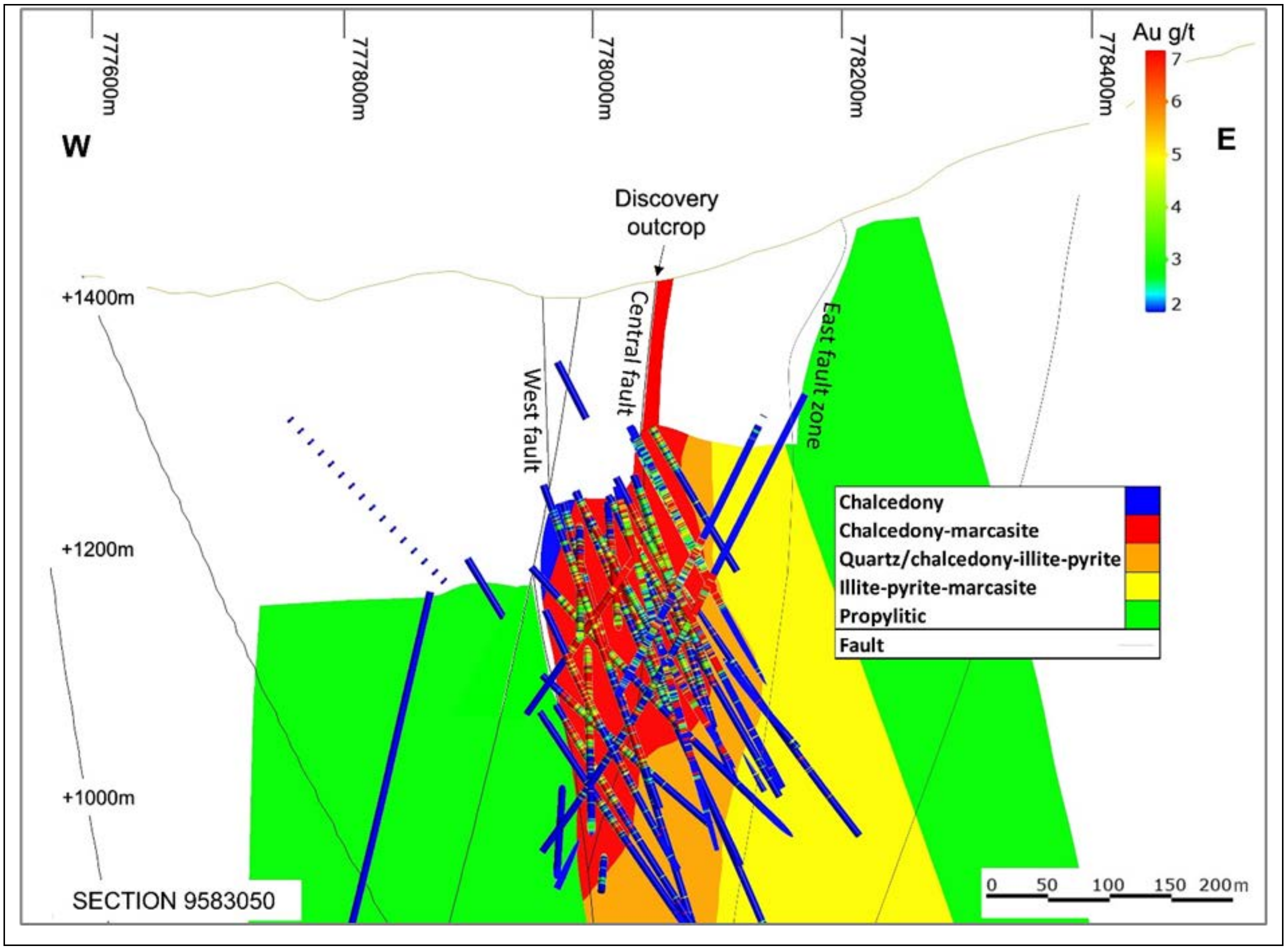
The most intense alteration is in the upper parts of the deposit, directly below the Suárez conglomerate, where pervasive silicification and chalcedony veining are accompanied by less than 1 vol% to 3 vol% of marcasite and pyrite and minor illite or carbonate. The silicification decreases in both extent and intensity downward and eastward, where it is transitional to broad halos of illite-pyrite and then, more distally, illite -calcite-pyrite. The silicification ends abruptly west of the West fault.

The silicification ± marcasite / pyrite locally affects the basal part of the conglomerate above the deposit, often for up to 10 m and decreases in intensity upward. Occurrences of iron-rich smectite line fractures and veins locally in the upper parts of the intensely silicified zone are common.

Marcasite horizons anomalous in As, Sb, (± Mo, Ag and Tl) can occur within the more permeable Suárez sediment beds at significant distances from the FDN deposit. Locally, the Machinaza tuff is altered to pale green illite, more commonly along its base. A sub-vertical zone of silicification ± marcasite occurs in conglomerate directly over the FDN deposit and is seen at surface as the silicified rib that constituted the discovery outcrop. This is interpreted as very late alteration due to hydrothermal fluid flowing up the Central fault structure (Figure 7.3). The Fruta Andesite is slightly altered, although close to the West fault, it hosts sparse calcite veinlets, with galena.

Shortwave infrared spectroscopy using the absorption wavelength criteria provided by AusSpec (2008) was conducted on core from several drill holes to characterize the composition of hydrothermal illite at the deposit scale. The survey suggests that in the northern part of the deposit, phengitic illite (Si, Fe, and Mg rich) and paragonitic illite (Na and Al rich) generally coincide with the gold-silver mineralization, but also extend into the altered parts of the overlying Suárez Formation. In contrast, in the southern part of the deposit, phengitic illite roughly coincides with the mineralized zone, whereas paragonitic illite is less abundant and tends to occur only above the deposit.

Figure 7.4: Representative E-W Geologic Section of the FDN Deposit, Showing the Hydrothermal Alteration Zone and Gold Grade Distribution



Source: Lundin Gold 2022

7.3.4 Mineralization

The alteration and mineralization at the FDN deposit has a strike length of approximately 1.3 km along the eastern edge of the Suárez Basin. At its northern extremity, the FDN deposit is approximately 80 m wide, expanding to between 100 m and 125 m wide for a distance of more than 300 m in the central high-grade core, and then widening incrementally southward: first to about 160 m and then to almost 300 m on approach to its southern limit. In this wider southern zone, the vein array and stockwork are more open containing lower-grade mineralization. The most intense alteration, veining, and brecciation, greatest mineralogic complexity, and highest grades occur in the 300 m long, high-grade core, which contains most of the current Mineral Resource.

The deposit comprises four distinct mineralogical and geochemical mineralization types. In the southern zone, the deposit is characterized by manganoan carbonates, with intensely mineralized zones having greater than 1% Mn and composed of sheeted to stockwork veins and vein breccias, with finely banded, crustiform-colloform quartz, carbonates, and sulphides.

Above and to the north of the manganoan carbonate zone, it changes to a mineralization characterized by intense silicification, chalcedony-marcasite veining and breccia cement, extremely fine-grained, disseminated marcasite ± pyrite, and the absence of carbonate minerals. The host-rock lithologies are typically obscured, but interbedded fine-grained tuffaceous sediments and andesite are discernible locally. This zone thickens toward and ends abruptly at the West fault and thins from greater than 100 m in the high-grade core of the deposit to only a few metres in the south.

In the central part of the deposit, there is a tabular, flat-lying mineralized zone, up to 20 m thick, characterized by intense silicification, locally abundant illite, and notably lower sulphide and iron contents. The zone directly underlies either Suárez conglomerate or the sinter horizon.

The northern part of FDN comprises large volumes of white quartz and/or chalcedony and calcite ± adularia veins, typically with only minor sulphide and manganese contents. This style of veining extends northward and is also concentrated along the western, steeply west-dipping contact of the feldspar porphyry. In this zone, crustiform-colloform texture is not as developed as farther south, but is commonly observed as faint, centimetre-scale bands in large quartz-chalcedony veins and as finer laminations in quartz veinlets. Quartz is partially to completely pseudo-morphosed after irregular lattices of bladed calcite, which are particularly common, and manganoan carbonates are absent. The veining in this zone is mineralogically much simpler and typically lower in average grade than the other three types of mineralization, but nonetheless of significant volume.

7.3.4.1 Textures & Mineralogy

The FDN deposit is characterized by preserved examples of classic epithermal vein textures and contains two main styles of precious metal mineralization: the massively to finely banded, crustiform-colloform quartz and/or chalcedony ± sulphide ± carbonate ± adularia veins, stockworks, and breccia cements; and intensely silicified host rocks with disseminations of fine-grained marcasite ± pyrite cut by crustiform-colloform chalcedony and quartz ± marcasite veins and stockworks. The distribution of these two styles and predominant vein mineralogy are mappable and contribute to the subdivision of the deposit into the four distinctive types of mineralization as defined above.

The intensity of veining at FDN varies from millimetre-scale veinlets to composite vein intervals tens of metres wide, with the veins comprising multiple gangue and sulphide generations. In the northern part of the deposit, stockwork and sheeted veins of semi-massive to massive, saccharoidal quartz and chalcedony make up to 80% to 100% of the rock volume over widths of up to 100 m. Stockwork veining in the upper part of the deposit appears entirely random and resembles a giant crackle breccia when visualized at a scale larger than drill core. At depth in the manganoan carbonate-rich zone; however, sheeted veins are more common, with dips varying from sub-horizontal, to shallow through to steeply west and steeply east. Underground mapping indicates a paragenetic sequence of steep easterly veins through steep westerly veins to moderate westerly veins and lastly the sub-horizontal orientated veins.

The dominant sulphide gangue minerals are marcasite and pyrite, which occur together or separately as bands in veins and veinlets. Marcasite dominates the sulphide disseminations in the upper silica zone, whereas disseminated pyrite prevails in the quartz / chalcedony-illite alteration in the main parts of the deposit. Bands of sphalerite and galena, locally with chalcopyrite, are common in manganoan carbonate veins, being most abundant in the deepest veins, commonly below the deposit. Sphalerite and, less commonly, galena also occur as drusy euhedral crystals lining open spaces and, at shallow levels, in late fractures. The sphalerite varies from black to dark brown in crustiform bands in quartz-carbonate-sulphide veins at depth to honey-coloured crystals in open spaces at shallow levels. Traces of tetrahedrite accompanying visible gold in manganoan carbonate veins were identified at depth, but only rarely elsewhere. Other volumetrically minor metallic minerals identified with a hand lens or microscopically include pyrrhotite, proustite-pyrargyrite, acanthite, native silver, freibergite (argentiferous tetrahedrite), boulangerite, and jamesonite. To these may be added alabandite (MnS), seen exclusively at depth below the manganoan carbonate-rich zone, and stibnite and arsenopyrite, which locally accompany marcasite in the silicified conglomerate above the deposit.

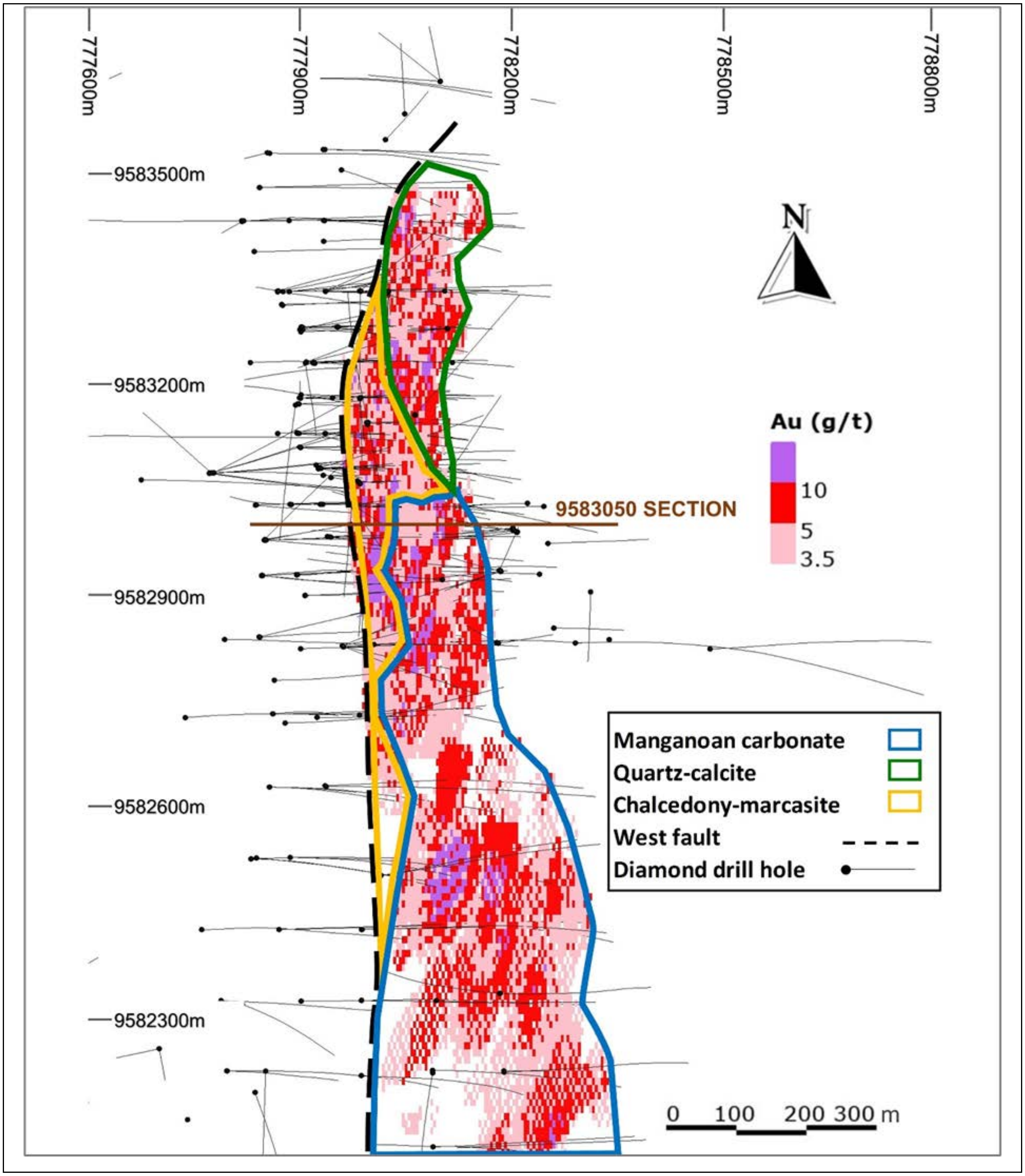
7.3.4.2 Gold Occurrence

Most gold at FDN is microscopic occurring in veins and veinlets, but coarse, visible gold is a distinctive and integral feature of the deposit. Visible gold is associated with a range of minerals, including quartz, chalcedony, carbonates, marcasite, sphalerite, and tetrahedrite, and where present, the highest-grade zones (>15 g/t Au). Individual gold grains range from isolated specks less than 0.1 mm in size to “broccoli-like”, dendritic crystals greater than 10 mm across. Preliminary and limited electron microprobe analysis found that gold fineness ranges from approximately 750 (electrum) in the north to greater than 900 (native gold) in the central, high-grade core. The sulphosalts that commonly coexist with visible gold are argentiferous, resulting in significantly higher silver than gold values and Au/Ag ratios typically less than 1:2. The gold and silver values are generally roughly equal (Au/Ag ~1) in the upper and central parts of the deposit, with silver tending to increase relative to gold with depth. The Au/Ag ratios are less than 0.1 in the deepest parts of the deposit. The mineralization level with roughly equal gold and silver values gradually deepens to the south in the manganoan carbonate-rich zone.

Some distinctive vein textures are common hallmarks of bonanza-grade gold even where visible gold is not noted. Crustiform vein bands of radiating clusters of elongate marcasite crystals, 1 mm to 10 mm long, and coalesced marcasite crystal aggregates are commonly associated with visible gold and bonanza grades. Acicular marcasite is typically enveloped by chalcedony, which, in turn, is coated by crystalline quartz. Many coarse-grained gold dendrites and porous masses of visible gold are spatially associated with similar porous clots of anhedral marcasite. In certain areas, the visible gold accompanies marcasite needles replaced by pyrite.

Metallurgical tests show that most of the gold, particularly gold contained in the vein-dominated zones, is free milling. In contrast, the disseminated mineralization in the upper silicic part of the deposit is moderately refractory, with approximately 40% of the total gold endowment locked in sulphide minerals, mainly marcasite and pyrite.

**Figure 7.5: Plan View at 1,150 m Elevation with Spatial Distribution of Three Main Mineralogical Domains and Grade of Block Models.
The Upper Zone of Quartz / Chalcedony-illite Zone is not Included**



Source: Lundin Gold 2022

Figure 7.6: A: Chalcedony-Marcasite Zone with Crustiform-Colloform Banded Veining, Marcasite and Pyrite. B: Manganoan Carbonate Zone with Carbonate-Sulphide and Sulphides. C: Gold Dendritic Crystals in Chalcedony-Marcasite Zone. D: Manganoan Carbonate Zone with Colloform Banded Veining. E: Manganoan Carbonate Zone with Quartz Veins, Marcasite, and Pyrite on Volcanic Hosting Sequence. F: Chalcedony-Marcasite Zone with Crustiform-Colloform Banded Veining with Marcasite and Pyrite

Source: Lundin Gold 2022

7.3.5 Bonza Las Peñas

The Bonza–Las Peñas is located immediately south of FDN. It consists of epithermal stockwork veining and breccias hosted within the Las Peñas fault zone by silica–sericite–pyrite-altered andesitic volcanic rocks of the Santiago Formation.

Mineralization comprises discrete quartz veins, quartz–rhodochrosite–manganese carbonate veins, cataclastic breccias, pyritic gouge, hydrothermal breccias, silicified pyritic zones, shatter breccias cemented by sulphides and possible magmatic-rooted intrusive breccia pipes. There is abundant textural evidence of multiple hydrothermal events, and any of the above mineralization types can mutually crosscut each other. In places, quartz veins can be followed cross cutting the zones, but more often the veins have been tectonically milled and pulled apart into individual fragments. The gross pattern of mineralization is a network of anastomosing or basket-weave shear planes and slickensides surrounding otherwise intact pieces of country rock. Quartz veins are variable in size but can reach up to 5 m thick. There are various vein types: massive white quartz, white comb textured quartz, banded chalcedonic quartz, black cherty quartz, rhythmically banded crustiform- and colloform-textured chalcedony, and rhodochrosite. The silica replacement of carbonate minerals is evident in some zones.

Within Bonza–Las Peñas, there are anomalous to significant concentrations of arsenic, antimony, manganese, zinc, mercury, lead, and copper in addition to the gold and silver mineralization. Sphalerite and galena are locally abundant, and the former can be yellow–brown or a dark red-brown in colour. Both are typically cross-cutting and are interpreted to have formed late in the paragenetic history. The near-s urface veins in the Santiago Formation volcanic rocks are interpreted to represent mineralization from deeper parts of an epithermal system with shallower parts possibly having been eroded long ago.

The deposit was discovered in the late of 1990s and since then, limited exploration has been carried out, mainly after the discovery of FDN. Drilling programs and surface work indicate that the vein zones are very discontinuous and of much lower grade than FDN.

7.4 Comments on Section 7

In the opinion of the QPs, the knowledge of the deposit settings, lithologies, mineralization style and setting, mineralization controls, and structural and alteration controls on mineralization is sufficient to support Mineral Resource and Mineral Reserve estimation.

8 DEPOSIT TYPES

The FDN deposit is a completely concealed, well-preserved Late Jurassic epithermal deposit. Although the geologic features found at FDN place it firmly in the epithermal category, its classification as either a low- or intermediate-sulphidation deposit is not straightforward (cf. Hedenquist et al., 2000).

The abundance of manganese-rich carbonate and the elevated base metal content (typically as iron-poor sphalerite and subsidiary tetrahedrite and chalcopyrite) in the southern zone are typical features of intermediate-sulphidation deposits. The extensional tectonic setting of mineralizing fluid emplacement and the affiliation with intermediate magma types also complement the classification in terms of redox states.

On the other hand, minor occurrence of sulphides and base metals and the absence of manganese carbonates in the northern part of FDN are more typical of low-sulphidation deposits. The existence of mineralization associated with is continuity between veins and stockworks with low- and intermediate-sulphidation characteristics is common in several epithermal deposits elsewhere that either contain low- and intermediate- sulphidation veins or individual veins comprising low- and intermediate-sulphidation stages (Leary, 2020).

The mapping of the veins and their relationships suggest that the FDN deposit evolved (or changed) from an early intermediate-sulphidation epithermal deposit dominated by quartz-manganese carbonate-sulphides (containing base metals) to a low-sulphidation type epithermal system dominated by quartz-calcite-minor sulphide mineralization. In addition to the intermediate-sulphidation type mineralization occurring further south, the change in epithermal type is also accompanied by a significant structural change with the earlier intermediate-sulphidation veins typically striking northwest or north-northwest and the later low-sulphidation veins typically northeast or north-northeast. The areas occupied by the two epithermal types at FDN overlap considerably and are coincident with the central part of FDN, which has the highest grade and the greatest proportion of gold and silver.

The almost complete preservation below the Suárez Basin cover and the presence of an extensive sinter horizon overlying most of the deposit is a unique characteristic of FDN. The proximity of gold-silver mineralization below the sinter paleosurface is not a common feature of epithermal deposits, particularly those of intermediate-sulphidation type. More commonly, there is a significant gap (up to several hundred metres) between the mineralization and contemporaneous sinter levels (Leary *et al*, 2016, 2020).

9 EXPLORATION

9.1 Overview of Exploration Activities

Since the discovery of FDN, exploration has targeted the Suárez Basin geological setting, where the same mineralizing processes that created the deposit are thought to have led to the formation of other buried and preserved epithermal systems. The Lundin Gold exploration team has employed a wide range of exploration techniques at the site, such as geological mapping, stream sampling, soil sampling, rock-chip sampling and core drilling. Multiple geophysical techniques were used, including a Z axis tipper electromagnetic survey (ZTEM), airborne magnetic and radiometric survey, and Gradient Array induced polarization (IP) survey. Exploration was conducted by trained geologists and technicians using established standard operating procedures.

Since 2015, Lundin Gold exploration activities focused on the southern portion of the Suárez Basin, termed "Southern Basin", exploring a very similar geological setting to that of FDN (Barbasco, Barbasco Norte, Puma, Puente Princesa, and Quebrada La Negra targets). Additionally, exploration programs were carried out in areas adjacent to the Suárez Basin, targeting for shallower epithermal systems in younger magmatic environments (Robles, Emperador, Chanchito, and Gata Salvaje).

Since 2021, exploration programs carried out at FDN have focused on upgrading Inferred Mineral Resources to the Measured or Indicated categories. The programs have improved confidence in, and have provided further support to, the geological model of the deposit.

In 2022, a near-mine exploration program was initiated, with a focus on targets within and around the existing operation and on sectors in the continuities of the FDN deposit and along the extension of major structures. Several sectors adjacent to the operating mine and exhibiting similar geological conditions to those at FDN remain generally untested.

Table 9.1: Exploration Activities by Lundin Gold between 2015 and 2022

Date	Lundin Gold Main Exploration Activities
2015	Conversion drilling at FDN
	IP Survey. Focus on the south portion of Suárez Basin or "Southern Basin" targets (Rio Blanco/Puma) and adjacent areas (Gata Salvaje, Robles, Chanchito and Emperador)
	Surface sampling at Southern Basin (Blanco/Puma target) and adjacent areas (Robles, Chanchito, Emperador and El Arco targets)
2016	Exploratory drilling at Southern Basin (Rio Blanco/Puma target) and adjacent areas (Robles, Chanchito and Emperador targets)
	Surface sampling at Southern Basin and adjacent areas. Focus on target generation
	Surface sampling and geological mapping in several regional concessions. Focus on target generation
2017	Surface sampling at Suárez Basin (La Zarza and Emperador Concession)
	Surface Sampling on regional concessions (Alberto, Baron, Guacamayo, Marquesa, Reina, Soberano and Victoriana concessions). Focus on target generation
2018	ZTEM survey in the Suárez Basin
	Exploratory drilling at Southern Basin. Focus at Rio Blanco/Puma targets
	Surface sampling at Suárez Basin (FDN Concession and Emperador). Focus at Guayacan, FDN Este and Barbasco targets
	Surface sampling on Marquesa and Reina Concessions. Focus at Gata Salvaje target
2019	Surface sampling at Suárez Basin (La Zarza and Emperador Concession). Focus on Lora and Tabano targets in the Southern Basin
	Surface sampling and detailed mapping at Gata Salvaje target (Reina Concession)
	Detailed mapping at Barbasco target
2020	Surface sampling on Suárez Basin. Focus on Barbasco Target
2021	Start the conversion program at FDN southern extension
	Exploratory drilling on Southern Basin. Focus at Barbasco and Puente Princesa targets
2022	Conversion Drilling Program at FDN southern extension
	Exploratory drilling in the Southern Basin. Focus at Barbasco, Puente Princesa Barbasco Norte, Quebrada La Negra targets
	Start the Near Mine exploration program. Focus on extensions of FDN deposit
	Surface sampling at Suárez Basin (La Zarza Concession and Emperador). Focus on Near Mine targets and target generation in the Southern Basin

9.2 Surface Sampling

Surface sampling completed by Lundin Gold and its predecessor companies includes soil, stream sediment, and rock sampling surveys. Approximately 37,636 surface samples had been collected over the entire site by the end of December 2022 (Table 9.2 and Figure 9.1). The current database of surface samples consists of 13,285 rock chips samples, 21,027 soil samples, and 3,324 stream samples (Table 9.2). All surface samples have been located with a hand-held Garmin global positioning system (GPS) unit.

The soil geochemical surveys have been very effective in outlining new areas of interest, while rock samples (boulders and outcrop) help evaluate the potential of these area and define targets for future drilling. These areas of interest are anomalous to various extents in arsenic, antimony, gold, and/or mercury amongst other elements, all of which were key indicators of blind mineralization at FDN. Several key exploration targets have been incorporated into the current exploratory drilling program while other geochemical anomalous sectors are still under detailing by additional surface sampling.

Table 9.2: Completed Geochemical Surveys

Surface Sampling	Climax Aurelian	Kinross			Lundin Gold							
Period	1997-2007	2011	2012	2013	2015	2016	2017	2018	2019	2020	2021	2022
Rock	3,015	1,302	1,230	959	362	1,223	1,772	1,169	992	156	23	1,081
Soil	6,252	2,789	3,613	237	1,526	3,696	2,040	364	510	0	0	0
Stream Sediment	3,266	11	0	0	0	0	47	0	0	0	0	0
Total	12,533	4,102	4,843	1,196	1,888	4,919	3,859	1,533	1,502	156	23	10,81

9.2.1 Soil Sampling

Soil samples are collected on predetermined grids of various sample density, depending on the scale:

- Property scale: 200 m line spacing, 50 m sample spacing
- Target areas: 100 m line spacing, 50 m sample spacing

Soil samples are collected by technical assistants under the supervision of geologists. The sample location is determined using a hand-held GPS. The technicians dig to the B–C horizon, approximately 15 cm to 30 cm deep, and collect approximately 1.5 kg to 2 kg of material in labelled bags. The sample location is marked in the field with a ribbon flag and a metal tag with the sample number. The coordinates are recorded in the GPS to be uploaded to the Geospatial Database.

9.2.2 Rock/Float Sampling

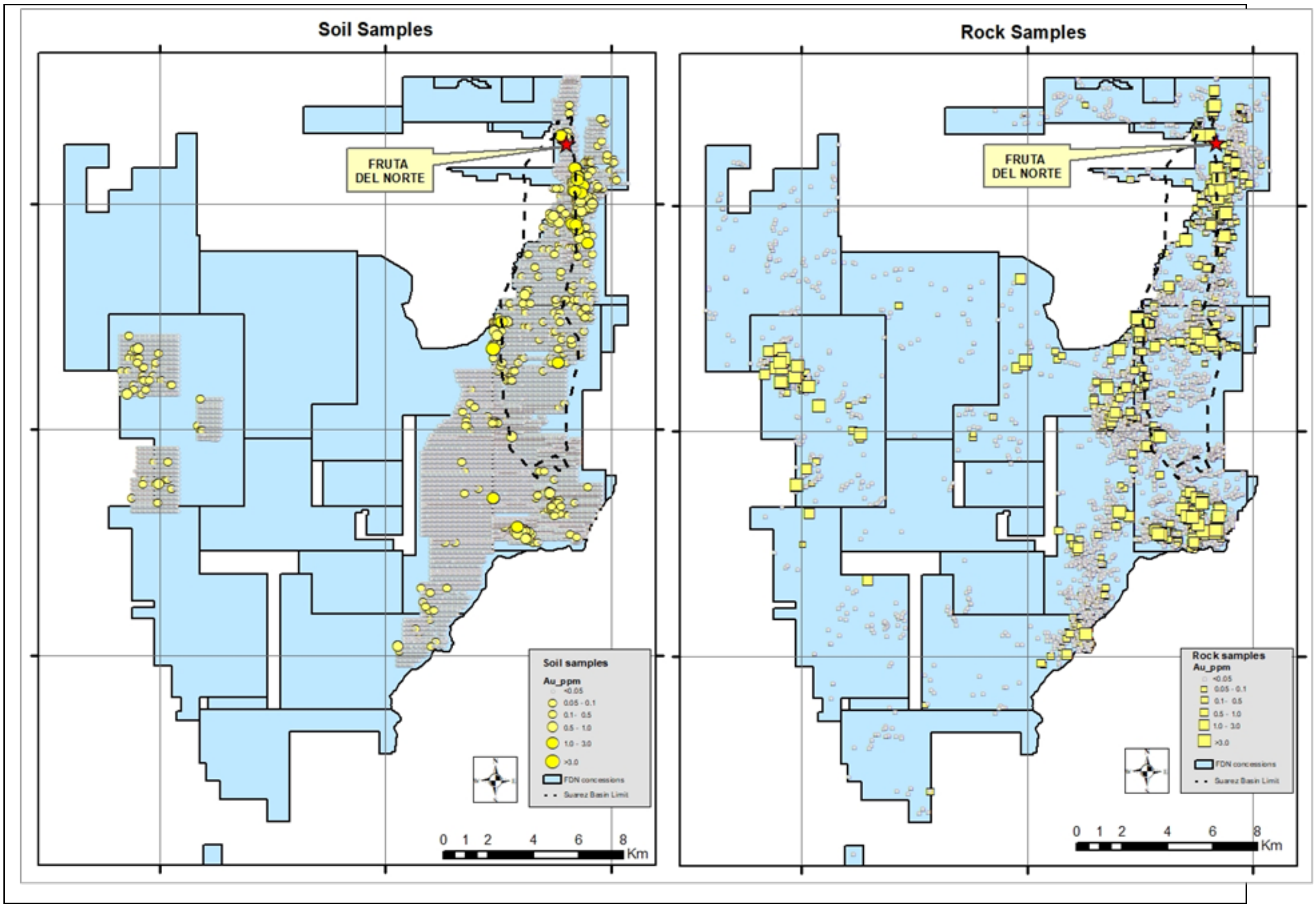
Float and outcrop rock samples are collected by geologists with the help of an assistant, using a rock hammer and chisel where needed. Most samples are collected along the main creeks during the geological mapping. Rock chip samples weighing 3 kg to 5 kg are collected in the field, either as select samples or as chip samples, across veins or altered and mineralized structures. The samples are labelled and described by the geologist; the sample location is recorded with a hand-held GPS, and the site is marked in the field with flagging and a metal tag that records the sample number(s). Samples are placed in plastic bags which are numbered and sealed and sent to the laboratory for geochemical analysis.

9.2.3 Trenches

Channel samples are cut from outcrops, from shallow trenches made by hand with a shovel. The geologist marks the axis where the channel will be made on the outcrop or on the floor of the trench and marks the limits of each sample with spray paint. Channel sampling is carried out once the entire area is cleaned. Samples are cut, using a portable circular saw, to a width and depth of 5 cm. The sample length varies from 0.5 m to 1.5 m depending on the lithology, alteration, and mineralization.

Trenching is mostly used to evaluate areas of artisanal mine workings, mainly in the areas around Castillo and Bonza–Las Peñas areas, where mineralized volcanic rocks of the Santiago Formation are exposed on surface. Trenching has also proved to be an effective tool in other areas, such as Emperador and Robles, where exploration has been targeting shallower epithermal systems. All trench samples are included in the count of rock samples in Table 9.2.

Figure 9.1: Surface Sampling, 2011–2016



Source: Lundin Gold, 2022

9.3 <u>Geological Mapping</u>

Geological and structural mapping have been completed on a regional (1:25,000) and prospect (1:2,000) scale. Mapping results were used to identify areas of quartz veining, silicification, and sulphide outcrop that warranted additional work. Geological mapping is generally performed in conjunction with rock sampling.

Combined data from remote sensing, geophysics, geological mapping, and drilling provide an important tool for interpretation of regional fault configurations and identification of major fluid pathway.

9.4 Geophysics

Lundin Gold and its predecessor companies have conducted airborne magnetic and radiometric, ZTEM, and targeted IP surveys as presented in Table 9.3. A map showing the area covered by these surveys, with the results of the total magnetic and ZTEM surveys as a background, is provided in Figure 9.2.

9.4.1 Gradient Array IP Survey

Gradient Array IP surveys have been completed on a target scale in several areas of the site and over different periods of time (Table 9.3 and Figure 9.2). The first survey in 1998 consisted of 51 line-km and covered FDN and adjacent targets, including Castillo and Bonza. A second survey was completed in 2015 consisting of 83.7 line-km and covering the Southern Basin targets (Rio Blanco/Puma) and targets located outside the Suárez Basin (Emperador, Robles, Chanchito, and Gata Salvaje). Details on the Gradient Array configuration and instrumentation are provided in Table 9.3.

For both surveys, the data quality is considered to be good, and the results of the surveys provide a consistent and reasonably accurate representation of the geo-electrical properties (apparent resistivity and chargeability) of the subsurface suitable for geological interpretation. Due to the thick tropical vegetation and very limited outcrop exposure, Gradient Array IP has proved to be very useful in defining the local geological context such as intrusive rocks, faults, basin fill materials (conglomerates rocks), zones of silicification, and pyrite-rich zones at depth.

9.4.2 Aeromagnetic and Radiometric Survey

In 2012, a high-sensitivity airborne aeromagnetic and radiometric survey was completed at the site over a total of 3,270 line-km at a line spacing of 100 m. Further details of this survey are provided in Table 9.3 and results are shown in Figure 9.2.

The survey mainly targeted the Suárez Basin geological setting and adjacent areas, including the Santiago Formation and Zamora Batholith. The acquired magnetic and radiometric data proved to be very useful at a regional scale for identification of major structures, important in targeting epithermal system. In addition, the survey provided more accurate information on the main geological units under cover, mainly in the southern part of the Suárez Basin.

9.4.3 ZTEM Survey (Z-axis Tipper Electromagnetic)

In 2018, a ZTEM and helicopter-borne aeromagnetic survey was completed at the site over 533 line-km. Further details of this survey are provided in Table 9.3 and results are shown in Figure 9.2.

The survey mainly targeted the Suárez Basin and geology underneath. The survey identified large zones of hydrothermal alteration below the Suárez Basin and younger cover sequence. The acquired resistivity and chargeability data has proved to be efficient for detection of hydrothermal alteration at depth, which, combined with other geophysical and geochemical data, has been used to generate targets for drilling.

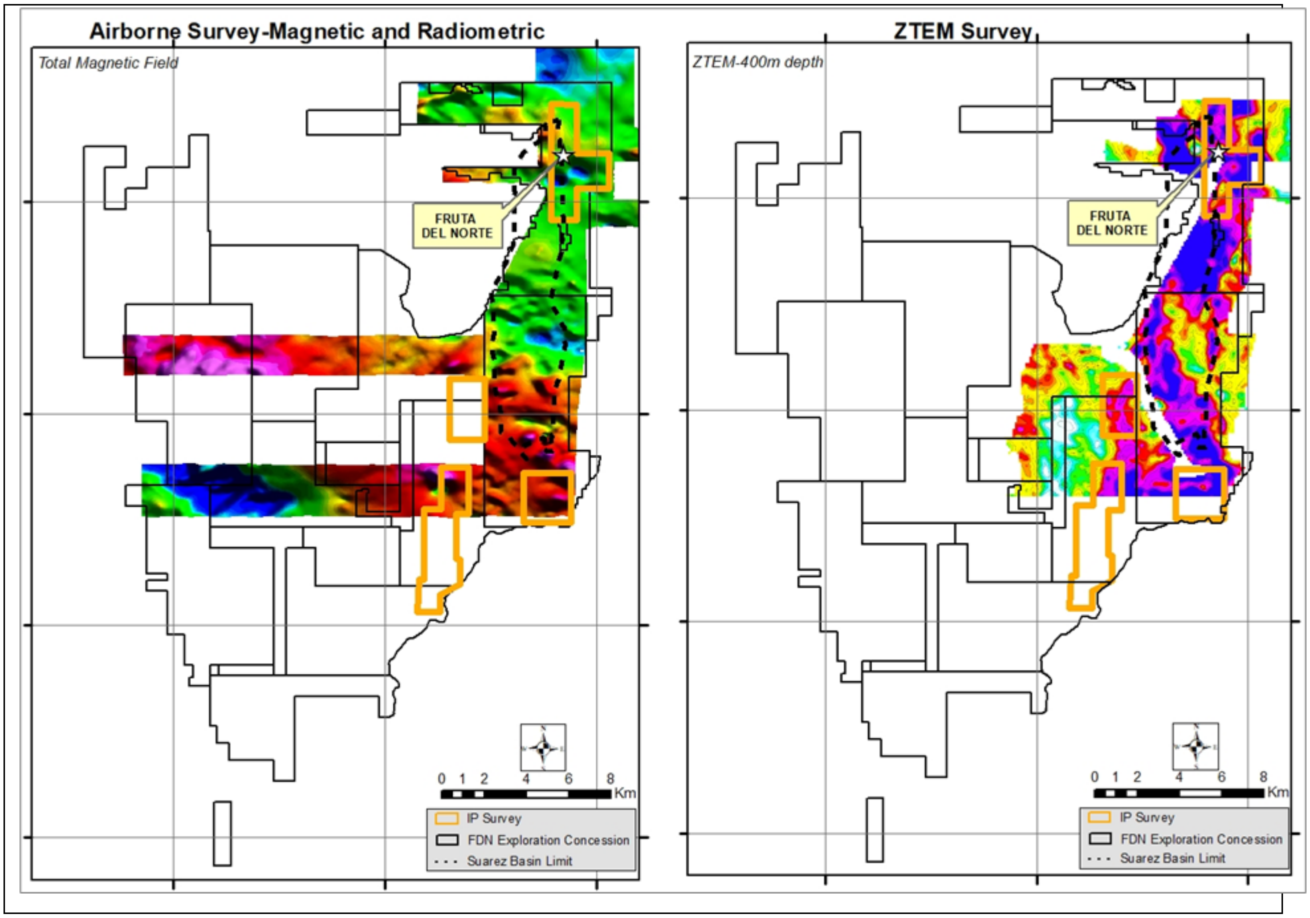
Table 9.3: Completed Geophysical Surveys

Contractor	Survey Type	Date	Company	Comment
Val-d´Or Geophysics (VDG del Peru SAC)	IP	1998	Climax	51 line-km survey over the Castillo and Bonza targets in the La Zarza concession. A gradient array configuration used a 50 m electrode separation on line separations of 100 m. Instrumentation included a pair of BRGM IP2 receivers coupled with an IPT-1 Phoenix Geophysics transmitter operating in the time domain
New-Sense Geophysics Limited	High-sensitivity Airborne aeromagnetics and radiometrics	2012	Kinross	3,270 line-km over the Emperadora, Emperador 1, Princesa, La Zarza, Sachavaca, Colibrí, part of Duque, Duquesa, Reina, Baronesa, Marques, Marquesa, Barón and Colibrí 1 concessions. The survey collected magnetic and radiometric data at a mean flight height of 30 m and a mean line spacing of 100 m using an Astar 350BA helicopter with a fixed mount stinger assembly with a mounted Cesium magnetometer mounted (Ellis, 2012). The magnetic data were collected using a KMAG4 magnetometer and the radiometric data were collected using an RS-500 Airborne Spectrometer with an RSX-5 detector pack.
KTTM Geophysics	IP	2015	Lundin Gold	83.7 line-km over parts of the Emperadora, Emperador 1, Princesa, Duque and La Zarza concessions. The IP survey was completed in the time domain using a pair of Elrec 6 Pro receivers coupled with a GDD Model II 5,000 W transmitter. Survey configurations for the

Contractor	Survey Type	Date	Company	Comment
				gradient array and the pole-dipole arrays utilized 100 m electrode separations and a 1,000 m long receiver electrode array. The IP line separations were generally on 100 m or 200 m centres.
Geotech Geophysics	ZTEM	2018	Lundin Gold	Z-Tipper Electromagnetic System. 49 lines flown with a separation of 300 m between lines, distributed as follows in the La Zarza and Emperador concessions: 11 East-West lines north of the Suárez Basin, six of these lines were over the FDN deposit, two Northwest-Southeast lines located 700 m to the South of FDN, 22 East-West lines over the southern half of the Suárez Basin, extending to the Emperador target area, 11 Northeast-Southwest lines to cover the central and northern part of the Suárez Basin (lines designed by restriction of flying over the Zarza environmental protection zone), and three East-West lines were flown over the porphyry-type anomalies defined within the Alberto-Victoriana concessions

Note: The Sachavaca, Colibrí 1 and Duquesa concessions have been relinquished. The Sachavaca 2, Colibrí and Duquesa 2 concessions were amalgamated into the La Zarza concession (FDN mine and Near Mine exploration targets area).

Figure 9.2: Geophysical Surveys



Source: Lundin Gold, 2022

9.5 Other Studies

9.5.1 Mineralogical Studies

Preliminary microprobe studies were completed to support gold fineness assessments. Mineralogical studies were commissioned in 2007 to verify minerals associated with veining, to determine the presence of adularia. Samples of hydrothermal minerals (molybdenite, marcasite and adularia) and igneous units were selected and submitted to the Colorado State University for radiometric isotope dating by rhenium/osmium ratios (Re/Os) and to the University of British Columbia for dating by argon-argon and uranium/lead methods (Ar40/Ar39, U/Pb). Extensive mineralogical and mineral deportment studies were also completed as part of the FDN Prefeasibility and Feasibility Studies.

9.5.2 Alteration Study

SRK conducted an alteration study and associated modelling exercise during 2015 to characterize the extent of the degradation zones within the Suárez Formation conglomerate, characterize zones of hydrothermal sericite and clay minerals within and surrounding the gold mineralization, extrapolate for exploration vectoring in other concession areas, and quantify total clay contents within the gold mineralization using a suite of X-ray mineral liberation (MLA) clay quantification analyses.

SRK conducted a degradation survey involving graphic logging of the Suárez Formation conglomerate intercepts and collection of associated infra-red spectra. The data was collected at a spacing of one spectrum per box for the entire length of 83 historical drill holes. The inspection of drill core indicates that degradation within the Suárez Formation conglomerate is inhomogeneous and does not involve significant volume increase through the production of swelling clays, which is most evident in intervals that are observed or interpreted as containing disseminated pyrite. The products of core degradation include the residual (i.e., pre-existing) clay minerals paragonite, illite, and minor smectite, and an enhanced concentration of fine-grained silica. The fine-grained silica is interpreted to be amorphous silica that becomes concentrated upon destruction of the smectite. Silicification in the lower parts of the Suárez conglomerate prevents degradation.

9.6 Exploration Potential

The FDN exploration concessions cover a large land package underlain by geology that is favourable for the discovery of additional epithermal deposits similar to FDN (Figure 9.3). After the discovery of FDN and the interpretation that the mineralizing conditions that created the deposit should exist elsewhere in the Suárez Basin, the Basin targets have been considered as of highest priority. Epithermal systems could also exist outside of the Basin; however, these would be shallower systems associated with younger magmatic events, where conditions to form large epithermal gold-silver systems in this geological setting are less likely. The FDN concessions also indicate excellent potential for porphyry copper deposits with some targets identified in outcrops of secondary sulphides (Figure 9.3).

9.6.1 Regional Exploration Potential

Since 2015, exploration programs have focused on the Suárez Basin geological setting where important indicators of the presence of buried epithermal deposits have been found. Although the South Basin presents different exploration environments due the topography, thickness of the cover rocks, and post-mineral lithologies, several promising areas have been identified (Figure 9.3). The work has been concentrated mainly over the south-central portion of the Suárez Basin, along its east and west limits, and several important targets were identified, as described below:

Barbasco: The target is located along the eastern boundary of the Basin (like FDN). The outcropping conglomerate contains epithermal clasts and is hydrothermally altered (illite-chlorite), with silicification and marcasite hydrothermal alteration present, and moderately anomalous in the epithermal pathfinders (arsenic and antimony). The area is partially covered by the Fruta Andesite.

Barbasco Norte: The target is located to the north of Barbasco and is anomalous in gold and the epithermal pathfinder elements arsenic and antimony in soil and rocks over a two-kilometre north-northwest trend.

Puente Princesa: The target is located along the west boundary of the Suárez Basin and presents zones of epithermal mineralization in the Santiago Formation volcanic rocks. The geological context is similar to that of Bonza Las Peñas and FDN, and therefore exploration at the target has focused on internal basin margin structures (further east).

Rio Blanco/Puma: The target lies within the southern portion of the Suárez Basin and its structural position, stratigraphy, and hydrothermal alteration is similar to that of FDN. Anomalous values of gold and the epithermal pathfinder element arsenic in soil occur over a one kilometre long trend.

Quebrada La Negra: The target lies along the north extent of Puente Princesa and contains anomalous gold and the epithermal pathfinder element arsenic in soil over 1.5 km.

Numerous other targets in other areas of the Suárez Basin have been explored as part of the regional exploration program. The program is in its early stages, focusing on the identification and definition of potential mineralized structures that transect the favourable volcanic sequence of the Santiago Formation.

9.6.2 Fruta del Norte Exploration Potential

Since the discovery of FDN, exploration activities have generally concentrated on the delineation and upgrading of FDN resources in the area where most of the underground development and drilling has occurred to date. A recent exploration data review suggests a much wider mineralization footprint in the immediate area of the deposit, where targets of interest remain essentially untested. With similar geological conditions to those at FDN, these targets present significant new exploration opportunities. The FDN deposit is limited by two major faults, to the west and to the east, which are interpreted as key geological structures controlling the mineralization. Limited drilling has been carried out beyond the confines of the deposit or adjacent to these major structures, where the same host sequences present at FDN remain unexplored.

In mid-2022, a near-mine drilling program was initiated to test the main faults along the continuity of the deposit and explore for new epithermal systems adjacent to the current producing mine. Targets like Bonza West and Castillo represent a large area that extends continuously for more than two kilometres, with rock and soil samples showing anomalous geochemical values for gold and pathfinder elements arsenic and antimony and similar favourable lithological host sequence to that at FDN.

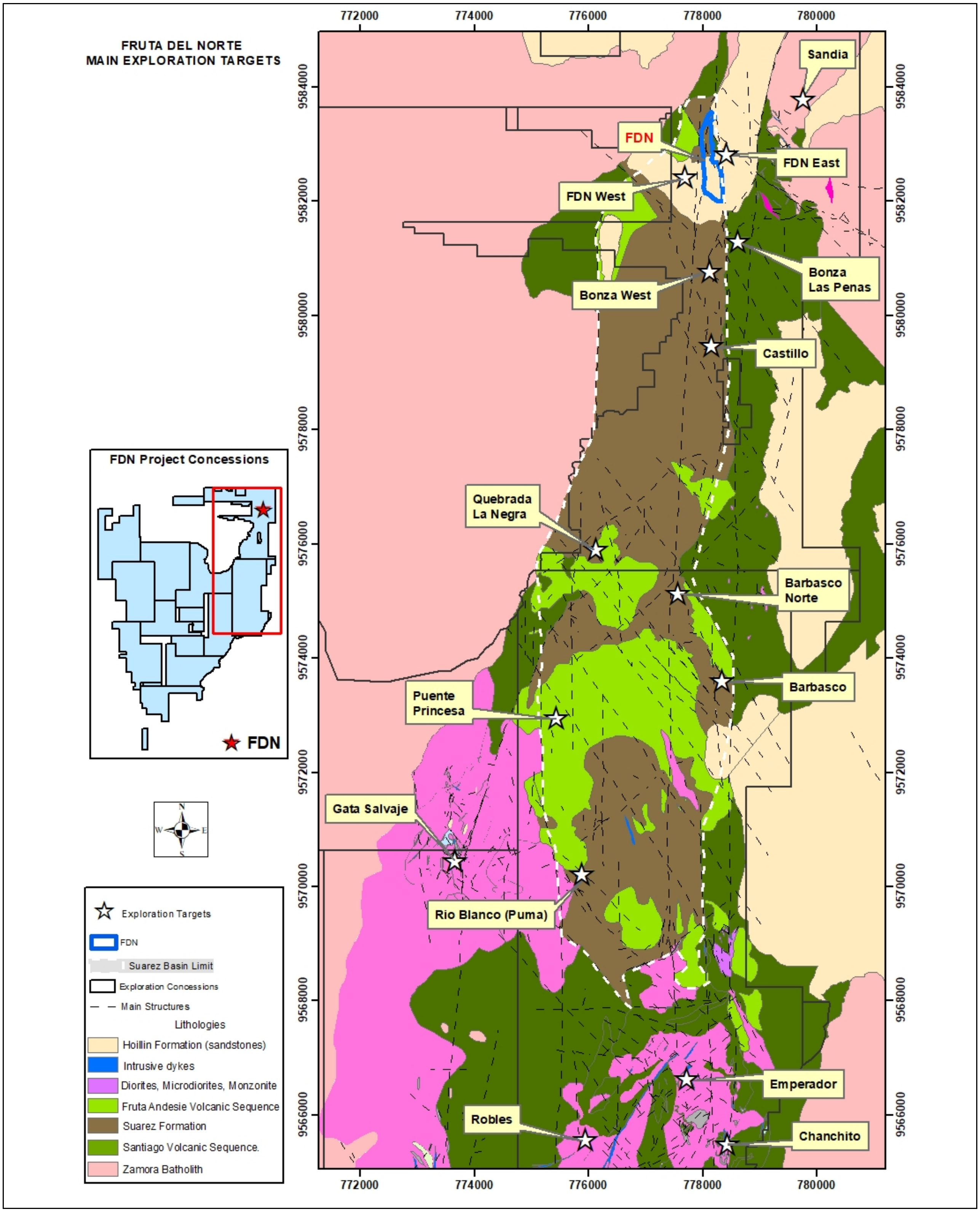
9.6.3 Exploration Potential outside Suárez Basin

There is significant exploration potential present in adjacent areas to the Suárez Basin including:

Epithermal targets: Important targets outside the basin are Emperador, Chanchito, Roble (located approximately 17 km to the south of FDN), and Gata Salvage (located 13 km to the southwest of FDN). These represent potential for shallow epithermal systems. All the targets are coincident with gold and arsenic anomalies in soil and overlie dominantly andesitic volcanoclastic rocks with quartz-porphyry intrusive and diatreme breccia, possibly related to a younger magmatic event than that at FDN.

Cu-Porphyries targets: Potential copper porphyry targets have also been identified within the exploration concessions. For example, Sandia, located approximately two kilometres to the east–northeast of FDN, is identified by anomalous copper values in soil and associated with an outcrop of secondary sulphides including chalcopyrite, covellite, and chalcocite, as well as limonite hosted in the Zamora Batholith.

Figure 9.3: FDN Exploration Targets



Source: Lundin Gold, 2022

9.7 Comments on Section 9

Geochemical sampling, geological mapping and geophysical surveys have identified a number of anomalies, some of which have been drill tested.

The methods used were adequate for the mineralization style, and the results were instrumental in outlining the extent of the mineralization and defining the FDN deposit and other prospects.

There is considerable exploration potential within the FDN area.

10 DRILLING

10.1 Introduction

Four companies have operated drilling programs at FDN. Climax completed exploratory drilling programs at Bonza Las Peñas and other regional targets from 1998 to 1999. Aurelian continued with exploratory drilling programs between 2003 and 2008 which resulted in the discovery and definition of the FDN deposit. Kinross acquired the FDN in 2008 and carried out drilling programs from 2009 to 2011 focusing on mineral resources upgrades and in support of mine development. Following the acquisition by Lundin Gold in 2014, additional drilling programs were completed with a focus on the mine development and construction, regional exploration, and more recently, Mineral Resource classification upgrade and nearmine exploration.

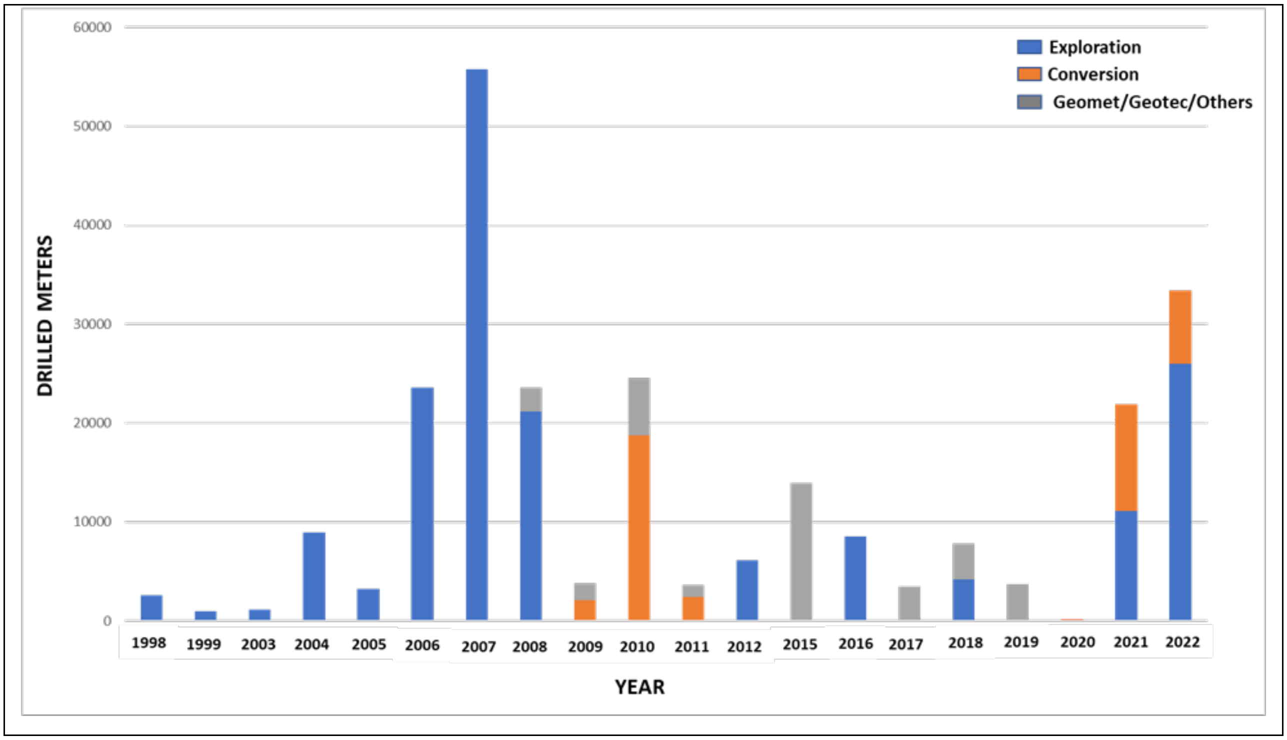
From 1998 to 2022, a total of 719 holes for 250,796 m of drilling were completed with three objectives: a total of 397 holes for approximately 173,377 m of drilling were completed for exploration; 141 holes for approximately 41,592 m of drilling, for resource conversion to reserves; and 181 holes for approximately 35,825 m of drilling, for mine development and construction (geometallurgical, geotechnical, hydrogeology). Table 10.1 summarizes drilling programs completed since 1998, including the work by Lundin Gold starting in 2015.

Figure 10.1 breaks down the drilling by year and objective and Table 10.2 details Lundin Gold's drilling history as of December 31, 2022. A drill hole location map is shown in Figure 10.2, with drilling at FDN detailed in Figure 10.3. A longitudinal section showing a recent underground resource conversion program is provided in Figure 10.4.

Table 10.1: Summary of Drilling Programs

Company	Year	No. of Drill Holes	Total Length (m)
Climax	1997	17	2,566.1
	1998	5	977.8
	Total Climax	22	3,543.9
Aurelian	2003	14	1,160.9
	2004	43	8,942.9
	2005	17	3,255.5
	2006	48	23,579.1
	2007	113	55,749.8
	2008	47	23,608.7
	Total Aurelian	282	116,296.9
Kinross	2009	9	3,795.2
	2010	68	24,561.1
	2011	23	3,619.3
	2012	11	6,112.5
	Total Kinross	111	38,088.0
Lundin Gold	2015	64	13,902.3
	2016	28	8,519.4
	2017	27	3,492.3
	2018	19	7,781.8
	2019	22	3,697.5
	2020	1	203.2
	2021	63	21,914.9
	2022	80	33,355.8
	Total Lundin Gold	304	92,867.20
Total Drilling		719	250,796.0

Figure 10.1: Histogram of Metres Drilled by Year and Objective

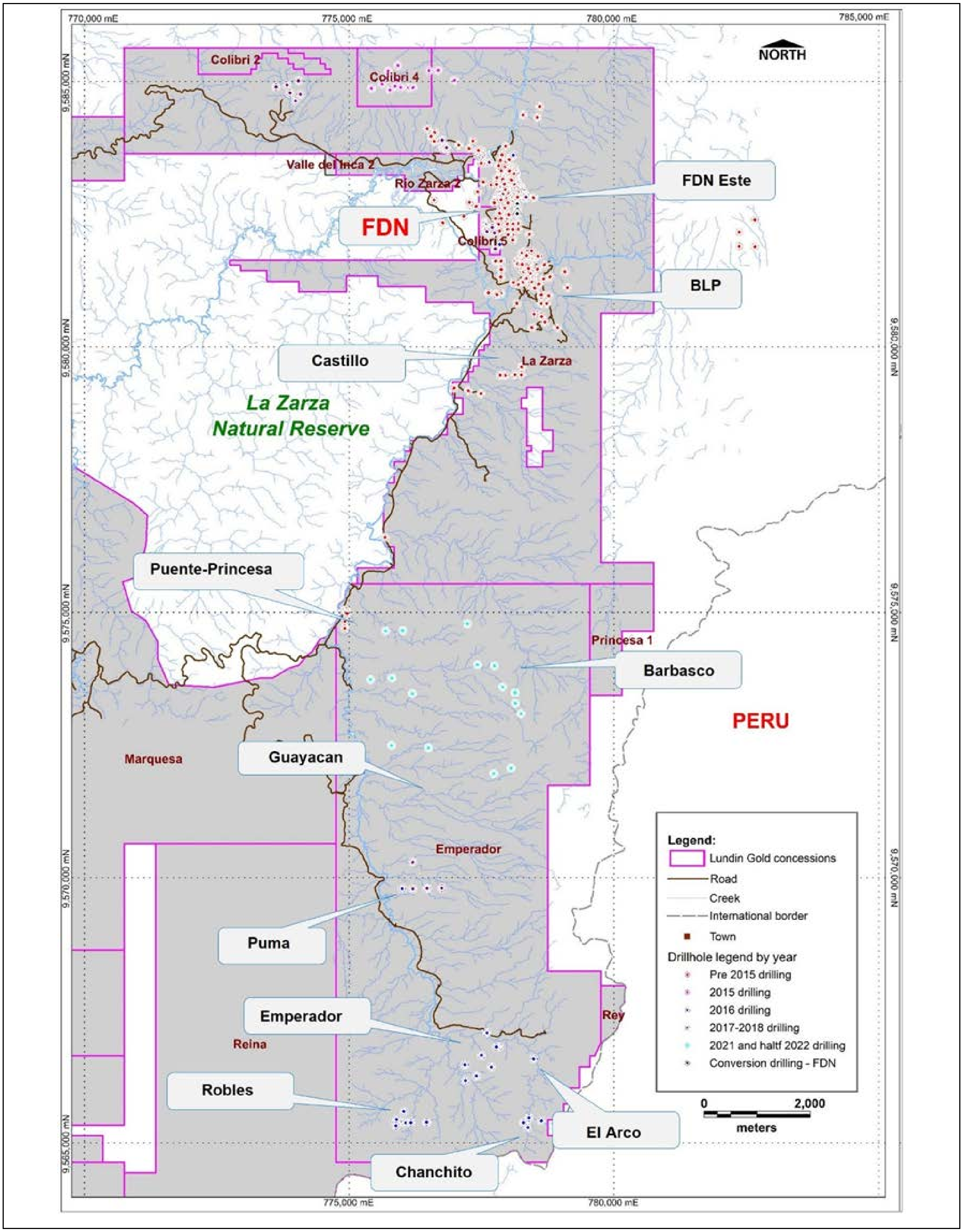


Source: Lundin Gold, 2022

Table 10.2: Summary of Drilling Completed by Lundin Gold at FDN

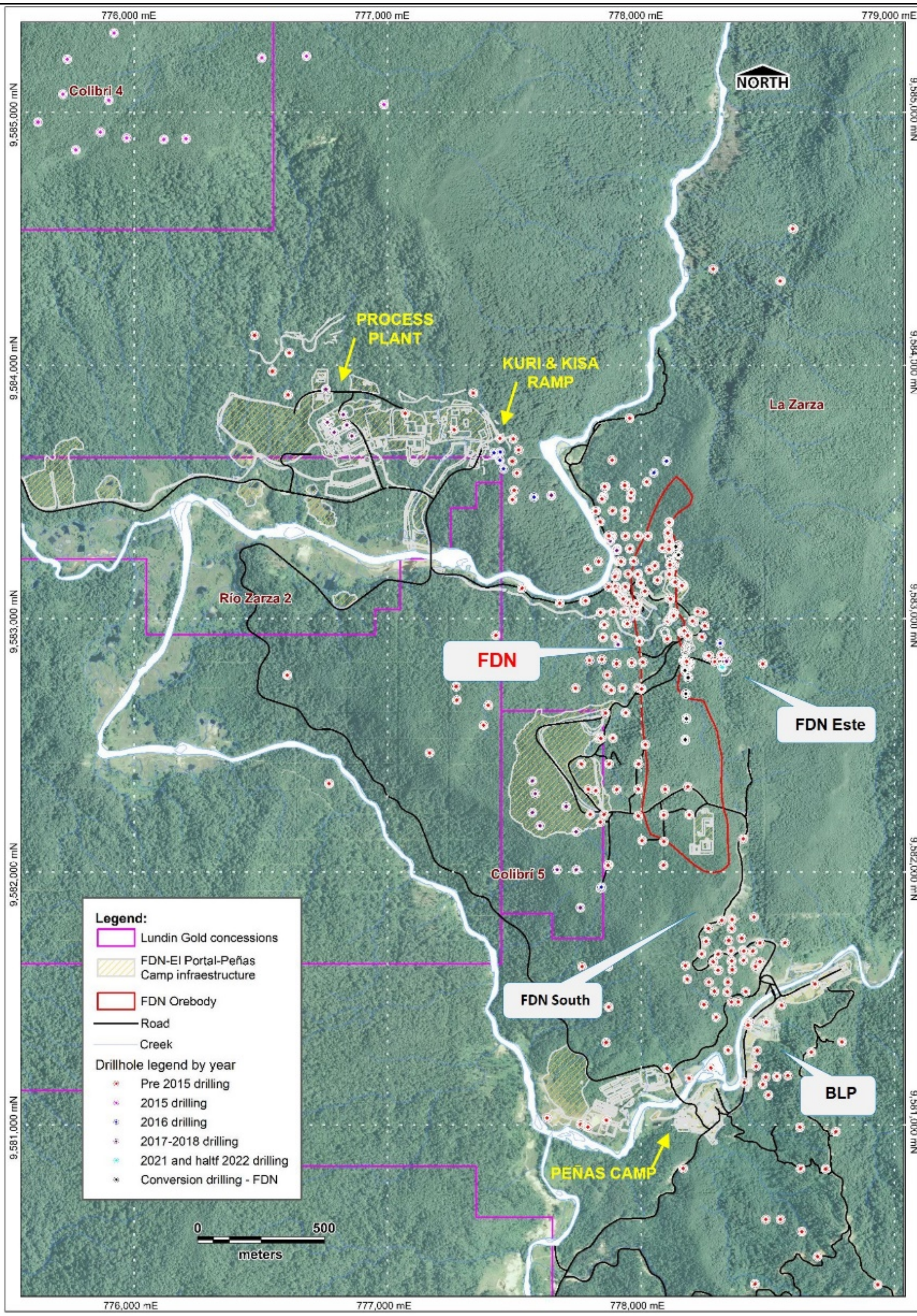
Year	Drilling Program	Target Location	Total Length (m)
2015	Geometallurgy	North-Central sector of FDN	13,902.3
2016	Exploration	Southern Basin (Rio Blanco/Puma Target) and adjacent areas (Robles, Chanchito and Emperador targets)	8,519.4
2017	Geotechnical	FDN and adjacent areas	2,588.7
	Geotechnical	Colibri concession	903.6
2018	Exploration	Southern Basin at Rio Blanco/Puma targets	4,210
	Geotechnical	FDN and adjacent areas	3,495.8
	Geotechnical	Colibri concession	76
2019	Geotechnical	FDN and adjacent areas	3,697.5
2020	Conversion	FDN	203.2
2021	Conversion	FDN southern extension	10,779.3
	Exploration	Southern Basin (Barbasco and Puente Princesa targets)	11,135.6
2022	Conversion	FDN southern extension	7,358.8
	Exploration regional	Southern Basin (Barbasco and Puente Princesa targets)	17,350.4
	Near-Mine Exploration	FDN depth and FDN South targets	8,646.6
Total Lundin Gold Drilling			92,867.2

Figure 10.2: Drill Hole Location Plan



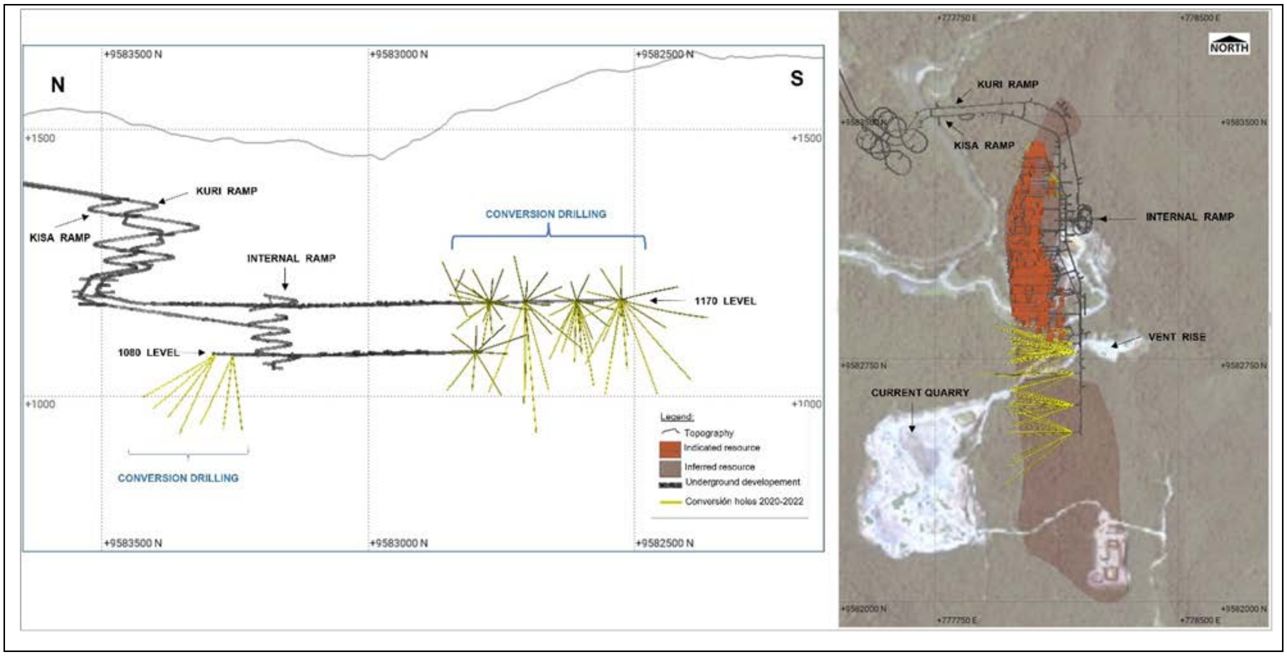
Source: Lundin Gold, 2022

Figure 10.3: Detailed Map of FDN Drilling



Source: Lundin Gold, 2022

Figure 10.4: FDN Longitudinal Section Showing the Recent Underground Conversion Drilling Program



Source: Lundin Gold, 2022

10.2 Drilling Methods

10.2.1 Previous Operators

The Climax exploration drilling program on the La Zarza concession in 1997 and 1998 was performed by the drilling contractor Connors Perforaciones S.A. A man-portable 20 HH drill was used that was capable of drilling up to 150 m of HQ-sized core (63.5 mm core diameter) or up to 300 m depth with NQ-sized core (47.6 mm core diameter). Core holes were collared with HQ-size casings and generally reduced to NQ before terminating at depths ranging from 50.9 m to 323.7 m. The majority of holes were drilled at an azimuth of 090°; however, some holes were drilled with an azimuth of 270° and one drill hole, with an azimuth of 075°. Drill hole collar inclinations varied from -45° to -84°.

Between 2003 and 2012, Aurelian and Kinross both used the following drilling contractors at FDN:

- Paragon del Ecuador S.A; Hydrocore rig
- Kluane Drilling Ecuador S. A; Hydrocore rig
- SFP-Drilling S.A.; Skid-mounted Longyear-70 rig and Christiansen CS-1000 rig
- Major Drilling Group International Ecuador S.A.; two Boyles 37 drill rigs; ATV5000 tractor-mounted machine

- Choque Drilling Espinar Sociedad Comercial; Longyear 38 rig
- Roman Drill CIA LTDA; Hydrocore rig.

Initially, rigs were manually transported along the trails to individual drill platforms following delivery by truck. After 2007, for all remote locations, portable rigs deployed at FDN were lifted / air-supported by helicopters when needed.

The core diameters varied depending on the drilling contractor and drilling program; however, the majority of core ranged from HQ to NQ for exploration purposes, with a lesser diameter HQ3 (61.1 mm) and NQ3 (45 mm) employed for geotechnical purposes using a triple-tube system to maximize core recovery and to allow for oriented core.

Drilling operations at FDN involved a rig set-up using collar inclinations ranging between -45° and -84°, the majority of which were drilled from west to east (towards azimuth 090°). Most drill holes were collared west of the West fault. The drill holes were collared with tri-cone or HQ/HTW tools and reduced as necessary to NQ/NTW or even to BTW (42.0 mm) depending on the drilling contractor. This generally occurred at a depth range of between 280 m and 350 m, depending on the ground conditions, drill hole inclinations, and operator skills. Many of the drill pads were used consecutively to fan-drill on sections either up or down dip along the mineralized system before stepping out to infill on an adjacent section.

10.2.2 Lundin Gold

Lundin Gold used four drill contractors in the period between 2015 and 2022:

- Roman Drill CIA LTDA l; one Hydrocore 2000 rig and one Hydrocore 4000 rig
- Kluane Drilling Ecuador S.A; three KD-1000 rigs for the FDN drilling program and one KD-600 for the civil geotechnical drilling
- Hubbard Perforaciones Cia. Ltda; Three Hydrocore 2500 rigs
- GyG Perforaciones S.A.: Two underground H400 rigs

10.2.2.1 Exploration Drilling Program

Since 2015, Lundin Gold has completed a number of exploration programs over several site areas. Rigs were transported by truck to the road-accessible platforms and by helicopter to the remote platforms. The drilling at FDN generally involved a rig set-up using collar inclinations ranging between -45° and -90°, with azimuths ranging from 0° to 300°. Most drill holes were collared west of the northern half of the FDN deposit.

The drill holes were collared using HQ3 or HTW sizes, depending on the contractor, and reduced to NQ3 or NTW at a depth range of 214.9 m to 450 m, depending on ground conditions, drill hole inclination, and operator skills.

The regional exploration program involved a rig set-up using collar inclinations ranging between -50° and -62°, with azimuths ranging from 90° to 270°. The drill holes were collared using HQ3 or HTW sizes, depending on the contractor, and reduced to NQ3 or NTW. The average depth of the regional exploration programs is approximately 450 m.

10.2.2.2 Conversion Drilling Program

Since 2020, Lundin Gold has been advancing its conversion program at FDN, with the objective of upgrading Inferred Mineral Resources to Indicated. To date, a total of 18,340 m of underground drilling in 88 drill holes has been completed by Lundin Gold. Examples of selected holes from different parts of the conversion drilling area, reported in lengths of drill core intercepts within the geological model, are listed in Table 10.3.

Table 10.3: Conversion Drilling Significant Intercepts

Hole ID	From (m)	To (m)	Interval (m)	Au (g/t)	Ag (g/t)
FDN21-078	0.00	104.10	104.10	6.78	14.99
FDN21-079	104.40	181.50	77.10	5.01	6.03
FDN21-111	0.00	43.70	43.70	5.83	7.82
FDN21-147	0.00	99.45	99.45	4.56	4.87
FDN21-149	0.00	105.20	105.20	4.34	5.64
FDN21-168	0.00	84.00	84.00	7.71	7.47
FDN22-207	0.00	101.00	101.00	6.80	6.18
FDN22-198	62.40	113.85	51.45	17.93	10.69
FDN22-201	65.00	107.75	42.75	4.51	7.90
FDN22-230	0.00	25.40	25.40	7.86	6.94

The program employed two H400 underground rigs. Drilling was carried out from east to west, with azimuths between 230° and 320°. Collar inclinations ranged from 0° to 30° and -1° to -57°. Most drill holes were collared east of the East fault, the limit of the deposit. The drill holes were collared using HQ/HTW size and reduced as necessary to NQ/NTW. Many of the drill pads were used consecutively to fan-drill on section either up or down dip along the mineralized system before stepping out to infill on an adjacent underground station section (Figure 10.4).

10.2.2.3 Other Drilling Programs

During FDN's development and mine construction phase, several types of drilling were executed to support geotechnical, hydrogeological and geometallurgical, investigations and are briefly covered in this section. For the civil geotechnical drilling program, some holes were drilled in the portal and plant site areas. Standard penetration tests (SPT), vane shear tests (VST), and Shelby sampling were conducted. Holes were collared with a hydraulic hammer for SPT tests, then reduced to HQ3.

The underground geotechnical drilling program used a Boart Longyear LM-75. Drilling operations for this program employed a rig set-up using collar inclinations ranging between +2.9° and -45°, with azimuths from 79° to 290° and depths from 34 m to 550 m. All drill holes were collared using HQ or NQ sizes. The surface geotechnical programs used the KD-600, KD-1000, and Hydracore 2000 drill rigs. Drilling operations for this program work employed a rig set-up using collar inclinations ranging between -55° and -90°, with azimuths from 60° to 330° and depths from 35 m to 250 m. The drill holes were collared using HQ3 or HTW sizes, depending on the contractor.

The geometallurgical program used a KD-100 rig. Drilling operations for this program employed a rig set-up using collar inclinations ranging between -60° and -67°, with azimuths of 090° to 270° and average depths of 360 m to 431 m. All drill holes were collared using HTW3 size.

For all Lundin Gold drilling programs, core was placed into plastic-lined wooden boxes to prevent loss of fines. Depending on collar location, filled core boxes were covered with lids, then hand-carried to the nearest road and transported to the core shed via pick-up truck. For remote drill pads, core boxes were piled several boxes high on a wooden pallet, secured, and lifted inside a net using a line from the helicopter, and transported to the Las Peñas heliport, from where the boxes were transported by pick-up truck to the core shed. For the underground conversion program, transport was also by pick-up truck from the underground mine to the core shed.

10.3 Geological Logging

10.3.1 Previous Operators

There is no information on the Climax logging procedures. Micon International (Hennessy and Puritch, 2005) noted that geotechnical and geological features were logged. Some of the core was photographed (holes LZD-18 to LZD-22, Phase 4).

The logging procedures used during the Aurelian geotechnical drilling programs evaluated geotechnical parameters, including core recovery (REC), rock quality designation (RQD), degree of breakage (BRKG), rock hardness (HARD), degree of weathering (WTHR), surface characteristic of joints (SHAPE), and roughness (RGS).

The geological logging was performed using paper logging sheets that were later transcribed to digital files. Logging recorded lithology, alteration, presence of visible gold, mineralization, weathering, veining, textures, and structure, using pre-set codes. Samples for assay were selected by the geologist in charge during the logging process. A summary drill hole trace at 1:1,000 scale was also plotted from GEMS giving the geologist the opportunity to summarize the hole and sketch in structural orientations in a form easily transferred to sections.

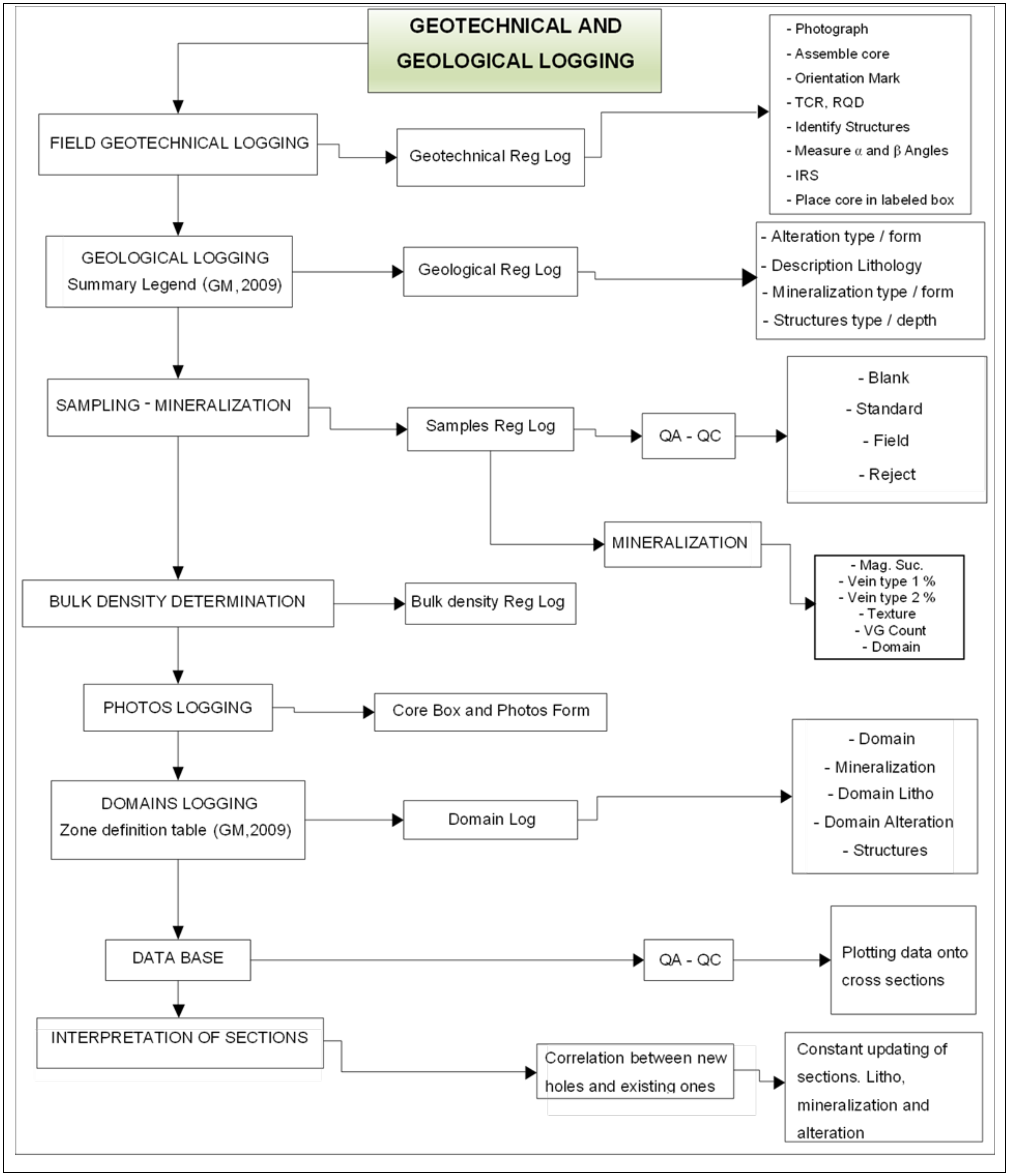
Kinross programs built on the original Aurelian work. Following arrival at camp, core was photographed, recovery measured, and the core was geotechnically logged. This included calculating RQD, estimating hardness on a 1: 5 scale, and taking structural measurements (i.e., the angle of structures to the core axis).

10.3.2 Lundin Gold

For the Lundin Gold drill programs, geotechnical logging was only completed on oriented core. For the underground conversion drilling program, all holes were non oriented. Geological logging was carried out at the site core shed. Following arrival at camp, core was photographed, recovery measured, and the core was logged. For geotechnical purposes, this included calculating RQD, estimating hardness on a 1:5 scale, and taking structural measurements (i.e., the angle of structures to the core axis).

Geological logging was conducted using tablets, and geological information was collected with Seequent’s Mx Deposit, where a defined logging structure is designed. Geological data including structures, lithology, texture, alteration, mineral assemblage, visual estimate of visible gold abundance and intensity, and level of oxidation / weathering were recorded. Occurrences of visible gold were marked on the core. The logging protocols are summarized in Figure 10.5.

Figure 10.5: Lundin Gold Geotechnical and Geological Logging



Source: Lundin Gold, 2022

10.4 Recovery

10.4.1 Previous Operators

No core recovery data are available for the Climax drilling programs.

For the majority of the Aurelian drilling, core recovery was typically in the 95% to 100% range and, on average, exceeded 98%. Occasionally, recovery appeared to exceed 100% but this is likely due to difficulty in measuring gouge intervals, rather than down-hole caving, or from core from a previous drilling run having been left at the bottom of the hole and recovered in the following drilling run (core recovered exceeding length of core drilled). As part of the Kinross feasibility study, the relationship between drill core recovery and lithology was measured and tables were plotted. Percentages are generally excellent, with most lithologies approaching 100% of core recovered. Overburden is the exception, where percentage recoveries fluctuate widely depending on the degree of consolidation and composition of the material. Average recoveries are representative of rock type and show acceptable dispersion around the standard deviation.

10.4.2 Lundin Gold

During the Lundin Gold drill programs between 2015 and 2022, core recoveries ranged between 91% and 97%. Lower core recoveries during the 2015 drilling may be due in part to the holes drilled to the west of, or outside, the FDN deposit that were designed to target the known fault zones where lower core recovery and drill hole issues could be expected. Average recoveries are representative of rock type and show acceptable dispersion around the standard deviation. Lundin Gold drilling programs core recoveries average are summarized in Table 10.4.

Table 10.4: Average Core Recovery for Lundin Gold Drilling Programs

Year	Recovery
2015	91%
2016	93%
2017	96%
2018	92%
2019	93%
2020	95%
2021	97%
2022	96%

10.5 Collar Surveys

10.5.1 Previous Operators

Drill hole collar locations were not surveyed during the Climax drill programs.

During the 2005 to 2007 drill programs, drill hole collars were located by professional Ecuadorian surveyors using a Total Station survey instrument. The existing Climax drill collars, where located, were also surveyed. Completed drill holes were surveyed by Aurelian–Kinross personnel using Total Station survey instruments. In June 2010, Kinross contracted Leiva Ingeniería Cía. Ltda to set up a high-precision seven-point FDN geodesic grid, tied to the Ecuador National GPS Grid (RENAGE). It was followed by a differential global positioning system (DGPS) survey of 73 selected drill holes in the period from 2010 to 2011 (eight from the Aurelian drill programs and 65 from the Kinross drill programs). For these holes, the WGS84 (SIRGAS95) datum was used, as well as and the WGS84 ellipsoidal elevations and the geopotential EGM96 model to obtain the elevations above mean sea level (orthometric elevations). In the 2010-2011 surveys, the double frequency geodesic equipment used consisted of two Trimble 5800 and two Trimble R4 models. Two base stations and two mobile stations were used.

10.5.2 Lundin Gold

For the surface exploration and underground conversion programs, orientation of the inclined drill holes was carried out at the start of each drill hole using a Total Station with two points surveyed on the drill rods to give the precise 3D drill-hole orientation at the collar.

10.6 Downhole Surveys

10.6.1 Previous Operators

Core holes from the Climax programs were surveyed by either acid tests or Tropari tests.

Early Aurelian drill holes were surveyed using acid tests, or a Sperry Sun downhole camera or a Tropari instrument. In general, holes were surveyed approximately every 50 m down hole and at end of hole. Down hole surveys during 2006 to 2007 were conducted with either a Sperry Sun or Tropari single-shot survey instrument taking a measurement every 50 m, or a Flexit digital multi-shot survey instrument with a reading every 30 m down the drill hole. With the arrival of skid-mounted drill rigs, Flexit and Reflex digital multi-shot survey instruments were used to provide more accurate drill hole survey measurements with a reading on azimuth, dip, rotation angle with respect to gravity and magnetic north, intensity and inclination of the magnetic field, and drill hole temperature. These parameters were measured every 30 m. The digital drill hole survey instrument was enclosed in a non-magnetic brass tube that projected three metres beyond the end of the drill string.

10.6.2 Lundin Gold

Lundin Gold has used the Reflex EZ-TRAC digital down hole survey instrument for surface drilling and the TRUSHOT instrument for underground resource conversion drilling, with measurements collected every 30 m or 50 m. The data were downloaded and reviewed on the IMDEX Hub-IQ platform and if the difference between two contiguous readings was less than 3° for the azimuth and less than 1.5° for the dip, they were validated and imported to the drill hole database.

10.7 Comments on Section 10

In the opinion of the QP, the quantity and quality of the lithological, geotechnical, collar, and downhole survey data collected during the exploration and infill drill programs since 1997 are sufficient to support Mineral Resource and Mineral Reserve estimation as follows:

- Core logging meets industry standards for this type of deposit.
- Collar and downhole surveys have been performed using industry-standard instrumentation.
- Recovery data from core drill programs are acceptable.
- Geotechnical logging of drill core meets industry standards for planned underground operations.

- Drill hole orientations are appropriate for the mineralization style, and holes have been drilled at orientations that are consistent with the orientation of mineralization for the bulk of the deposit area.
- Most core holes intersect the mineralized zones at an angle, and the drill hole intercept widths reported for FDN are greater than true widths.

11 SAMPLE PREPARATION, ANALYSES AND SECURITY

11.1 Sampling Methods

11.1.1 Previous Operators

Sampling methods for the Climax programs and Aurelian-Kinross programs are summarized in Table 11.1.

For both programs, at the camp, core was checked by geologists and stored in the core shed during the logging and sampling process. As soon as samples were taken, they were sealed in plastic bags and rice sacks and stored in a locked shed overnight. The Las Peñas camp retained 24-hour security, which monitored any activity in the core shed area. Samples were then transported overland by a company driver directly to Quito where the custody of the samples was transferred to laboratory personnel. Signatures for responsible parties were required at every step of the process and records were archived at the Las Peñas camp.

Table 11.1: Sampling Methods, Climax and Aurelian–Kinross

Operator	Sampling Method
Climax	Core was sawn in half and sampled at 2 m intervals, regardless of geology. Each sample consisted of 2 m composites of half core, with the exception of the first and last intervals in each hole.
Aurelian	All strongly altered or epithermal-mineralized intervals of core were sampled, with the exception of some intervals within the Suárez Formation once it was established that this material did not contain potentially economic levels of gold. Sampling always began at least five samples above the start of mineralization typically encompassing the basal 10 m to 20 m of the Suárez Formation. Sample intervals were selected using the following criteria: • Maximum sample length of 2 m in un-mineralized lithologies • Maximum sample length of 1 m in mineralized lithologies • Smaller samples may be selected around high grade, visible gold-bearing veins • Minimum sample length of 20 cm • Geological changes in the core such as major mineralization / alteration intensity and lithology changes were used as sample breaks • Core size changes and any zones of core loss were used as sample breaks • Large discrete veins that might possibly be modelled or mined as separate structures were sampled separately • The begin / end marks were placed so that the entire vein was included in the sample(s) and the vein was not smeared into samples on either side • One half of the core was retained in the field for future examination and verification
Kinross	Similar methodology to Aurelian. Areas of very soft rock (e.g., fault gouge) were cut with a machete and intensively broken core (pieces less than 1 cm) were sampled using spoons. The right-hand side of the core was always sampled. After cutting, half the core was placed in a new plastic sample bag and half was placed back in the core box.

11.1.2 Lundin Gold

After the geologist had marked out the sample intervals, drill core was split along the long axis using an electrically powered bench saw. Areas of very soft rock were cut using a machete and sections of intensively broken core were sampled using spoons. As with the Kinross programs, the right-hand side of the core was always sampled. Sample interval selection criteria remained the same as for the Aurelian-Kinross programs.

11.2 Metallurgical Sampling

Selection of samples for the metallurgical testwork programs that support the 2016 FS is discussed in Section 13.

11.3 Databases

Most data were originally recorded in hard copy format. Technicians later entered the following into the database: sample number, sequence, interval, QA/QC data and other geological information such as collar information, depth of drill size reduction, date, and drill company details. Once the data had been entered, they were validated against the original hard copy. After validating input data, geological assistants were required to sign a statement confirming the data had been checked and were correct. Basic database checks were also carried out by the database administrator.

11.4 Density Determinations

After the core had been sampled, intervals of solid core (10 cm to 20 cm in length) were selected for bulk density determinations. Measurements were made from every hole at an interval rate of approximately 50 m in unmineralized rock and every 20 m in the mineralized system. Bulk density was estimated according to Archimedes' principle, where the sample is dried, weighed, waxed, and then weighed in water.

Rock density is relatively constant within specific lithologies and shows only minimal variation between different lithological groups with the relatively small difference of 0.5 t/m^3 between the lowest density of 2.4 t/m^3 and highest density of 2.9 t/m^3.

11.5 Sample Preparation and Analysis

Laboratory sample preparation procedures are summarized in Table 11.2, and laboratory sample analytical procedures are provided in Table 11.3. All laboratories listed in the tables were / are independent of Aurelian, Kinross, and Lundin Gold. Since 2019, Lundin Gold has used ALS and Inspectorate laboratories.

The following abbreviations are used for analytical methods:

- ICP: Inductively-coupled plasma
- ICP-AES: Inductively-coupled plasma - atomic emission spectroscopy
- AAS: Atomic absorption spectroscopy

Table 11.2: Sample Preparation Laboratory Summary

Laboratory	Accreditation	Comment	Sample Preparation Methodology
ALS Quito	ISO 9001:2008 for quality management systems	Principal preparation laboratory for drill holes CP-06-49 to CP-06-53 and CP-06-57 to FN3750d01 and MET2- 2720, MET2-2780, MET2-3400, MET4-2920, and MET4-3070 Check assay laboratory for selected samples from drill holes CP-06-53 to CP-06-56 (coarse rejects re-pulverized)	• Oven dry the sample on steel trays • Crush the entire sample to better than 70% passing -2 mm (10 mesh) • From mid-2006, the crusher was cleaned with quartz flush and air gun between each sample • Riffle split 250 g (1,000 g); 2015 MET2 and MET4 holes were riffle split to obtain 300 g or 1,000 g sample splits, respectively* • Pulverize split to better than 85% (90%) passing -75 microns or 200 mesh (100 microns, 150 mesh); 2015 MET holes were pulverized to better than 85% passing -75 µm (200 mesh)* • Clean pulverisers with an air gun between samples • 110 g, 150 g, or 200 g pulps sent in Kraft bags to Vancouver (Lima) for analysis.
Inspectorate Quito	ISO 9001:2008 for quality management systems	Principal preparation laboratory for drill holes: CP-06-53 to CP-06-56	• Oven dry the sample on steel trays • Crush the entire sample to better than 90% passing -2 mm (10 mesh) • Riffle split 1,000 g • Pulverize 1,000 g split to better than 90% passing -100 µm (150 mesh) • Clean with sand flushes between each pulverization • 100 g pulps sent (via TNT courier) in Kraft bags to Peru for analysis.
SGS Santiago	ISO 9001:2008 for quality management systems	Principal preparation laboratory for metallurgical drill holes: MET1-2900, MET1-3070, MET1-3170, MET1-3257, MET1-3310	• Oven dry samples on steel trays • Crush the entire sample to 100% passing 3.35 mm (6 mesh) • Split of 5% of the sample using rotary splitter of 20 divisions • Pulverize the split to 100% passing 106 µm (150 mesh) • 180 g pulps sent by surface transport (via Chilexpress) in Kraft bags to SGS Antofagasta for analysis • All remaining coarse reject and pulps are stored at SGS • Compressed air guns used to clean the crushers and pulverisers between each sample from drill holes MET1-3170, MET1-3257, and MET1-3310.

*Note: *Bracketed values indicate change to procedure implemented on January 1, 2007 (from hole CP-07-95) following observations of visible gold in the drill core. This change corresponds to a change in the primary analytical laboratory from ALS Vancouver to ALS Lima.*

Table 11.3: Analytical Laboratory Summary

Laboratory	Accreditation	Comment	Sample Analysis
ALS Lima	ISO 9001:2008 for quality management systems, ISO/IEC 17025:2005 for competence of laboratory testing.	Principal analytical laboratory for drill holes: CP-06-49 to CP-06-53, CP-06-57 to CP-06-094, CP-07-095 to FN3750d01, MET2-2720, MET2-2780, MET2-3400,-MET4-2920, and MET4-3070. Check assay laboratory for selected samples from drill holes: CP-06-53-to CP-06-56.	• Gold was determined by 30 g (50 g)[1] fire assay with an ICP-AES[2] finish, method code AU-ICP21 (AU-ICP22)[1]. Detection range for this procedure is 0.001 g/t Au to 10 g/t Au. • The principal Au determination method was changed to method code Au-AA24 from drill hole CP-07-98 to BLP2130e01 (end of 2012), which applies an AAS3 finish following a 50 g fire assay. Detection range for this procedure is also 0.005 g/t Au to 10 g/t Au. Pulps from drill holes CP-06-57-to CP-06-64 originally assayed using method AU-ICP22 were re-assayed using method Au-AA24 for comparison. • If Au assays greater than 10 g/t were detected using either of the above techniques, then over- limit re-assays were completed using a 50 g fire assay with a gravimetric finish, method code AU-GRA22. The detection range for this procedure is 0.05 g/t Au to 1,000 g/t Au. This technique was also applied as the initial gold assay (rather than overlimit) to the 2015 drill holes listed above (with prefix MET). • Multi-element analysis was performed on samples from 2006 to 2012 using method code ME-ICP41, a-34-element package, including silver, with a nitric aqua regia acid digestion, and ICP-AES[2] finish. The silver detection range for this procedure is 0.2 ppm to 100 ppm. • Multi-element analysis was performed using method code ME-ICP61, a 33-element package, including silver, with four-acid digestion and ICP-AES[2] finish. The silver detection range for this procedure is 0.5 ppm to 100 ppm. This technique was applied in 2015 to silver assays from drill holes listed above with prefix MET. • Over-limit re-assays were run on selected drill holes[4] for silver, zinc, lead and copper if Ag >100 ppm, Zn >10,000 ppm, Pb >10,000 ppm or Cu >10,000 ppm. Over-limit re-assays were completed using an aqua regia acid digestion and AAS[3] finish (method code AA46). The silver detection range-for this procedure is 1 ppm to 1,500 ppm.

Laboratory	Accreditation	Comment	Sample Analysis
Inspectorate Lima	ISO 9001:2008 for quality management systems ISO/IEC 17025:2005-for competence-of laboratory testing	Analytical laboratory for drill holes CP-06-53-to CP-06-56. Check assay laboratory for selected samples from drill holes: CP-06-51 to CP-06-52,-CP-06-57 to CP-06-64 (Au only), CP-06-65 to CP-08-236, and 2015 metallurqical holes MET2-2720, MET2-2780, MET2-3400, MET4-2920, and MET4-3070-(Au only).	• Au was determined by 50 g fire assay with an AAS finish, method code Au-FA/AAS, which has a detection range from 0.005 g/t Au to 5 g/t Au. • If Au assays greater than 5 g/t were detected using the above technique, then over-limit re-assays were completed using a 50 g fire assay with a gravimetric finish. The detection range for this procedure is 0.01 g/t Au to 1,000 g/t Au. • Multi-element analysis was completed using a 32-element package (including silver) with an aqua regia acid digestion and ICP-AES finish (method ICP-AES 32). The detection limits for this procedure range from 0.2 ppm to 200 ppm Ag.
SGS Toronto	ISO-9001:2008-for quality management systems; ISO/IEC 17025:2005-for competence of laboratory testing	Check assay laboratory for selected samples from drill holes: CP-06-51 to CP-06-52, CP-06-57 to CP-06-64 (gold only) and CP-06-65 to CP-06-236	• Au was determined by a 50 g fire assay with an AAS finish, using method code FAI505. The Au detection range for this method is 0.01 g/t to 10 g/t. • If Au assays greater than 10 g/t were detected using the above technique, then over-limit re-assays were completed using a 30 g or 50 g fire assay with a gravimetric finish (FAG333 or FAGS0S, respectively). The detection range for this procedure is 0.3 g/t Au, or 0.5 g/t Au, to 3,000 g/t Au. • Ag was assayed using method code AAS12E, which involved two-acid digestion of a 2 g sample and AAS finish. The detection limits for this procedure range from 0.3 ppm to 300 ppm Ag.

Laboratory	Accreditation	Comment	Sample Analysis
SGS Antofagasta	ISO-9001:2008 for quality management systems; ISO/IEC 17025:2005-for competence of laboratory testing	Principal analytical laboratory for metallurgical drill holes: MET1-2900, MET1-3070, MET1-3170, MET1-3257 and MET1-3310	• Au was determined by a 50 g fire assay with a gravimetric finish, using method code FAG505. The Au detection range for this method is 0.05 g/t to 3,000 g/t. • Ag was assayed using method code ICP040B, which involved a four-acid digestion followed by ICP-AES finish on a multi-element analysis (35 elements). The silver detection limits for this procedure are 0.5 g/t to 100 g/t. • Ag was also assayed using method code AAS042D, which involved four-acid digestion and an AAS finish. The silver detection limits for this procedure are 1 g/t to 500 g/t Ag.

Note: 1. Bracketed values indicate change to procedure implemented at ALS Vancouver from hole CP-06-57, following a return to ALS Vancouver as the primary laboratory after a brief respite when three holes were assayed at Inspectorate Services in Lima, Peru. This procedure was continued by ALS Lima from drill hole CP-07-095 when it took over from ALS Vancouver as the primary laboratory on January 1, 2007. The gold assay procedure changed to use AAS finish in place of ICP-AES from drill hole CP-07-98. 2. ICP-AES: Inductively coupled plasma - atomic emission spectroscopy; 3. AAS: Atomic absorption spectroscopy; 4. Over-limit re-assays for silver, zinc, lead, and copper were completed for drill holes CP-09-237 CP-09-238, CP-09-239, and CP-09-240 only. All other silver assays that returned values above the detection limit were entered into the database as equal to the upper detection limit (100 ppm).

11.6 Sample Security

During the Lundin Gold programs, drill core was delivered to the camp where it was labelled, photographed, logged, and sampled under the supervision of staff geologists.

After the geologist marked out the sample intervals, drill core was split. The following standard sampling procedures were employed:

- After cutting, half the core was placed in a new plastic sample bag and half was returned to the core box.
- Samples were clearly tagged and securely bagged and tagged and QC samples were inserted into the sequence.
- Batches of approximately 10 samples were bagged into labelled poly-weave sacks for shipment.

Once samples batches were ready for shipment, a list of sample batches was sent via electronic mail to camp administration, transportation logistics, the sample preparation laboratory and to the camp security.

The Las Peñas camp has 24-hour security, which includes monitoring of the core shed area. Drilling samples were then transported from camp overland by a transport company truck directly to Quito where the custody of the samples was transferred to laboratory personnel. During transport, camp security maintained communication with the transport company driver in order to track the progress and safety of the transport truck.

No Aurelian, Kinross or Lundin Gold personnel conducted any sample preparation or analysis. Preparation and analysis of FDN samples were completed at independent laboratories as detailed earlier in Table 11.3.

11.7 Sample Storage

Mineralized half and quarter core retained after analysis and sampling for all holes are presently stored in permanent core storage facilities at the site.

11.8 Quality Assurance and Quality Control

Quality Assurance (QA) is necessary to demonstrate that the assay data has precision and accuracy within generally accepted limits for the sampling and analytical methods used in order to have confidence in the resource estimation. Quality control (QC) consists of procedures used to ensure that an adequate level of quality is maintained in the process of sampling, preparing, and assaying the drill core samples. In general, QA/QC programs are designed to prevent or detect contamination and allow analytical precision and accuracy to be quantified. In addition, a QA/QC program can disclose the overall variability of the sampling method itself.

Aurelian implemented a thorough QA/QC program that included the regular insertion of blank samples, certified reference materials (CRMs), field and reject duplicates, and pulp check assaying. The program was continued and modified by Kinross and more recently by Lundin Gold. Ongoing monitoring of the program was performed by the operators, with spurious results being investigated and changes implemented when required. Insertion rates and procedures employed by Aurelian, Kinross, and Lundin Gold are summarized in Table 11.4.

Table 11.4: Summary of QA/QC Sample Submission Rates

From	To	QA/QC Type	Insertion Rate / Procedure
Aurelian			
2006	2008	CRM	1 of 12 individual Rocklabs CRM were inserted every 20th sample, selected at a grade roughly equivalent to surrounding samples
2006	2006	Blanks - sand	1 in 20 or 1 in 25, and after visible gold
2006	2008	Blanks - coarse rock	1 in 20, and after visible gold
2006	2008	Field duplicate	1 in 50
2006	2008	Coarse reject duplicate	1 in 50
2006	2008	Check assay	Four separate batches sent to at least on umpire laboratory.
Kinross			
2009	2012	CRM	1 of 14 individual Rocklabs CRM were inserted every 25th sample
2009	2012	Blanks - coarse rock	1 in 25
2009	2012	Field duplicate	1 in 50 (2, 1/4 core samples)
2009	2012	Coarse reject duplicate	1 in 50
Lundin Gold			
2015	2022	CRM	1 of 9 individual Rocklabs CRMs inserted every 25th sample
2015	2022	Blanks - coarse rock	1 in 25
2015	2022	Field duplicate	1 in 50 (2, 1/4 core samples) samples submitted to ALS Lima (MET 2 and MET 4)

From	To	QA/QC Type	Insertion Rate / Procedure
2015	2022	Coarse reject duplicate	1 in 10 samples submitted to ALS Lima (MET 2 and MET 4)
2015	2022	Check assay	1in 10 samples submitted to ALS Lima (MET 2 and MET 4) were also assayed at Inspectorate Lima

11.8.1 Certified Reference Materials

11.8.1.1 2006 to 2019

CRMs were sourced from Rocklabs in New Zealand. CRM material was included in the sample stream at a rate of one in 20 from 2006 to 2008 and reduced when Kinross became the operator in 2009 to a rate of one in 25. In any single year, a minimum of five, and a maximum of 12 separate CRMs were included in the sample stream. The actual insertion rate of gold CRMs ranged annually from 2% to 7% and averages 5% for FDN. The insertion rate of silver CRMs is significantly lower than for gold, averaging 2% for FDN. Silver CRMs were suspended from insertion from 2009 to 2019.

For FDN, the gold grades of interest are approximately 3 g/t Au (cut-off grade), 9 g/t Au (average grade), and over 20 g/t Au (high grade). Silver grades of interest, although supplemental to gold, are from 10 g/t Ag to 20 g/t Ag. The ranges of expected values of the submitted CRMs for gold are from 0.82 g/t Au to 30.14 g/t Au and for silver is from 11.02 g/t Ag to 58.38 g/t Ag. Although still of significant value, a total of 10 of the 23 CRMs used were below the grade range of interest for FDN, representing almost 50% of total submittals.

Despite this high number of low-grade CRMs, good temporal coverage of the gold grade range of interest exists for FDN.

Failure rates, defined as a gold or silver value reporting more than three standard deviations (3SD) from the expected value, or two consecutive gold or silver values reporting more than two standard deviations (2SD) from the expected values were tabulated. Overall, ALS Lima, ALS Vancouver, and Inspectorate Lima demonstrated good performance with regard to both silver and gold. The performance of SGS Antofagasta was notably poor, with an overall failure rate of 29%.

11.8.1.2 2019 to Present

SLR analyzed the results of the CRMs and plotted them in control charts, with failure rates defined as assay values reporting more than 3SD from the expected value, and warning rates defined as assay values reporting more than 2SD, but less than 3SD from the expected values.

Currently, ten different types of CRMs are used at FDN. SLR has reviewed a series of control charts and statistics used by Lundin Gold to monitor the results and concurs that the procedures are to industry standards.

A total of 2,748 CRMs were submitted for the 2019 through 2022 time period. Table 11.5 describes the different standards used, years active, and basic statistics regarding the CRMs.

Figure 11.1 and Figure 11.2 depict the individual performances of CRMs SI81 and SN106, respectively. Figure 11.3 is a Z-Score chart for all CRMs used at FDN. Z-Score charts plot the performances of many CRMs with respect to standard deviation.

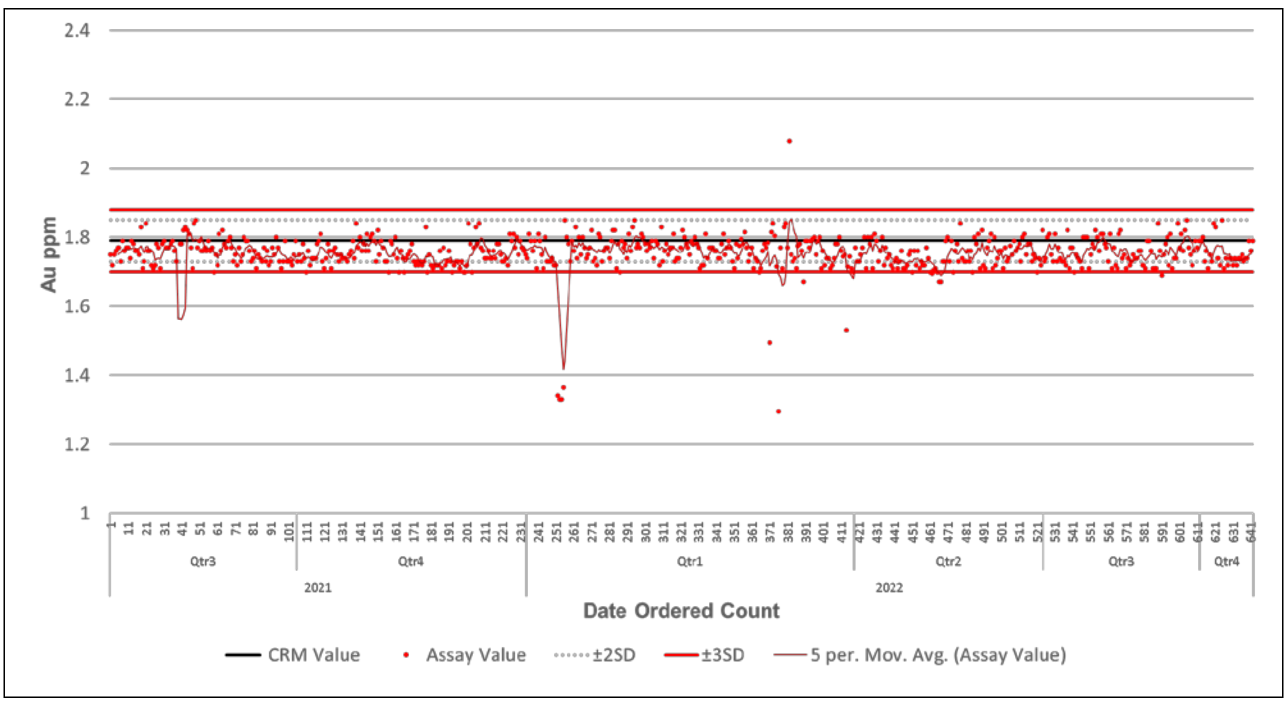
CRMs can return high or low biases regarding the certified value. The biases calculated for the CRMs used are all relatively low.

SLR recommends ongoing monitoring of the CRMs' performances. SLR is of the opinion that the results of the CRM samples support the use of the assays in Mineral Resource estimation.

Table 11.5: 2019-2022 FDN Certified Reference Materials and Performances

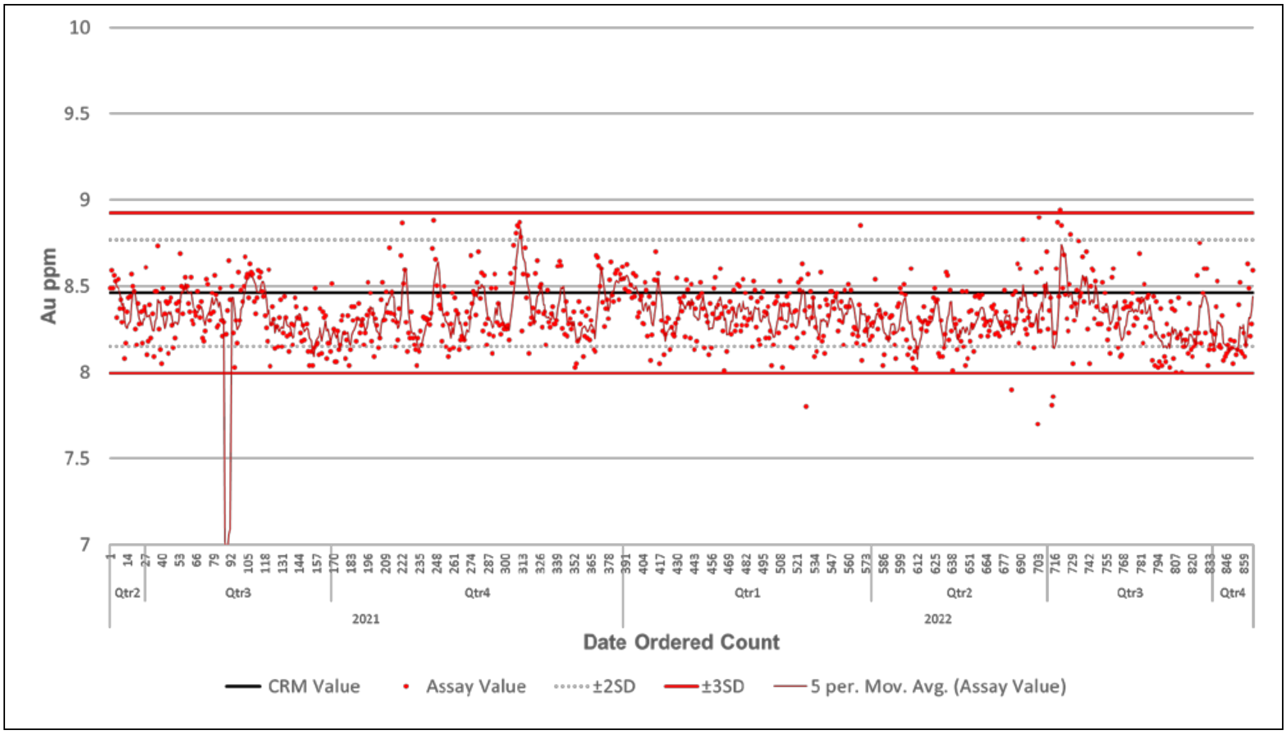
CRM	Year	Element	Certified Value (g/t Au)	Std Dev (g/t Au)	Assay Count	Mean (g/t Au)	Bias (%)
SE101	2019-2022	Au	0.606	0.013	105	0.611	0.80%
SE114	2021-2022	Au	0.634	0.016	334	0.624	-1.57%
SH82	2022	Au	1.333	0.027	174	1.304	-2.20%
SI81	2021-2022	Au	1.790	0.030	644	1.753	-2.08%
SK109	2020-2022	Au	4.102	0.098	92	4.091	-0.28%
SK120	2022	Au	4.075	0.920	380	4.080	0.13%
SN103	2020-2022	Au	8.520	0.146	41	8.389	-1.53%
SN106	2021-2022	Au	8.461	0.155	865	8.335	-1.49%
SN60	2019-2022	Au	8.595	0.223	10	8.453	-1.65%
SP89_Au	2019-2022	Au	18.455	0.265	103	18.562	0.58%
SP89_Ag	2019-2022	Ag	84.400	2.600	80	82.450	-2.31%

Figure 11.1: FDN Control Chart of Si81 (Gold)



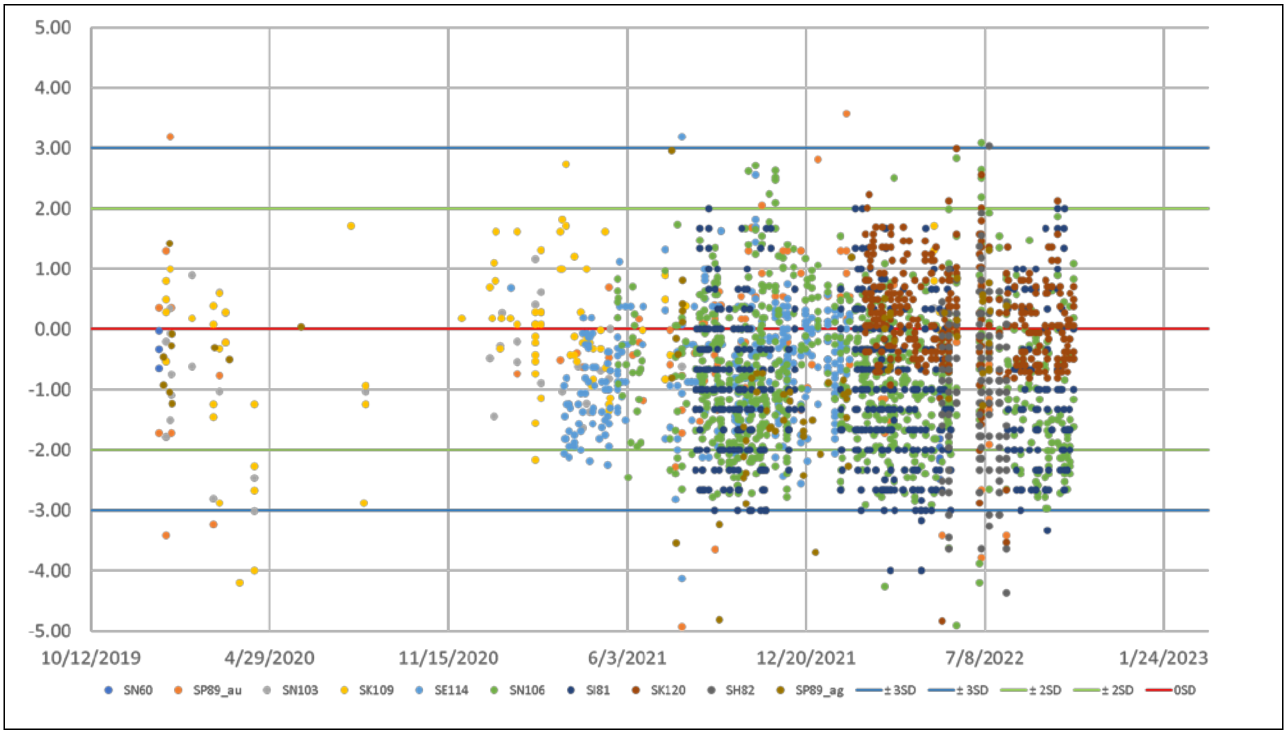
Source: SLR, 2022

Figure 11.2: FDN Control Chart of CRM SN106 (Gold)



Source: SLR, 2022

Figure 11.3: FDN Z-score for all CRM's



Source: SLR, 2022

11.8.2 Blank Material

11.8.2.1 2006 to 2019

During the first part of 2006, blank material was sourced from Hollín Formation sands located near the Emperador concession. Following poor performance, the source of blank material was changed to Hollín Formation quartz sandstone, sourced from an outcrop north of FDN. The results of the gold blank samples and tabulated the number of failures each year:

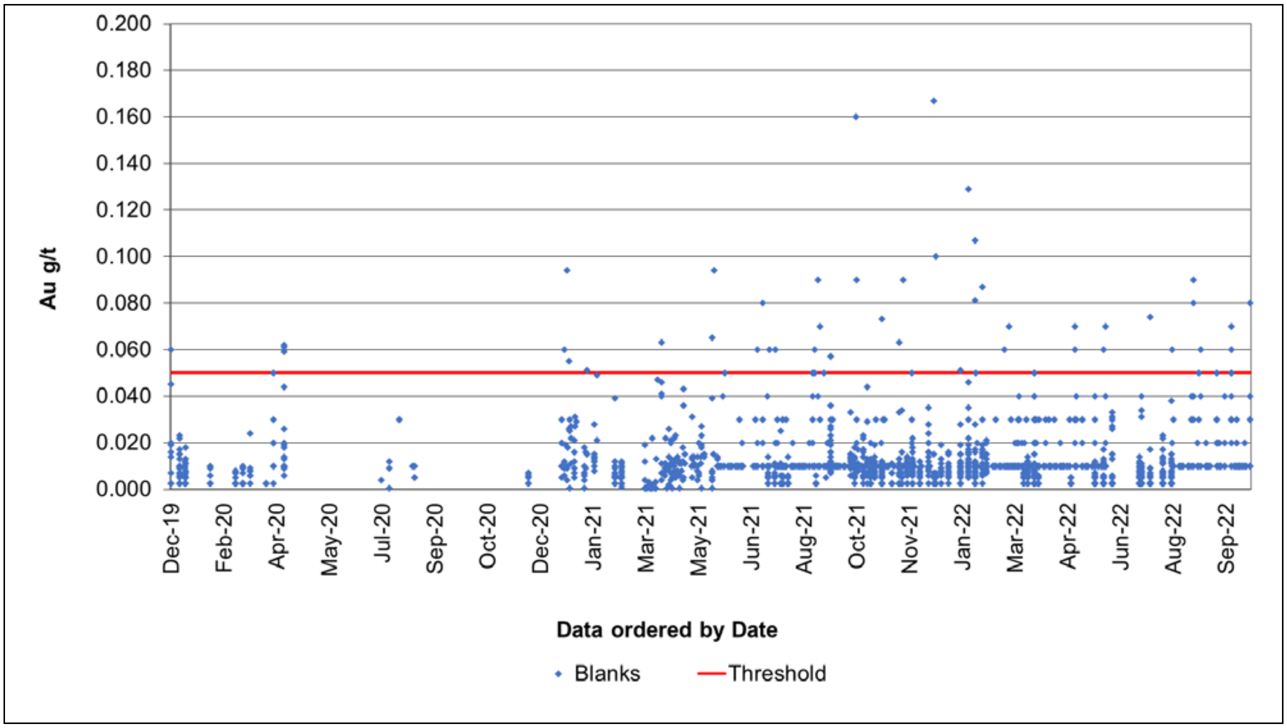
- A high number of failures were reported in 2006 from blank material prepared at ALS Quito and assayed at ALS Vancouver. Performance of blank material prepared and assayed in Inspectorate's facilities in Quito and in Lima, respectively (four holes, 9% of 2006 blank submittals) was excellent, with no reported failures.
- Performance of blank samples improved and are considered to be acceptable from 2007 to 2015, with an overall failure rate of 1.6%. Anomalous results are interpreted as contamination or a sample switch. Site operators have consistently monitored the results of blank samples and followed up spurious results with investigations throughout FDN's life. Blanks were analyzed using procedures with very high lower detection limits in 2015 (0.05 g/t Au), and thus the failure criteria were relatively high compared to earlier campaigns.

11.8.2.2 2019 to Present

SLR has reviewed the results of the gold blank samples: Figure 11.4 shows the performances of the blank material from 2019 to 2022. Overall, the blank samples performed well with a passing rate of 98%. The results indicate a negligible amount of sample contamination associated with samples from FDN.

The plotted blank material indicates that there are good protocols at the laboratory to mitigate any contamination and produce reliable assays. In SLR's opinion, the performances of the blank materials support the use of associated assays for Mineral Resource estimation.

Figure 11.4: FDN Blank Sample Control Chart



Source: SLR, 2022

11.8.3 <u>Duplicates</u>

Duplicate samples help monitor preparation and assay precision and grade variability as a function of sample homogeneity and laboratory error. Field duplicates include the natural variability of the original core sample, as well as all levels of error including core splitting, sample size reduction in the preparation laboratory, sub-sampling of the pulverized sample, and the analytical error. Coarse reject and pulp duplicates provide a measure of the sample homogeneity at different stages of the preparation process (crushing and pulverizing).

11.8.3.1 <u>2006 to 2019</u>

A total of 1,632 field duplicate and 1,739 coarse reject duplicate samples were collected from 2006 to 2019:

- Field duplicate samples were collected as two quarter core samples, with the remaining half core sample retained for reference.
- Coarse reject samples were collected as an additional split from the crushed reject material (better than 70% passing - 2 mm or 10 mesh).
- Pulp reject duplicate samples were submitted as part of the 2015 QA/QC program at FDN only (152 sample pairs; gold only).

The results of the field, coarse reject, and pulp duplicate samples prepared and assayed at the ALS facilities were reviewed through the preparation of summary statistics, as well as scatter, quantile-quantile, and precision plots. Gold duplicates tended to compare better than the silver duplicate results; however, both gold and silver showed good correlation.

Field duplicate samples for both gold and silver show a fairly high level of scatter, which is to be expected in a project with visible gold. No bias was observed, indicating that the samples with more visible gold have not been preferentially sampled.

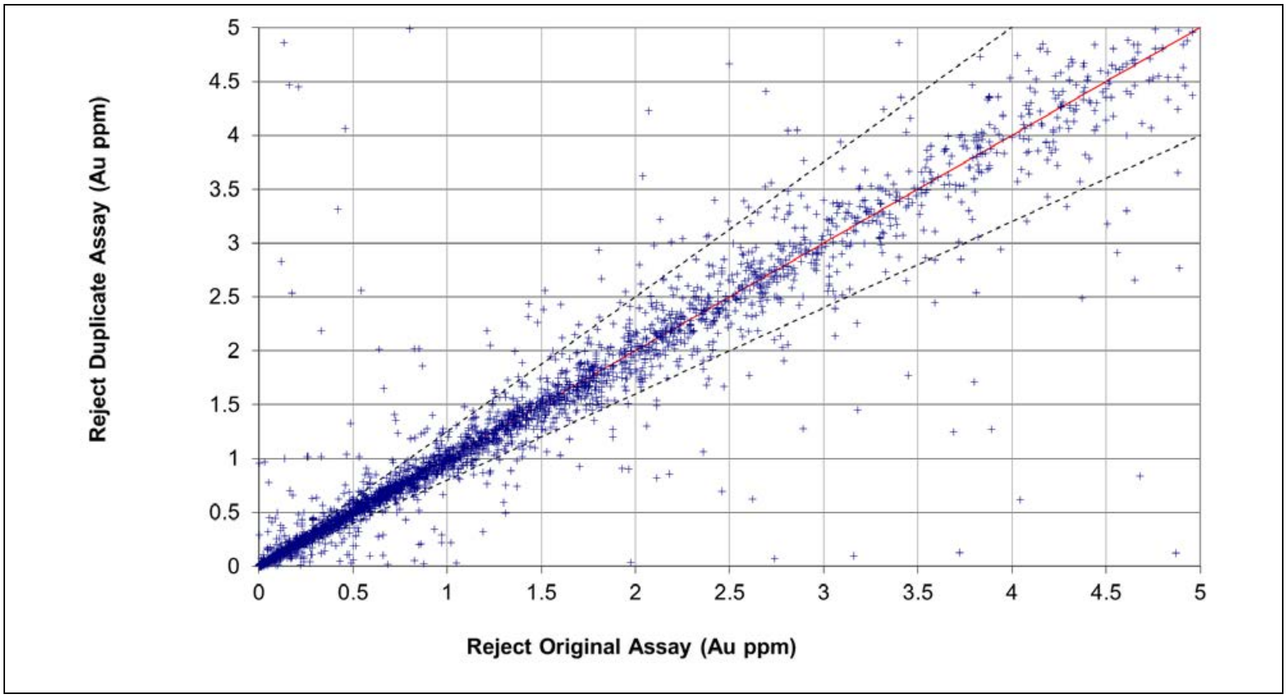
11.8.3.2 2019 to Present

For the 2019-2022 period, a total of 9,921 duplicate samples including coarse rejects and pulp duplicates were provided for review. SLR has reviewed the data and prepared charts depicting the results of the duplicate samples. Scatter plots for coarse reject duplicates and pulp duplicates show a strong correlation of 0.97 and 0.93, respectively, which indicates a high level of confidence in laboratory practices (Figure 11.5 and Figure 11.6).

SLR notes that the performances of the reject and pulp duplicate samples indicative of good QA/QC protocols used along the sampling process and has observed no major issues.

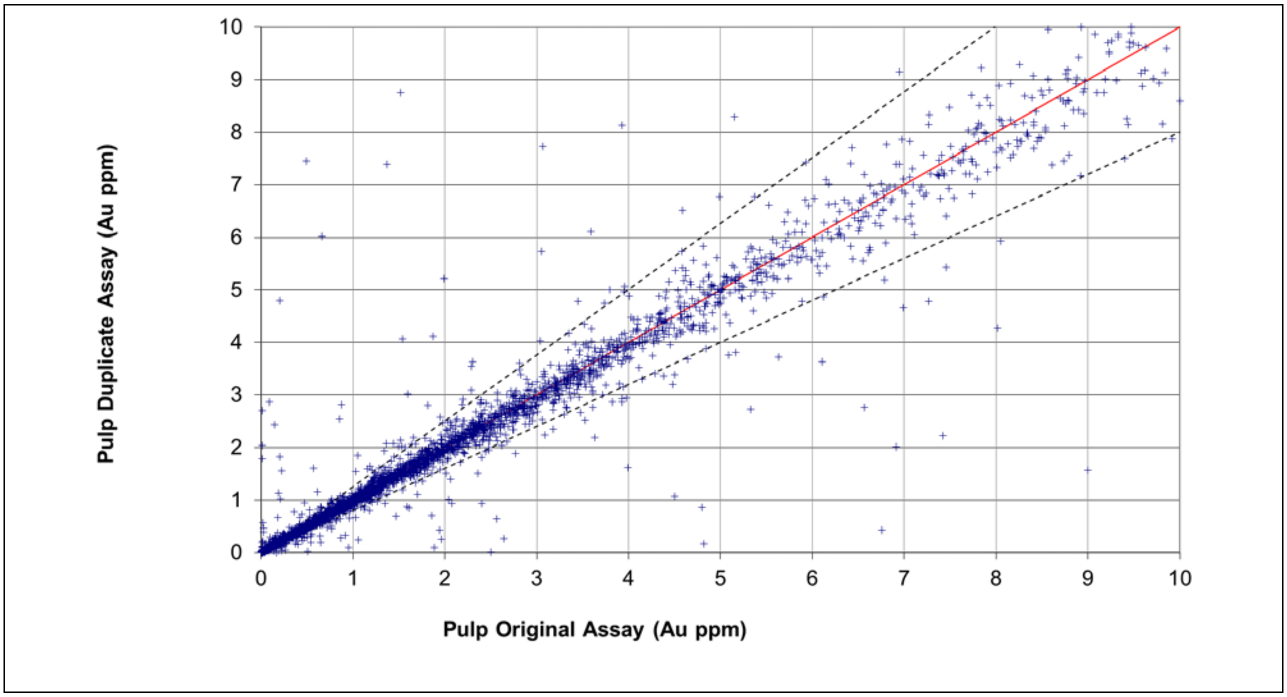
The SLR QP is of the opinion that the results from the duplicate sample procedures support the use of the assay results in the Mineral Resource estimation.

Figure 11.5: Scatterplot of Coarse Reject Duplicate Results



Source: SLR, 2022

Figure 11.6: Scatterplot of Pulp Reject Duplicate Results



Source: SLR, 2022

11.8.4 Check Assays

11.8.4.1 2006 to 2019

Pulp reject samples were submitted to Inspectorate in Lima and SGS in Toronto from 2006 to 2008, and to Inspectorate in Lima during 2015. Prior to 2015, CRM samples were not included with check assay sample submissions. Starting in 2015, CRM samples were included in the check assay sample batches.

The results of the secondary and tertiary laboratory testing were analyzed using basic statistics, scatter, QQ, and percent relative difference plots, separately for each primary laboratory, and considering the method type employed, for both gold and silver.

The results of the check assay review demonstrate overall good correlation of the ALS Vancouver laboratory with results from both Inspectorate Lima and SGS Toronto. A slight high bias is observed between the primary laboratory and SGS Toronto at grades above approximately 5 g/t Au and Inspectorate Lima at grades above approximately 18 g/t Au. The Inspectorate Lima data set is less scattered than the SGS Toronto data set.

The original ALS Lima gold results were compared with the results from the secondary and tertiary laboratories, considering the analytical method employed at the primary laboratory. The results indicate an improvement in correlation with the adoption of method code AU-AA24 (fire assay with AAS finish) from method code ICP22 (fire assay with ICP-AES finish) by ALS Lima; however, both methods compare well, particularly below 10 g/t Au. The slight positive bias observed in the ALS Vancouver laboratory remains present in the ALS Lima laboratory, where assays were finished using ICP-AES. Following the ALS Lima method code switch to AU-AA24, the bias is no longer present.

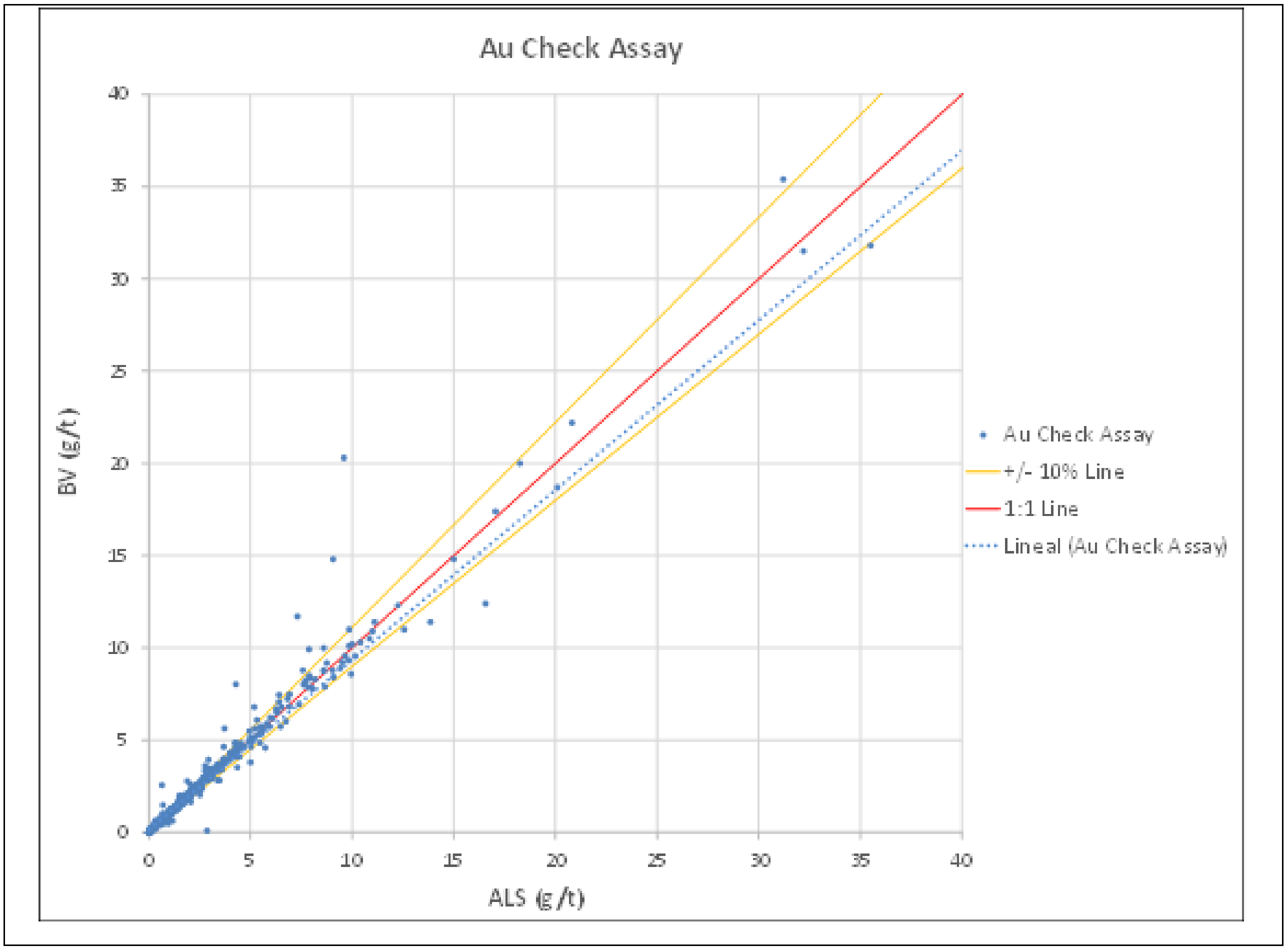
Comparative statistics of the silver assay results demonstrated mixed results, depending on the assay method employed. During 2006, a small number of pulp reject samples were submitted to Inspectorate Lima for four-acid digestion and to SGS Toronto for analysis using method code FA-ICP-OES, in addition to the standard method codes. The SGS Toronto FA-ICP-OES results are particularly poor; however, the laboratory utilizes an analytical technique that differs from the standard technique. Good correlation exists between ALS Vancouver with both Inspectorate Lima and SGS Toronto, although ALS Vancouver results assay are slightly higher than Inspectorate Lima. This bias was reduced to a negligible amount following the 2007 switch to ALS Lima as the primary assaying facility.

11.8.4.2 2019 to Present.

Umpire samples, which consisted of pulps prepared by ALS Quito and analyzed at a laboratory different than the primary laboratory, performed well. A total of 1,936 pulp samples (10% of the total program) were submitted to BV Quito for check analysis. The QP noted that analyses of gold at ALS returned slightly lower values than those obtained from analyses at BV laboratories, however, the bias was slight and the QP considered the data to be within industry standards.

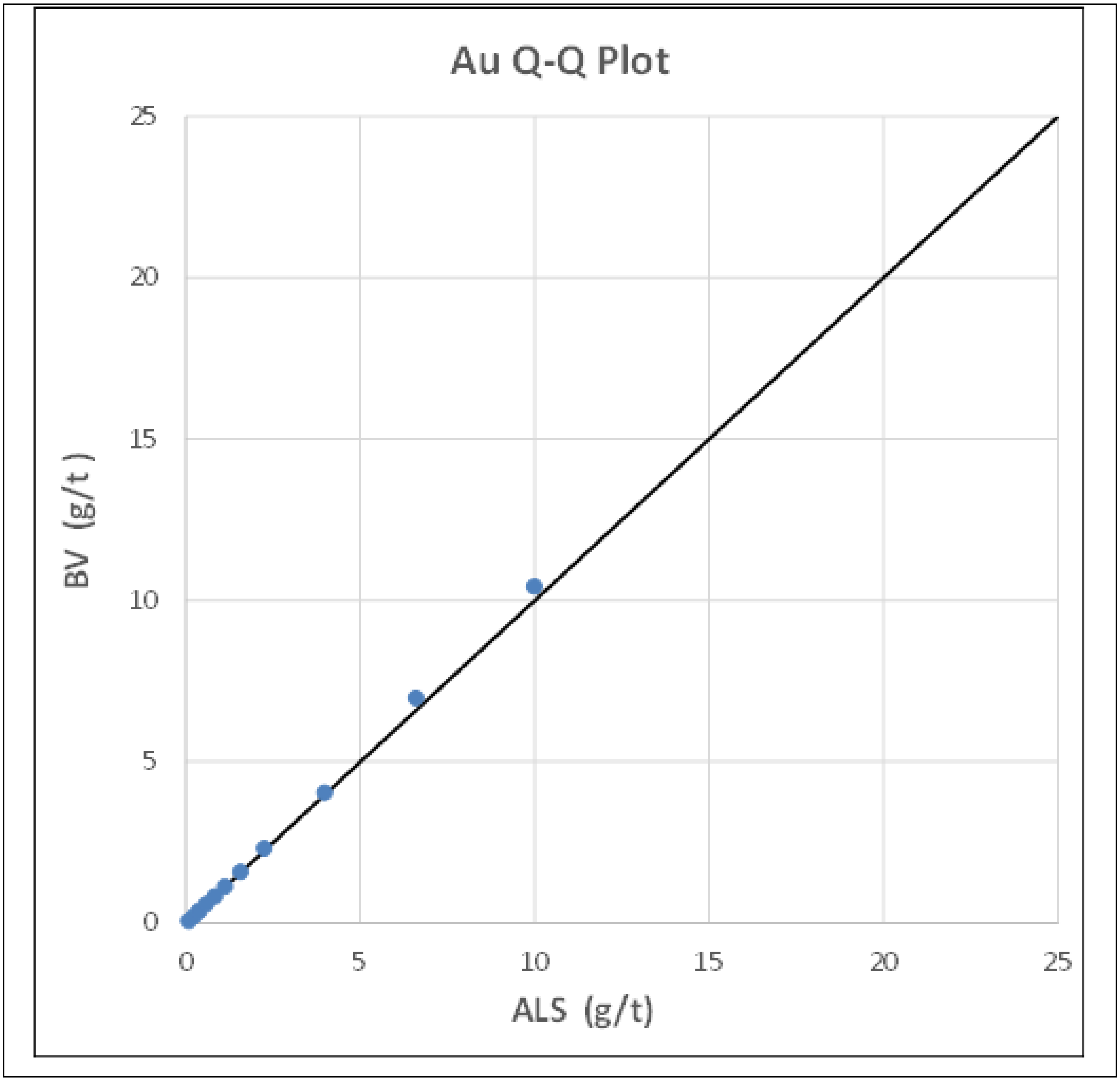
Figure 11.7 and Figure 11.8 show the original assays for gold and silver plotted against the umpire laboratory assays.

Figure 11.7: Original versus Umpire Assay Results (Au)



Source: SLR, 2022

Figure 11.8: Q-Q Plot - Original versus Umpire Assay Results (Au)



Source: SLR, 2022

11.9 <u>Comments on Section 11</u>

Sample collection, sample preparation, analytical methods and security for all Aurelian–Kinross and Lundin Gold drill programs are consistent with industry-standard methods for epithermal gold–silver deposits and can support Mineral Resource and Mineral Reserve estimates.

The SLR QP notes:

- The number, grade range and temporal range of submission of gold CRM samples at FDN are sufficient to monitor accuracy of the laboratory. Insufficient silver CRM samples were included at FDN from 2009 to 2019.
- The gold CRMs assayed demonstrate a high-level accuracy and a good level of precision, with fewer than 3% of submissions failing to meet expected criteria.
- Results from all silver CRMs assayed ALS Lima show a slight high bias. The silver CRM failure rate was sufficiently low to demonstrate laboratory precision and accuracy.
- The positive bias observed in the silver CRM samples is also present in the check assay data for silver, indicating that the silver results from ALS Lima are likely slightly biased high.
- The results of the field duplicate sampling program have confirmed the presence of natural grade variability within the samples at FDN. The number of field duplicates taken to date is sufficient to understand the natural variability and there is no further need for field duplicate samples for FDN.
- The results of the coarse reject duplicate sampling program have confirmed that the coarse reject material is homogenous and representative of the sample. The monitoring of coarse reject material should continue at FDN at a reduced insertion rate.
- The results of the recent blank samples confirm that there is a low likelihood of grade smearing and contamination at the preparation laboratory.
- High precision is observed in the recent results of the coarse reject and pulp duplicate programs.
- SLR QP recommends continuing the current QA/QC program with monitoring and reviewing results of the submitted samples.
- SLR QP is of the opinion that the results of the QA/QC programs are sufficient to support the Mineral Resource estimation.

12 DATA VERIFICATION

Data verification of the drill hole database included manual verification against original digital sources, a series of digital queries, and a review of Lundin Gold's QA/QC procedures and results which are described in Section 11, Sample Preparation, Analyses, and Security.

Pursuant to NI 43-101, Ms. Dorota El-Rassi, M.Sc., P.Eng., SLR Principal Geologist, and Mr. Eduardo Zamanillo, M.Sc., MBA, SLR Principal Mining Engineer, completed a site visit to FDN and other related facilities from November 15 to 18, 2022. Ms. El-Rassi visited the core shack, reviewed the logging environment and procedures for data collection and sampling. The site visit also included a surface field tour across the property and a visit to the underground mine including levels 1195, 1245, and 1270 where typical mineralization, underground infrastructure, and operational procedures were observed. A walkaround of the processing plant, tailing facilities and the mine laboratory was also carried out. Multiple discussions were held with Lundin Gold personnel to gather information for the completion of this report, including 3D modelling, block modelling, database validation, QA/QC, historical operational performance and a complete review of the mine planning cycle. Additionally, Ms. El-Rassi examined drill hole core relevant to Mineral Resource estimation, including visually checking stratigraphy against interpreted drilling sections. Lundin Gold provided full access during all parts of the site visit. Ms. El-Rassi and Mr. Zamanillo were accompanied by Mr. Andre Oliveira, Vice President Exploration; Mr. Michael J. Munroe, Geology Superintendent; Mr. Freddy Ildenfonso Carpanchay, Mineral Resource Superintendent; Mr. Javier Santillan, Mine Manager; Mr. Jesus Sanchez, Technical Mine Services Manager; Adolfo Casanova, Improvement Manager; Sergio Huaicane, Rocks Mechanics Superintendent; Giovanni Lucas, Mine Services Superintendent, and others.

12.1 SLR Database Verification

12.2 Data Verification by Other Consultants (2007)

Hennessey and Stewart (2007) used a two-phase verification process to check 100% of the assay data compiled up to and including 2007 drilling. The first phase was to check all database assays on an ongoing basis as the certificates arrived from the laboratory. The second phase was to re-check 10% of the database against the laboratory certificates.

Between late 2007 and early 2009, no drilling activities were undertaken. At the end of the 2009 and 2010 infill programs, site personnel compiled and checked all certificates against the database for all elements. The comparison showed no errors. Kinross also carried out a manual 5% check of the 2010 drill assay data on site in June 2010. No errors were identified.

12.2.1 SLR Data Verification - 2022

SLR's review of the resource database included collar, survey, lithology, and assay tables. Database verification was performed using tools provided within Leapfrog Geo Version 2022.1.1 software package (Leapfrog). A visual check on the drill hole Leapfrog collar elevations and drill hole traces was completed. No major discrepancies were identified.

SLR compared assay records for gold and silver in the resource database against a total of 92 digital laboratory analysis certificates for drilling carried out between 2020 and 2022 and found no significant errors. In addition, the SLR QP:

- Completed validity checks for out-of-range values, overlapping intervals, and mismatched sample intervals.
- Carried out spot checks on pre-2020 drill holes.
- Reviewed the reasonableness of the geological interpretations relative to the nature of the previously defined mineralization and the newly defined mineralized intervals.

12.2.2 SLR Data Verification – 2009 to 2016

A significant portion of the database verification was performed by Scott Wilson Roscoe Postle Associates Inc. (Scott Wilson RPA), a predecessor company to Roscoe Postle Associates Inc. (RPA), which is now part of SLR, during an audit of the December 31, 2009, Mineral Resource and Mineral Reserve estimates. Scott Wilson RPA's audit was completed by Luke Evans, M.Sc., P.Eng., Principal Geological Engineer, Dennis Bergen, P.Eng., Associate Principal Mining Engineer, and Holger Krutzelmann, P.Eng., Principal Metallurgist. Mr. Evans and Mr. Bergen visited the FDN site from April 6 to 9, 2010 (Evans et al., 2010).

Data verification activities carried out by Mr. Evans included a detailed review of the standard operating protocols, drill hole spacing, core diameter used, final collar coordinates and methods of their determination, down hole surveying procedures, drill core logging protocols, core recovery, the bulk density data collection, sample layout, sample preparation and sample security procedures, and QA/QC protocols. No significant discrepancies were identified.

In June 2014, Kinross provided to RPA, now part of SLR, a Dassault Systèmes Geovia GEMS (GEMS) project containing updated drill hole database, core recovery and density measurement files in digital format. RPA compared the updated database provided in June 2014 with the database used for the December 31, 2009, Mineral Resource and Mineral Reserve estimates. No significant discrepancies were identified.

Mr. David Ross, M.Sc., P.Geo., then RPA's Principal Geologist, visited the FDN site from April 7 to 9, 2016. During the site visits, RPA reviewed drill core from numerous core holes and compared observations with assay results and descriptive log records made by Aurelian and Kinross geologists. In addition to reviewing core, RPA examined outcrops, drill rigs, sampling procedures and other general exploration protocols.

12.3 Comments on Section 12

The SLR QP is of the opinion that database verification procedures for FDN comply with industry standards and are adequate for the purposes of Mineral Resource and Mineral Reserve estimation.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Introduction

Significant metallurgical test work has been completed on ore samples from various parts of the ore deposit. Detailed summaries of historical metallurgical test work programs can be found in previous technical reports such as Amec Foster Wheeler et al, 2016.

For the 2016 feasibility study and subsequent design of the existing operating process plant, various metallurgical test work programs were completed; specifically the results from MET1 test work program at SGS Minerals S.A in Santiago, Chile and MET4 test work program at SGS Lakefield in Ontario, Canada were used and supervised by Amec Foster Wheeler (now Wood). The gold and silver sample head grades and gold recoveries from MET4 were lower than the results from MET1 and samples for MET4 were considered non-representative of the LOM ore. As result, fresh core was drilled and sampled, and subsequent metallurgical test work was completed (MET5) at SGS Lakefield in Ontario, Canada in 2017 and supervised by Ausenco. The main objective of the 2017 test work program was to produce a flotation concentrate for marketing studies and complete additional leach kinetics. Pertinent metallurgical conclusions from the 2016 and 2017 test work programs and the previous technical report are reproduced below for context.

No significant metallurgical test work programs have been completed since the process plant was commissioned. However, FDN Operations has commenced implementing a geometallurgical procedure for predicting plant metallurgical performance. Chemical analysis and assays, gravity tests, flotation bench scale tests, leach tests and environmental tests are completed at the onsite metallurgical laboratory. Any grindability, mineralogy, deportment studies or specialized tests are completed at external laboratories as required.

Select core samples from the south zone were recently tested at FDN’s on-site metallurgical laboratory and confirmed similar metallurgical response of ore via the existing treatment route. Additional metallurgical test work as part of the site’s ongoing geometallurgical procedure is recommended to further characterize the ore from this new future mining zone.

13.2 2016 Metallurgical Test Work

13.2.1 Sample Selection for MET1 and MET4

Metallurgical samples were composited from 1 m drill core intervals for MET1 and MET4. The MET1 program material was provided from five separate drill cores, which were split to create variability samples and composite samples representing the mining periods.

The MET4 program sample selection was originally based on the need to produce flotation concentrate for further market studies. As such, the material was selected from two new (MET4) drill cores and available MET1 core rejects. Intervals were selected on the basis of grade, with remaining material composited to achieve an overall composite head grade that was similar to the conceptual life of mine plan.

13.2.2 Head Characterization

Representative splits from each of the 25 MET1 variability, three MET1 composites and MET4 composite were submitted for chemical analysis. Results of the head grade analysis indicated some variability in gold and silver grades with low levels of impurities and variation in the proportion of free gold throughout the deposit and is evident with existing operations.

13.2.3 Mineralogy

XRD analysis was performed on each of the 25 MET1 variability samples, with selected samples being further submitted for QEMscan analysis. Additional XRD and QEMscan analysis were carried out on samples of the MET4 composite. Results of the XRD analysis indicated that the samples contain mainly quartz, micas, feldspar, pyrite, and calcite; with traces of rutile, chalcopyrite, lazurite, and jarosite.

QEMscan results highlighted the variability of free gold and gold middlings throughout the samples. Gold middlings are most commonly gold associated sulphides (pyrite) and gold associated silicates (quartz). Overall, the results between the MET1 and MET4 QEMscans were found to be consistent.

The high degree of variability in free gold, gold associated sulphides and gold associated quartz play a significant role in recovery contributions made by the gravity, flotation and leaching circuits.

13.2.4 Physical Characterization

Physical characterization test work was carried out on selected drill core intervals for both MET1 and MET4 programs. The characterization work included SMC testing and Bond ball mill work indices (BWi). In total, 24 MET1 and 14 MET4 samples were submitted for SMC testing and representative samples of each MET1 composite were submitted for Bond ball mill work indices. The average results of the SMC and Bond ball mill tests are presented in Table 13.1 and Table 13.2, respectively.

Based on the individual SMC results, the orebody is classified as moderately hard in comparison to data within the Julius Kruttschnitt Mineral Research Centre (JKMRC) database. These results remain consistent with the previous test work programs and historical data on the deposit. An overall global statistical summary is presented in Table 13.3 and Table 13.4 that summarizes the source of the samples comprising the overall physical characterization database for FDN.

Table 13.1: Summary of MET1 and MET4 SMC Test Results

Statistic	Specific Gravity	Axb	DWI (kWh/m3)	SCSE (kWh/t)
Average	2.65	45.2	6.05	9.35
85th Percentile	2.70	39.87	6.03	9.68
Minimum[1]	2.54	69.7	3.73	7.72
Maximum[1]	2.77	35.4	7.87	10.62

Note: [1]. Minimum and maximum refer to the softest and hardest results, respectively.

Table 13.2: MET1 Composite Bond Ball Mill Work Indices

Composite	Bond Work Index (BWi)	
	kWh/st	kWh/t
0-3 Year Composite	16.9	18.6
4-7 Year Composite	19.0	20.9
8-12 Year Composite	18.6	20.5

Table 13.3: FDN Global Grinding Statistics

Statistic	Specific Gravity	Axb (JKDW)	Axb (SMC)	RWi (kWh/t)	BWi (kWh/t)	AI
Number of Samples	75	24	57	7	80	23
Average	2.67	50.64	49.27	16.36	19.96	0.44
85th Percentile	2.74	41.78	41.10	17.01	23.51	0.70
Minimum[1]	2.54	70.9	77.8	14.5	14.2	0.20
Maximum[1]	2.82	38.7	35.392	18	28.4	0.91

Note: [1]. Minimum and maximum refer to the softest and hardest results, respectively.

Table 13.4: Summary of Numbers of Grinding Samples

Source	Specific Gravity	Axb (JKDW)	Axb (SMC)	RWi (kWh/t)	BWi (kWh/t)	AI
Historical (2004)	24		24		27	24
Historical (2006)	24	24	6	7	30	6
MET1	13		13		23	
MET4	14		14			
Total Number of Samples	75	24	57	7	80	30

13.2.5 Gravity-Recoverable Gold

Both MET1 (composite and variability) and MET4 samples were submitted to gravity concentration using laboratory scale Knelson concentrators. The Knelson concentrator feed size was approximately 150 µm for both MET1 and MET4 programs. Test results are summarized in Table 13.5.

At the time of the test work, the amount of gold that could potentially be recovered by gravity was considered high, as supported by the global recovery results of the gravity test work and QEM scans of the head feed. Of note is the additional recovery of silver, suggesting that a large proportion of free gold is in the form of electrum.

During MET1, excessively high (five times the expected industry norm) mass pulls to the gravity concentrate were observed. As a result, the reported concentrate grades are considerably lower than the MET4 concentrate grades, without a significant reduction in gold and silver recovery.

Leaching characteristics of the gravity concentrates were also investigated. Gold extraction rates were found to be consistent with industry norms. MET1 and MET4 composite samples tested achieved between 94% and 98% leached gold recovery from the gravity concentrates produced.

The existing gravity circuit was upgraded during the last plant expansion to include a third train and to reconfigure the gravity circuit to treat the combined SAG and ball mill discharge to maximize gold recovery via gravity concentrators. Current average gravity recovery is approximately 20%.

Table 13.5: Summary of the MET1 and MET4 Gravity-Recoverable Gold Tests

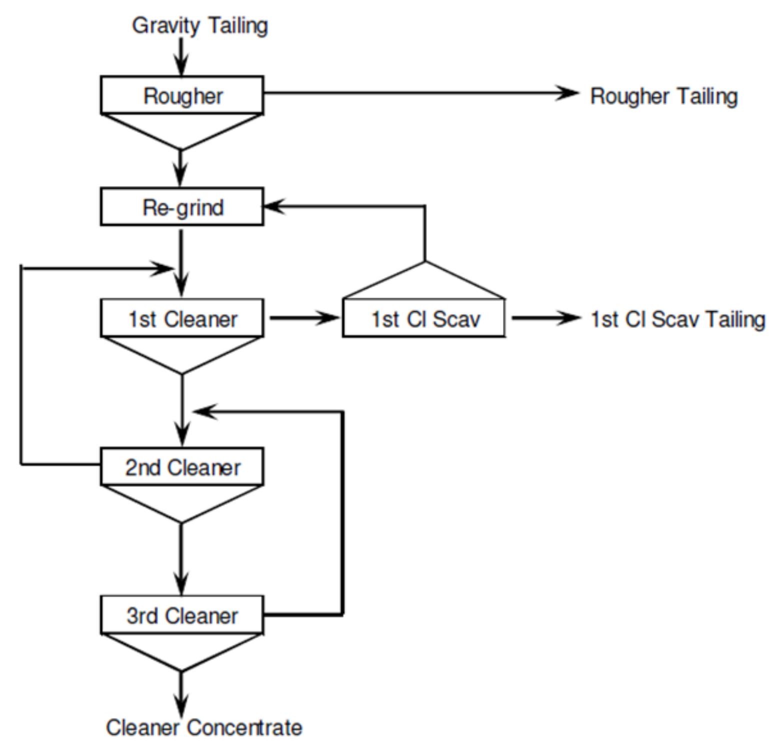
Sample	Mass Pull (%)	Assay (g/t)		Global Recovery (%)	
		Au	Ag	Au	Ag
Average of MET1 Variability	0.68	493	333	21.1	17.5
MET1 0-3 Year Composite	0.65	547	368	31.7	14.9
MET1 4-7 Year Composite	0.59	102	10	6.6	0.6
MET1 8-12 Year Composite	0.70	654	254	26.4	13.7
MET4 Composite	0.07	3,141	963	20.6	5.6

13.2.6 Conventional Flotation

A sulphide flotation test program was developed for the concentration of a gold and silver rich concentrate, knowing that flotation tailings would be subsequently cyanide leached. The objective of the flotation circuit was to recover fine free gold and gold associated sulphides to produce a saleable concentrate.

During the MET1 program each variability sample was subjected to an open circuit flotation test (OCT) to determine the optimal flotation conditions. Subsequently, the MET1 composite sample and MET4 sample were submitted for locked cycle tests (LCTs) at the optimal conditions, using the same flowsheet (Figure 13.1).

Figure 13.1: MET1 and MET4 Conventional 3 Stage Cleaning Flotation Circuit



Note: Figure from SGS, 2015b

All samples tested reported only moderate gold recoveries. The overall flotation process required lengthy residence time and relatively high reagent dosage to a large degree considered to be the consequences of the middlings gold being a combination of sulphide and quartz associations.

Analysis of the flotation tailings indicated fine free gold, gold associated sulphide and gold associated quartz occlusions, which cannot be recovered by conventional sulphide flotation.

Final concentrates showed reasonable gold and silver grades, with mid-level impurities. Overall, the concentrates produced during the test work were considered suitable for sale to a smelter for further processing. FDN currently produces gold concentrates of approximately 100-130 g/t Au, consistent with historical test work.

13.2.7 Leaching

Bottle roll leaching tests were performed on flotation tails of each variability and composite sample (including MET4). During the MET1 composite testing, kinetic studies were carried out using air and oxygen injection methods. In addition, a pre-oxidation stage was tested to determine the optimal leaching conditions.

Kinetic testing of each composite showed negligible difference between using air, oxygen and pre-oxidation. Ultimate leach recoveries between 51.3% and 64.4% were obtained after 24 hours of leaching, and consistent with existing plant CIL recoveries.

Cyanide consumption during the leach tests was low due to the recovery of sulphides to the concentrate during the flotation stage.

13.2.8 Cyanide Detoxification

Leached tailings of the MET1 composite samples were submitted for cyanide detoxification testing, using the SO_2/air process. The results of the cyanide destruction were positive, yielding <0.1 mg/L CNWAD after two hours (on average). Total cyanide at the completion of batch tests was measured at <0.4 mg/L. Current process plant cyanide destruction operating targets are <1 mg/L total cyanide and typically achieve 0.1-0.3 mg/L total cyanide.

13.3 2017 Metallurgical Test Work

The main objective of the 2017 test work program (MET5) was to produce a flotation concentrate for marketing studies and complete additional leach kinetics.

A total of 1,600 kg of representative core samples (same ratio of lithologies and same grade of gold and sulphur as the average feed to the process plant) were selected and composited into one sample.

The sample was processed following the same flowsheet applied previously to the MET4 sample. The composite was crushed to -6 mesh and processed through a continuous grinding and gravity separation circuit. The mill discharge was fed to a Knelson concentrator at a P80 of ~150 µm. The Knelson tailing was pumped to a screen from which the oversize was returned to the mill and the undersize was pumped to a thickener. The Knelson concentrate, representing 0.08% of the feed weight, was subsampled using a micro-riffle for assaying and a leach test. A gold recovery of ~20% was achieved; same as the results from MET1 tests and current plant operations.

A total of 1,416 kg of gravity tailing was processed by flotation and produced 42 kg of flotation concentrate. A total of 59 flotation cycles were performed and after optimization during the first 22 cycles, gold grade and recovery stabilized at 151 g/t Au and 63.8% respectively. The grade results were lower than expected due to high mechanical entrainment of fines with the concentrate. Tests were completed with and without concentrate regrind. A modified regrind circuit was introduced where the regrind feed was first scalped to allow the fines to by-pass the regrind equipment. The goal was to regrind only the coarser material for liberation purposes and to send fine material directly to the cleaner/scavenger circuit to reduce fines generation and fine entrainment to the final concentrate, thereby increasing final gold grade. The results of these last series of cycles produced the highest concentrate grade of 217 g/t Au but a similarly low flotation gold recovery.

In summary, for the flotation circuit, the following scenarios were evaluated:

- Cycles 1-22: Conventional flowsheet circuit with rougher concentrate and 1st cleaner-scavenger tails fed to the regrind circuit.
- Cycles 22-48: Regrind circuit removed.
- Cycles 49-59: Scaling of regrind circuit feed at 45 µm.

Cyanidation test work was completed on flotation tails for the three different flotation scenarios and the results are summarized and compared against MET1 and MET4 in Table 13.6.

Table 13.6: Summary Metallurgical Programs

Summary of MET5							
Cycles	Cl Conc	Cleaner Conc Grade		Overall Recoveries %			
	Wt	g/t (P20=41 µm)		Knelson+Flot Conc		Knelson ICN+Cl Conc+Tail CN	
		Au	Ag	Au	Ag	Au	Ag
1-21	3.5	151	264	84.2	83.2	92.6	91.7
22-48	2.8	170	281	75.9	75.0	89.6	87.3
49-59	2.6	217	335	74.6	71.6	87.4	85.8
Summary of MET-4							
Cycles	Cl Conc	Cleaner Conc Grade		Overall Recoveries, %			
	Wt	g/t (P80 = 41 µm)		Knelson+Flot Conc		Knelson ICN+Cl Conc+Tail CN	
	%	**Au**	**Ag**	**Au**	**Ag**	**Au**	**Ag**
1-54	3.2	126	177	74.0	69.5	86.0	86.4
Design (based on the MET-1 results)							
Cycles	Cl Conc	Cleaner Conc Grade		Overall Recoveries, %			
	Wt	g/t (P80 = 45 µm)		Gravity+Flot Conc		Gravity ICN+Cl Conc+Tail CN	
	%	**Au**	**Ag**	**Au**	**Ag**	**Au**	**Ag**
-	4.1	148	206	83.2	78.6	91.7	81.6

In the flotation flowsheet, two separate tails streams were generated. The rougher tails gold grade stayed relatively stable during all 59 cycles at 1 g/t Au. However, the cleaner/scavenger tailings stream had a relatively low gold grade in the first scenario at 5.2 g/t Au. When the regrind circuit was removed, the recirculating loads increased due to unliberated material and the gold in this cleaner/scavenger tailings stream increased to 15 g/t Au.

With the reintroduction of the regrind circuit with prior scalping, the gold in the cleaner/scavenger tails stayed at similar concentration as the second scenario at 15 g/t Au but pyrite in the tails increased. This increase in pyrite content of the flotation tailings can explain why the cyanide leaching results are relatively low for the tails of cycle 49-59 compared to the other scenarios. The gold in this pyrite cannot be recovered by leaching in the CIL circuit due to its refractory nature and without any additional treatment such as fine grinding.

Regrinding all the material (flowsheet for MET1, MET4 and MET5 for cycle 1-22) also has the goal to reactivate the surface of particles to increase flotation efficiencies in the scavenger/cleaner circuit and at the same time reduce the pyrite in the cleaner/scavenger tails.

In conclusion, MET5 test results confirmed the original flowsheet design and general reagent consumption. The option of desliming before regrinding was not recommended due to potential higher gold losses to the tailings. The results obtained for scenario 49-50 showed a reduction of 23% of the concentrate produced. At the time of the analysis, the increase in payable gold and reduction in concentrate transportation costs for the gold concentrate at a grade higher than 200 g/t was not considered viable when considering a 5.2% reduction in gold recovery.

13.4 Gold and Silver Recoveries

The process plant has been generally treating ore feed grades of approximately 11 g/t Au and achieving approximately 89-90% average gold recovery. The life of mine average gold and silver metallurgical recoveries are 89% and 82% respectively.

14 MINERAL RESOURCE ESTIMATES

14.1 Introduction

Lundin Gold provided SLR with a Leapfrog Geo project that included the drill hole database, wireframes of the domain boundaries, and a complete block model. SLR reviewed all aspects of the resource model, made some minor adjustments, and reported Mineral Resources.

The Mineral Resource estimate was generated using a sub-block model method, with grades interpolated by ordinary kriging (OK). The block models were constrained by three dimensional (3D) wireframes encompassing the zones of mineralization. The block parent size is 4 m x 10 m x 10 m, with sub-block minimum sizes of 1 m x 2.5 m x 2.5 m.

Mineral Resources for the FDN deposit were estimated using drill hole data available up to October 1, 2022, and depleted by mining activity at December 31, 2022 (Table 14.1). The Canadian Institute of Mining and Metallurgy's (CIM) Definition Standards for Mineral Resources and Mineral Reserves (the 2014 CIM Definition Standards), adopted by NI 43-101, were followed for classification of Mineral Resources. At a cut-off grade of 3.4 g/t Au, Measured and Indicated Mineral Resources are estimated to total 23.0 million tonnes at an average grade of 9.20 g/t Au and 12.1 g/t Ag for a total of 6.8 million ounces of gold and 8.9 million ounces of silver. Inferred Mineral Resources are estimated to total 9.2 million tonnes at an average grade of 5.64 g/t Au and 11.8 g/t Ag for a total of 1.7 million ounces of gold and 3.5 million ounces of silver. The Mineral Resources are contained within five main geological domains.

Table 14.1: Summary of Mineral Resource – December 31, 2022

Category	Tonnage	Gold Grade	Gold Contained Metal	Silver Grade	Silver Contained Metal
	(Mt)	(g/t)	(Moz)	(g/t Ag)	(Moz)
Measured	9.3	12.09	3.6	12.8	3.8
Indicated	13.7	7.25	3.2	11.6	5.1
Measured and Indicated	23.0	9.20	6.8	12.1	8.9
Inferred	9.2	5.64	1.7	11.8	3.5

Notes: 2014 CIM Definitions Standards were followed for the classification of Mineral Resources.
Mineral Resources are estimated at a cut-off grade of 3.4 g/t Au.
The cut-off grade was calculated using a long-term gold price of $1,600/ounce.
The Mineral Resource estimate uses drill hole data available as of October 1, 2022.
The Mineral Resources depleted by mined out shapes as of December 31, 2022.
Mean interpolated bulk density of 2.73 t/m^3.
Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
Numbers may not add due to rounding.

14.2 Resource Database

Lundin Gold modelled the FDN resources using Leapfrog Geo and Leapfrog Edge 2022.1.1 software (Leapfrog) and was based on the drill hole database as of October 1, 2022, and other resource modelling components such as geological wireframes and block models.

The central core, located in the northern half of the deposit, was drilled at a 15 m to 30 m spacing; the southern half of the deposit was drilled at a 15 m to 60 m spacing. The entire database provided contained 691 boreholes including metallurgical, geotechnical, structural geology, regional exploration, abandoned, and re-drilled holes. Of these, a total of 294 drill holes (120,326 m) were used in the estimate which consisted of exploration and conversion drilling, with assays performed at a certified laboratory. In 2021 and 2022, Lundin Gold completed 18,341 m of underground drilling (88 drill holes), which improved the understanding of the deposit's geology. The effective date of the current Mineral Resource model is December 31, 2022.

The resource database contained the following records:

- Holes: 294
- Surveys: 3,293
- Assays: 74,537
- Composites: 37,595
- Lithology 10,621
- Alteration 10,336
- Mineralization 42,220
- Density measurement 4,127

Section 12, Data Verification, describes the verification steps made by SLR. In summary, no discrepancies were identified, and SLR QP is of the opinion that the drill hole database is valid and suitable to estimate Mineral Resources for the FDN deposit.

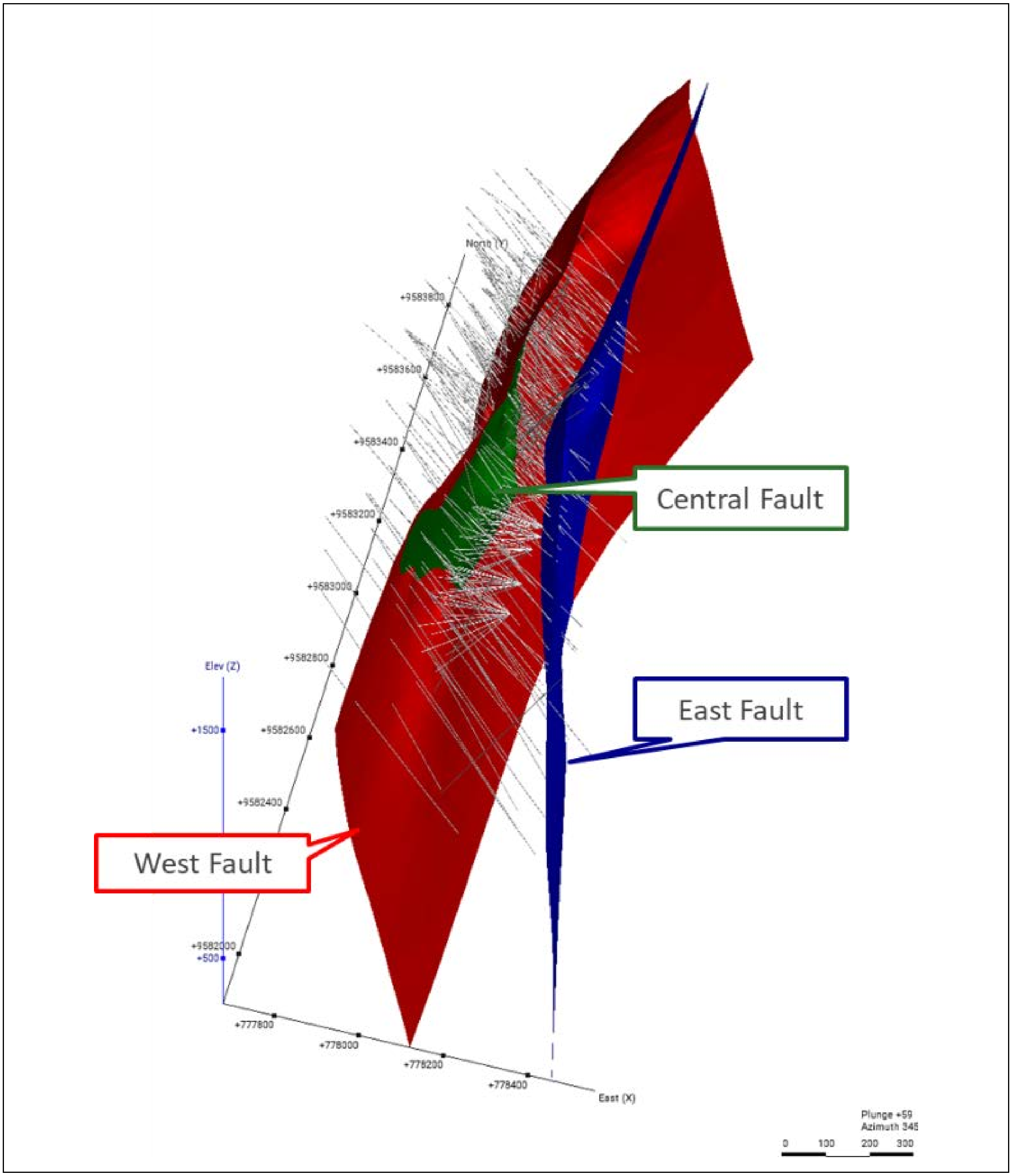
14.3 Geological Interpretation and 3D Wireframes

14.3.1 Structural Model

Lundin Gold generated a structural model consisting of three main fault planes using information from site observation, selected drill core data (assay and lithological data; oriented geotechnical data; observations of core box photos), and LiDAR topographic data (Figure 14.1).

The East and West faults serve as limits to the mineralization to the east and west. The FDN deposit is closed off to the north where the West and East faults converge. The Central fault displaces the FDN system between the West fault and East Fault Zones and appears to be the source of the hydrothermal activity. Gold grades tend to be higher near the Central fault.

Figure 14.1: Longitudinal Section with Domain Wireframes and Drill Hole Traces



Source: Lundin Gold, 2022

14.3.2 Lithological Model and Mineralization

Lundin Gold used alteration and geochemical signatures, gold grade, and underground crosscut mapping to define two main groups of lithological units at the FDN deposit: Xh-Vn (high grade gold mineralization) and Pf-Xp-Va (low-grade mineralization). Each domain is distinctive in mineralogical, textural and geochemical character as well as in gold distribution. The Xh-Vn group is characterized by hydrothermal eruption breccias, quartz-carbonate veins with calcedony, and stockworks with associated marcasite and silica alteration. The Pf-Xp-Va group with disseminated pyrite mineralization, is dominated by the occurrence of phreatomagmatic breccia, feldspar porphyry and clay alteration, and lacks veining and hydrothermal alteration. The domains were generated using Leapfrog Geo.

The Xh-Vn group comprises four sub-domains (Figure 14.2 and Figure 14.3):

- Xh-Vn-Va: hydrothermal breccias, quartz-carbonate veins with calcedony in the volcanic unit
- Xh-Vn-Pf1: hydrothermal breccias, quartz-carbonate veins with calcedony in porphyry and phreatomagmatic breccia, with additional manganese veining and visible gold
- Xh-Vn-Pf2: hydrothermal breccias, quartz-carbonate veins with calcedony in porphyry and phreatomagmatic breccia
- Va-Xh-Vn: diminished hydrothermal breccias, quartz-carbonate veins with calcedony in volcanic unit with marcasite presence as stockworks.

The Pf-Xp-Va group is divided into four sub-domains:

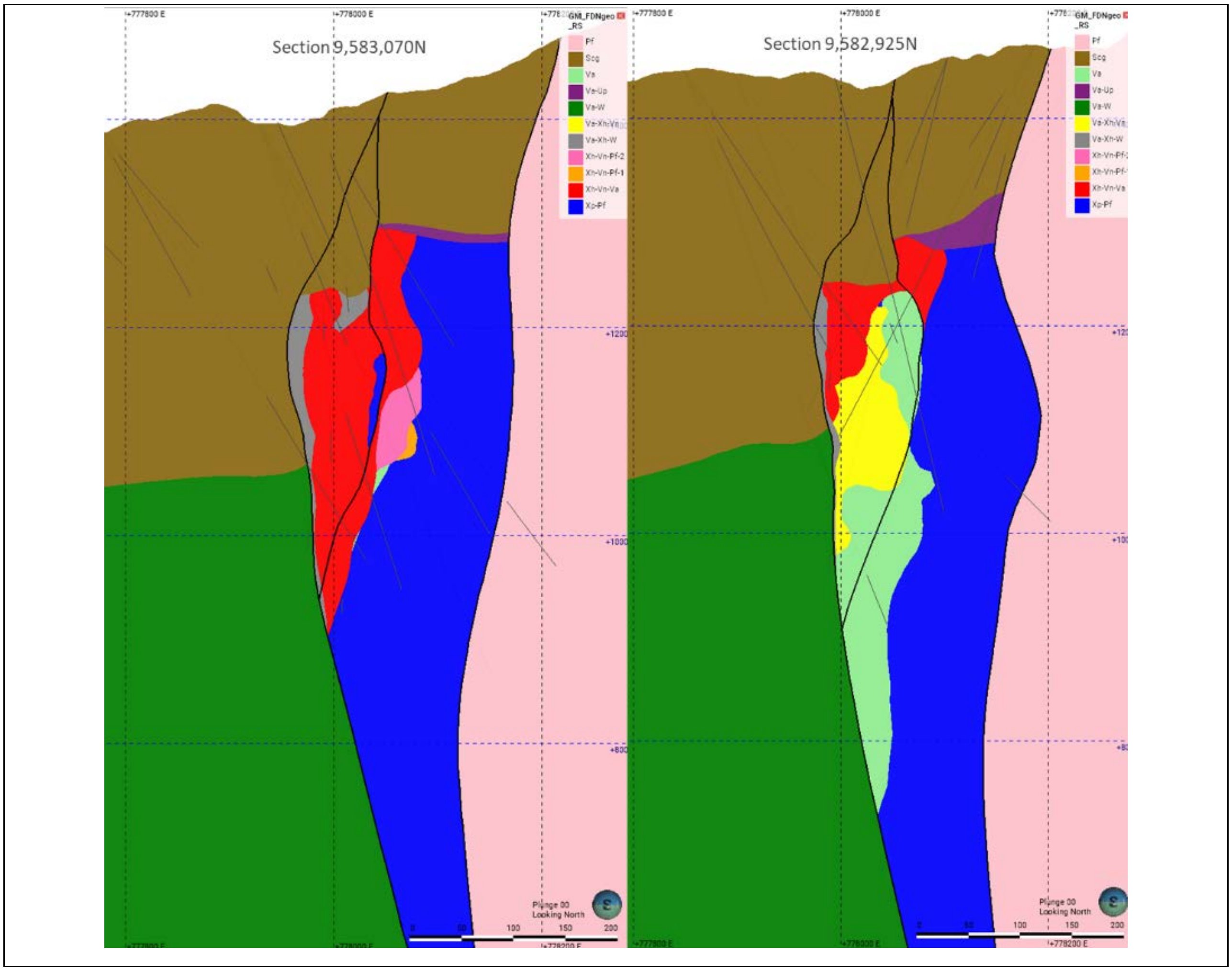
- Va-Xh-W: volcanic unit with hydrothermal breccia, pyrite, and black silica in the vicinity of the West fault, no calcedony present
- Xp-Pf: feldspar porphyry unit with disseminated pyrite and sporadic manganese and calcedony
- Va: volcanic unit with disseminated pyrite and sporadic manganese and calcedony
- Va-Up: volcanic unit close to the sinter zone.

The mineralized zones are believed to represent distinct hydrothermal events. The Xp-Pf domain is associated with late porphyry events, which was followed by the silica–(arsenopyrite)–marcasite alteration associated with hydrothermal brecciation (Xh) in the up-flow zone centred on section 3,400 N and “mushrooming” out below the Suárez unconformity. The later-stage quartz–carbonate phase (Vn) appears to have formed in the northern section of the deposit, wrapping partially around a flexure in the feldspar porphyry contact.

The mineralization is bounded by faults to the north, east and west, with Suárez conglomerate / sinter package (Scg) as the upper limit.

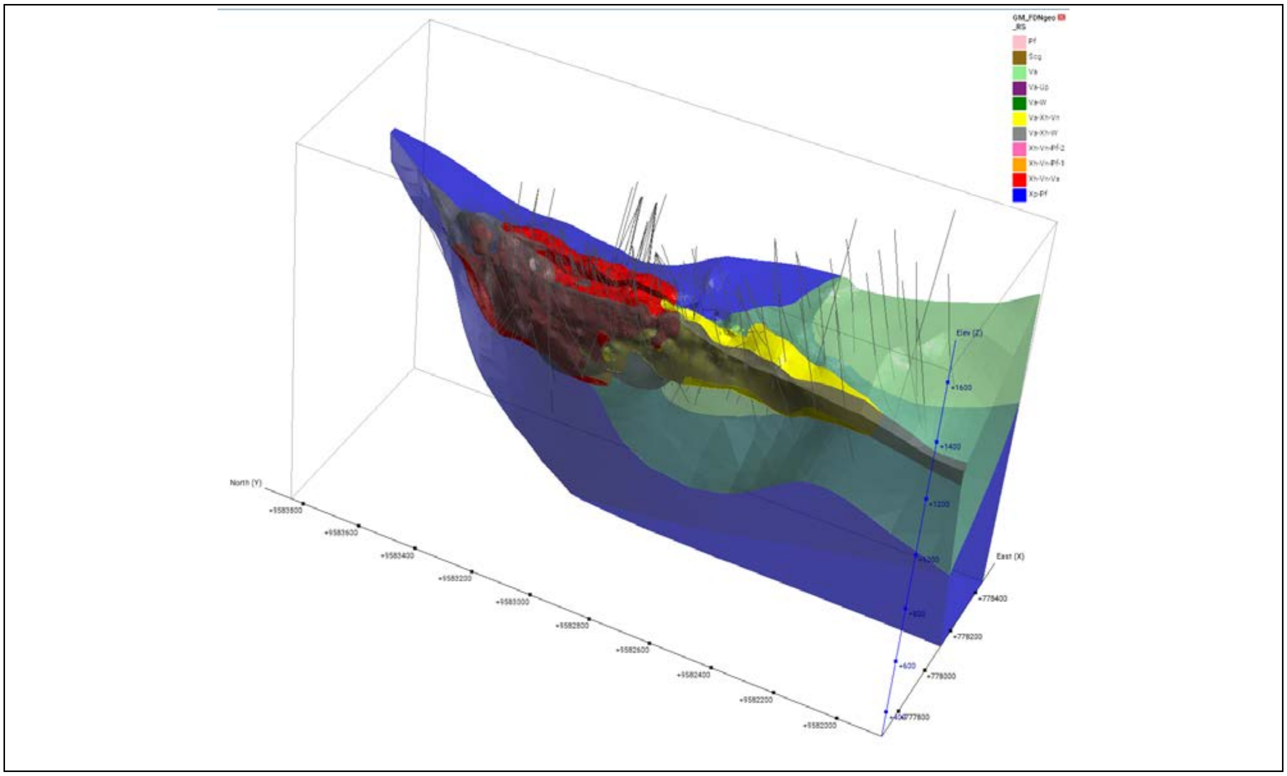
SLR's validation checks on the geological solids confirmed that Leapfrog results are consistent with the drill hole information. The SLR QP is of the opinion that the geological modelling is acceptable for the purposes of the Mineral Resource estimate, and is representative of the geology in a relatively densely drilled deposit.

Figure 14.2: Geological Model Looking North



Source: Lundin Gold, 2022

Figure 14.3: Oblique View with Domain Wireframes and Drill Hole Traces



Source: Lundin Gold, 2022

14.4 Statistical Analysis

Assay values located inside the wireframe models were tagged with domain identifiers and exported for statistical analysis. Results were used to help verify the modelling process. Statistics by zone are summarized in Table 14.2 and Table 14.3.

Table 14.2: Descriptive Statistics of Resource Assay Values - Au

Zone	Count	Min (g/t Au)	Max (g/t Au)	Mean (g/t Au)	St Dev (g/t Au)	Variance	CV
Va	12,816	0.00	1,535.00	2.02	14.12	199.38	6.98
Va-Xh-Vn	6,768	0.00	293.80	4.32	10.55	111.38	2.44
Va-Xh-W	6,611	0.00	87.10	0.98	1.94	3.77	1.99
Xh-Vn-Pf-2	1,124	0.03	449.00	6.58	19.10	364.82	2.90
Xh-Vn-Pf-1	449	0.23	2,447.20	52.92	189.09	35,755.57	3.57
Xh-Vn-Va	12,420	0.00	1,135.00	10.09	26.15	684.03	2.59
Xp-Pf	22,764	0.00	825.30	1.56	9.99	99.80	6.42

Note: St Dev – standard deviation; CV – coefficient of variation; length weighted statistics

Table 14.3: Descriptive Statistics of Resource Assay Values - Ag

Zone	Count	Min (g/t Ag)	Max (g/t Ag)	Mean (g/t Ag)	St Dev (g/t Ag)	Variance	CV
Va	12,816	0.00	688.00	6.26	13.75	189.04	2.20
Va-Xh-Vn	6,768	0.10	438.00	5.61	9.54	91.10	1.70
Va-Xh-W	6,611	0.00	222.00	3.72	6.65	44.27	1.79
Xh-Vn-Pf-2	1,124	0.50	247.00	10.74	16.51	272.56	1.54
Xh-Vn-Pf-1	449	1.30	1,130.00	36.56	85.53	7,315.59	2.34
Xh-Vn-Va	12,420	0.10	595.00	12.47	19.80	391.96	1.59
Xp-Pf	22,764	0.09	905.00	6.82	16.11	259.39	2.36

Note: St Dev – standard deviation; CV – coefficient of variation; length weighted statistics

14.5 Grade Capping/Outlier Restrictions

The FDN metal capping review consisted of disintegration analysis of the composite values in conjunction with histogram, log probability, and mean variance plots. The disintegration analysis ranks the metal data in ascending order and applies a percent change or step function of 10% to 15% between consecutive values to determine where population breaks occur. Histogram and log probability plots were used to cross-validate the disintegration population breaks.

In order to preserve the grades within the high-grade zones, Lundin Gold capped only composites in the 99.9 percentile and used a restricted search for gold values greater than the threshold defined for each domain. A similar approach was applied to silver grades in each domain. The restricted search dimensions are described in Section 14.9. Capping grades are summarized in Table 14.4.

Table 14.4: Summary of Capping Levels in the Resource Domains

Domain	Au			Ag		
	Number Capped	Capping Value (g/t)	Mean Grade Uncapped / Capped	Number Capped	Capping Value (g/t)	Mean Grade Uncapped / Capped
Va	6	300	2.31/2.14	6	300	6.61/6.50
Va-Xh-Vn	3	225	2.46/2.36	4	115	5.58/5.52
Va-Xh-W	3	40	0.99/0.98	5	100	3.75/3.72
Xh-Vn-Pf-2	2	150	6.62/6.29	4	145	10.75/10.57
Xh-Vn-Pf-1	3	750	56.75/46.52	6	400	38.53/34.39
Xh-Vn-Va	7	450	10.06/9.95	2	400	12.49/12.47
Xp-Pf	5	400	1.64/1.61	5	450	6.96/6.93

Table 14.5 and Table 14.6 summarize the descriptive statistics by zone for gold and silver capped assays, respectively.

Table 14.5: Descriptive Statistics of Capped Gold Assay Values

Zone	Count	Min (g/t Au)	Max (g/t Au)	Mean (g/t Au)	St Dev (g/t Au)	Variance	CV
Va	12,816	0.00	300.00	1.95	9.45	89.21	4.83
Va-Xh-Vn	6,768	0.00	225.00	4.30	10.05	101.04	2.34
Va-Xh-W	6,611	0.00	40.00	0.97	1.73	3.01	1.79
Xh-Vn-Pf-2	1,124	0.03	150.00	6.24	13.50	182.34	2.16
Xh-Vn-Pf-1	449	0.23	750.00	45.02	110.97	12,313.9	2.47
Xh-Vn-Va	12,420	0.00	450.00	9.98	22.75	517.36	2.28
Xp-Pf	22,764	0.00	400.00	1.54	8.88	78.78	5.78

Note: St Dev – standard deviation; CV – coefficient of variation; length weighted statistics

Table 14.6: Descriptive Statistics of Capped Silver Assay Values

Zone	Count	Min (g/t Ag)	Max (g/t Ag)	Mean (g/t Ag)	St Dev (g/t Ag)	Variance	CV
Va	12,816	0.00	300.00	6.21	12.07	145.58	1.94
Va-Xh-Vn	6,768	0.10	115.00	5.55	7.84	61.50	1.41
Va-Xh-W	6,611	0.00	100.00	3.69	6.10	37.24	1.65
Xh-Vn-Pf-2	1,124	0.50	145.00	10.56	14.35	206.03	1.36
Xh-Vn-Pf-1	449	1.30	400.00	33.46	56.17	3,155.07	1.68
Xh-Vn-Va	12,420	0.10	400.00	12.45	19.32	373.40	1.55
Xp-Pf	22,764	0.09	450.00	6.79	14.96	223.85	2.20

Note: St Dev – standard deviation; CV – coefficient of variation; length weighted statistics

The SLR QP is of the opinion that capping and restriction were properly applied during interpolation in the Mineral Resource model.

14.6 Composites

The average length of assayed samples within the mineralized domains is 0.98 m. Given the selected block size of 4 m by 10 m by 10 m, a two-metre composite was selected for grade interpolation purposes.

Assays within the wireframe domains were composited using the downhole compositing method, which starts at the first mineralized wireframe boundary from the collar and resets at each new wireframe boundary. Composites less than one metre were distributed evenly across the domain. Table 14.7 and Table 14.8 list descriptive statistics for capped gold and silver composites by zone.

Table 14.7: Descriptive Statistics of Capped Composite Values - Gold

Zone	Count	Min (g/t Au)	Max (g/t Au)	Mean (g/t Au)	St Dev (g/t Au)	Variance	CV
Va	1,341	0.00	32.47	0.29	1.47	2.15	5.11
Va-Xh-Vn	2,339	0.00	20.08	0.19	0.76	0.58	3.97
Va-Xh-W	6,380	0.00	220.40	1.97	6.97	48.64	3.55
Xh-Vn-Pf-2	592	0.01	24.34	0.74	1.33	1.76	1.79
Xh-Vn-Pf-1	2,259	0.00	6.27	0.09	0.29	0.08	3.07
Xh-Vn-Va	3,205	0.02	137.52	4.29	7.34	53.89	1.71
Xp-Pf	3,301	0.00	25.50	0.97	1.39	1.92	1.43

Note: St Dev – standard deviation; CV – coefficient of variation; length weighted statistics

Table 14.8: Descriptive Statistics of Capped Composite Values - Silver

Zone	Count	Min (g/t Au)	Max (g/t Au)	Mean (g/t Au)	St Dev (g/t Au)	Variance	CV
Va	1,341	0.10	315.00	5.93	20.50	420.37	3.46
Va-Xh-Vn	2,339	0.01	30.00	1.85	2.51	6.29	1.36
Va-Xh-W	6,380	0.00	157.89	6.23	9.17	84.18	1.47
Xh-Vn-Pf-2	592	0.10	30.85	4.97	4.50	20.27	0.91
Xh-Vn-Pf-1	2,259	0.01	22.52	0.71	1.39	1.93	1.97
Xh-Vn-Va	3,205	0.10	111.29	5.55	6.77	45.88	1.22
Xp-Pf	3,301	0.00	68.62	3.69	5.24	27.41	1.42

Note: St Dev – standard deviation; CV – coefficient of variation; length weighted statistics

The SLR QP concurs with the compositing methodology given the nature of the mineralization.

14.7 Density Assignment

The resource database includes 4,127 density measurements. The density data was coded with the resource domains (Table 14.9). After removing outliers from the low and high ends of the distribution, the resulting data was used to estimate density employing the inverse distance squared (ID^2) interpolation method. Since the density values do not vary significantly across the domains, the entire density dataset was used to populate blocks in each domain.

Table 14.9: Density Data Summary Statistics

Domain	Count	Min (t/m^3)	Max (t/m^3)	Mean (t/m^3)	SD	Variance
Pf	124	2.42	2.86	2.73	0.06	0.00
Scg	864	2.06	3.01	2.62	0.08	0.01
Va	592	2.14	3.07	2.77	0.08	0.01
Va-Up	41	2.37	2.80	2.61	0.11	0.01
Va-W	204	2.41	2.89	2.71	0.08	0.01
Va-Xh-Vn	301	2.26	3.16	2.74	0.09	0.01
Va-Xh-W	303	2.19	2.92	2.67	0.10	0.01
Xh-Vn-Pf-2	50	2.34	3.08	2.66	0.10	0.01
Xh-Vn-Pf-1	19	2.59	2.90	2.73	0.09	0.01
Xh-Vn-Va	563	2.28	2.98	2.64	0.09	0.01
Xp-Pf	1,066	2.25	3.12	2.70	0.08	0.01
Total	4,127	2.06	3.16	2.69	0.10	0.01

The SLR QP is of the opinion that densities are reasonably represented and applied in the Mineral Resource model.

14.8 Variography

Lundin Gold generated downhole, and directional and transformed directional variograms using the two-metre composite gold and silver values located within the mineralized wireframes. A model was fitted for each experimental variogram in the three main directions of anisotropy. The nugget effect was estimated from the downhole variograms.

A “Normal Scores” transformation was used to provide improved variograms. A back transformationp from Normal Scores space was completed following the variographic analysis and used as input to the OK interpolation in Leapfrog Edge. Table 14.10 and Table 14.11 summarize variogram parameters used in the estimation of FDN Mineral Resources for gold and silver, respectively.

Table 14.10: Summary of Gold Variogram Parameters

Parameter	Va	Va-Xh-Vn	Va-Xh-W	Xh-Vn-Pf-2	Xh-Vn-Pf-1	Xh-Vn-Va	Xp-Pf
Nugget[1]	0.2/0.41	0.2/0.35	0.15/0.24	0.2/0.31	0.2/0.31	0.2/0.33	0.2/0.46
1st Structure							
Sill[1]	0.55/0.53	0.55/55	0.5/0.63	0.49/0.52	0.65/0.66	0.56/0.56	0.25/0.38
Ranges[2]	20/35/20	35/11/8	90/30/20	24/23/15	30/15/15	25/17/10	28/25/40
2nd Structure							
Sill[1]	0.25/0.05	0.25/0.1	0.35/0.13	0.31/0.17	0.15/0.03	0.24/0.11	0.55/0.16
Ranges[2]	150/150/ 50	180/180/ 95	145/40/20	140/100/60	65/45/20	210/180/ 90	150/95/45
Direction[3]	80/287/ 158	70/265/145	75/285/155	75/285/155	85/250/115	75/285/100	75/285/155

Note:

1. *Transformed / Back transformed values*
2. *Ranges in m – Major / Semi / Minor*
3. *Angles in Degrees – Dip / Dip Azimuth / Pitch.*

Table 14.11: Summary of Silver Variogram Parameters

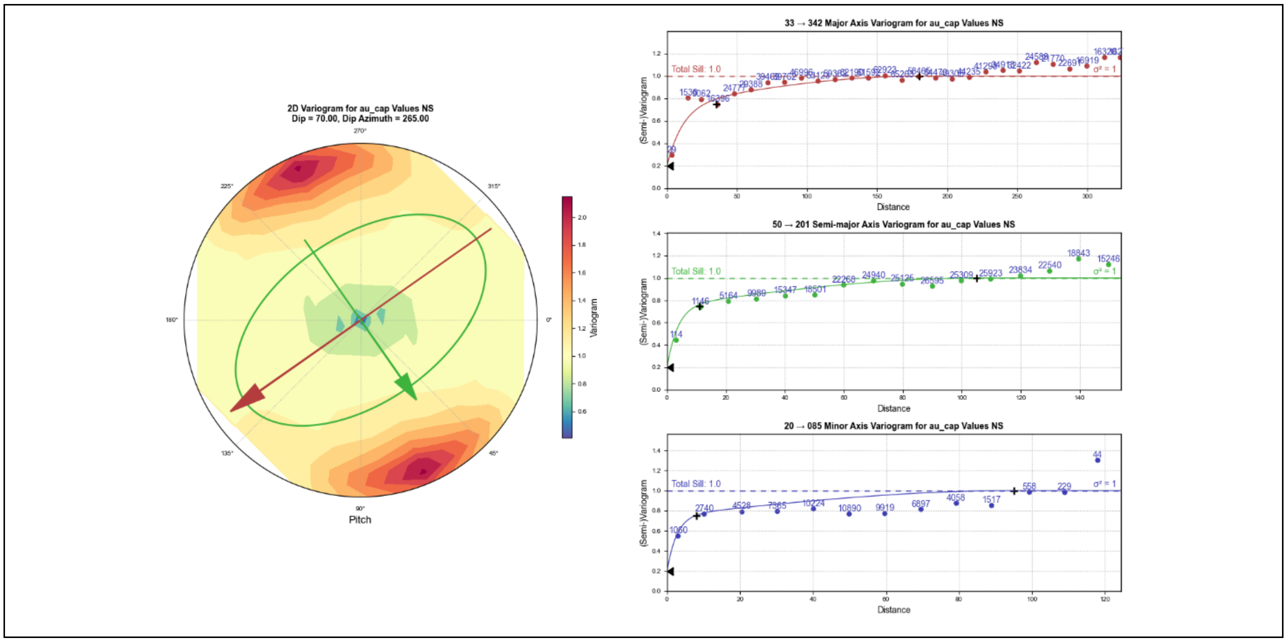
Parameter	Va	Va-Xh-Vn	Va-Xh-W	Xh-Vn-Pf-2	Xh-Vn-Pf-1	Xh-Vn-Va	Xp-Pf
Nugget[1]	0.15/0.24	0.2/0.28	0.15/0.23	0.2/0.28	0.2/0.28	0.2/0.28	0.2/0.28
1st Structure							
Sill[1]	0.4/0.47	0.64/0.64	0.6/0.67	0.55/0.57	0.55/0.57	0.55/0.57	0.65/0.63
Ranges[2]	40/30/15	55/30/30	90/45/40	40/25/10	40/25/10	40/25/10	20/20/20
2nd Structure							
Sill[1]	0.45/0.29	0.16/0.08	0.25/0.1	0.25/0.15	0.25/0.15	0.25/0.15	0.15/0.09
Ranges[2]	400/188/ 50	200/95/80	190/145/ 50	175/170/ 90	175/170/ 90	175/170/ 90	150/110/ 20
Direction[3]	75/285/ 155	70/285/ 155	75/285/ 155	75/285/ 100	75/285/ 100	75/285/ 100	75/285/ 155

Note:

1. *Transformed / Back transformed values;*
2. *Ranges in m – Major / Semi / Minor*
3. *Angles in Degrees – Dip / Dip Azimuth / Pitch*

Figure 14.4 shows a transformed variogram for the Va-Xh-Vn Domain.

Figure 14.4: Transformed Variogram – Va-Xh-Vn Domain



Source: Lundin Gold, 2023

14.9 <u>Estimation / Interpolation Methods</u>

Grade interpolations for gold and silver were performed using the OK algorithm and using search strategies individually adapted to each domain. The search ellipses generally have the same orientations, striking north–northeast, dipping west, and plunging north–northeast. A two-pass approach was used, with the first pass search ranges approximately equivalent to the variogram ranges at 80% of the sill. The first pass used a minimum of two drill holes. The second pass used a larger search with a minimum of two drill holes.

Only hard boundaries were used, based on various contact analyses and the geological interpretation. The interpolation parameters for silver were similar to those for gold. Table 14.12 summarizes the interpolation parameters for gold and silver.

Table 14.12: Interpolation Parameters

Parameter	Pass 1	Pass 2
Search Ranges: X, Y, Z (m)	45, 35, 15	110, 90, 40
Va-Xh-W		135, 90, 30
Xp-Pf	45, 25, 15 (silver)	135, 75, 30
Min number composites	3	2
Max number composites	12	12
Max composites per hole	2	2
Orientation of the search	As per variogram	As per variogram

Lundin Gold chose to further limit the influence of the higher-grade composites for gold and silver, by employing spatial restriction and discarding the composites surpassing the threshold once the maximum influence distance was reached. In Leapfrog, the maximum of distance influence is defined as a percent of the search ellipse. The maximum distance of influence as well as the high value threshold were defined for each domain separately (Table 14.13).

Table 14.13: High Grade Restrictions

Domain	Au			Ag		
	Threshold (g/t)	Distance % of Pass 1	Distance % of Pass 2	Threshold (g/t)	Distance % of Pass 1	Distance % of Pass 2
Va	30	25	7	90	25	7
Va-Xh-Vn	40	25	8	50	25	8
Va-Xh-W	7	60	20	30	60	20
Xh-Vn-Pf-2	40	70	25	40	70	25
Xh-Vn-Pf-1	200	70	25	200	70	25
Xh-Vn-Va	100	70	25	130	70	25
Xp-Pf	21	60	20	110	60	20

14.9.1 Sulphur

In addition to gold and silver block grades, Lundin Gold estimated sulphur using two-metre composites and treated all the domain as a single unit similarly to density estimation using entire sulphur dataset. Sulphur grades were interpolated using OK in two passes, with a minimum of three samples in pass 1 and a minimum of two samples in pass 2. Both passes employed a maximum of 12 samples in the search. Search ellipse dimensions were 70 m x 45 m x 20 m in pass 1 and 170 m x 120 m x 50 m in pass 2. Results are used for mine planning and geometallurgy purposes.

14.10 Block Model

One single block model covering the entire deposit was constructed in Leapfrog Edge to estimate Mineral Resources in the FDN deposit. The parent block sizes are 4.0 m wide by 10.0 m long by 10.0 m high. A summary of the definition data for the block model is provided in Table 14.14.

Table 14.14: Block Model Parameters

Description	Easting	Northing	Elevation
Origin (m)	777,662	9,581,760	500
Parent Block Size (m)	4	10	10
Minimum Sub-Block Size (m)	1	2.5	2.5
Number of Parent Blocks	218	193	121
Boundary Size (m)	872	1,930	1,210

The block model contains the following information:

- Domain identifiers with rock type
- Estimated grades of gold and silver inside the wireframe models
- Grade models using ID2 and nearest neighbour (NN) interpolation methods
- The resource classification of each block
- Density

The grade interpolations were validated by visual inspection and comparison with drill hole composite grades and comparison between global block OK, NN, and declustered composite means.

The SLR QP is of the opinion that the block model framework is appropriate for the Mineral Resource estimate, given the drill hole spacing, stope height, and composite length.

14.11 Block Model Validation

Lundin Gold carried out a series of block model validations to test the quality of the FDN Mineral Resource estimate. No significant discrepancies were reported. Validation tests by Lundin Gold included:

- Kriging Neighbourhood Analysis (KNA) which optimizes input parameters for the kriging process and minimizes conditional biases during estimation.
- Visual inspection comparing composite grades versus estimated block grades.
- Swath plots of composites versus block grades.
- Comparisons with NN and ID^2 models.

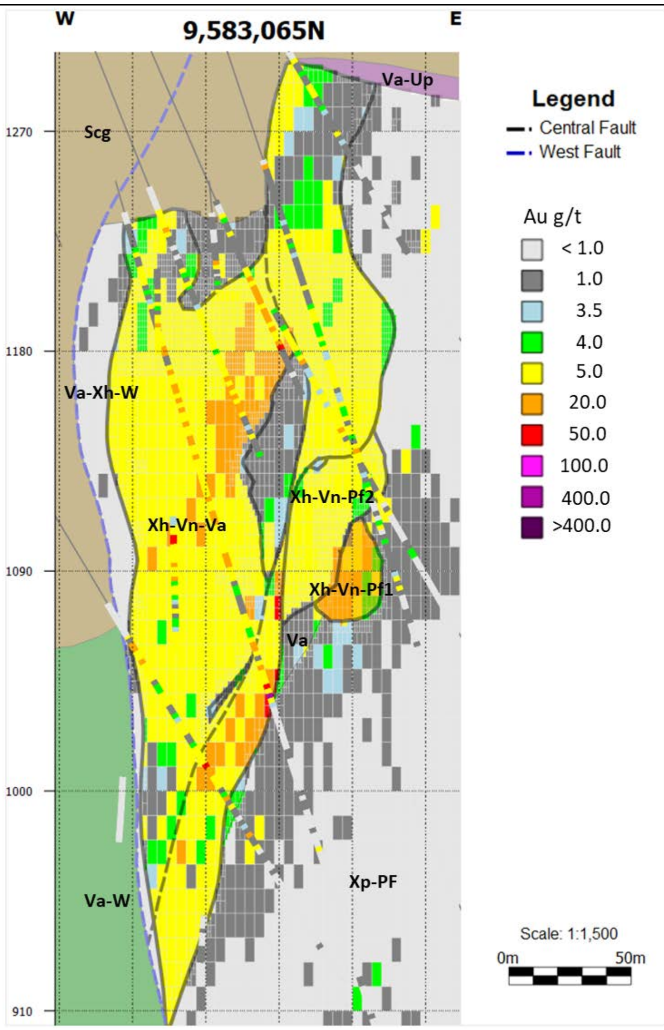
SLR carried out the following validation tests:

- Visually inspected composite grades versus estimated block grades.
- Compared swath plots of composites versus block grades.
- Used block variance to observe the degree of model smoothing.
- Compared the OK model with NN and ID2 models.
- Compared the global mean grades between the OK model and the composite statistics.
- Checked collar locations for unreasonable values.
- Checked for reasonably similar shapes used on adjacent sections.
- Checked for overlapping wireframes to determine possible double counting.
- Compared basic statistics of assays within wireframes with basic statistics of composites within wireframes for capped and uncapped values.
- Checked for missing assay intervals and missing assay values, and explained or verified discrepancies and treatment.
- Checked that composite intervals start and stop at wireframe limits.
- Checked that all drill hole intersections with the wireframes have been fully composited.
- Checked that assigned composite rock type coding was consistent with intersected wireframe coding.
- Checked if the block model size and orientation were appropriate to drilling density, mineralization and mining method.
- Checked interpolation parameters against variography.

- Compared block statistics (zero grade cut-off) with assay/composite basic statistics.
- Visually checked block Mineral Resource classification coding for isolated blocks.
- Visually compared block grades to drill hole composite values on sections and/or plans.
- Visually checked for grade banding, smearing of high grades, plumes of high grades on sections and/or plans.

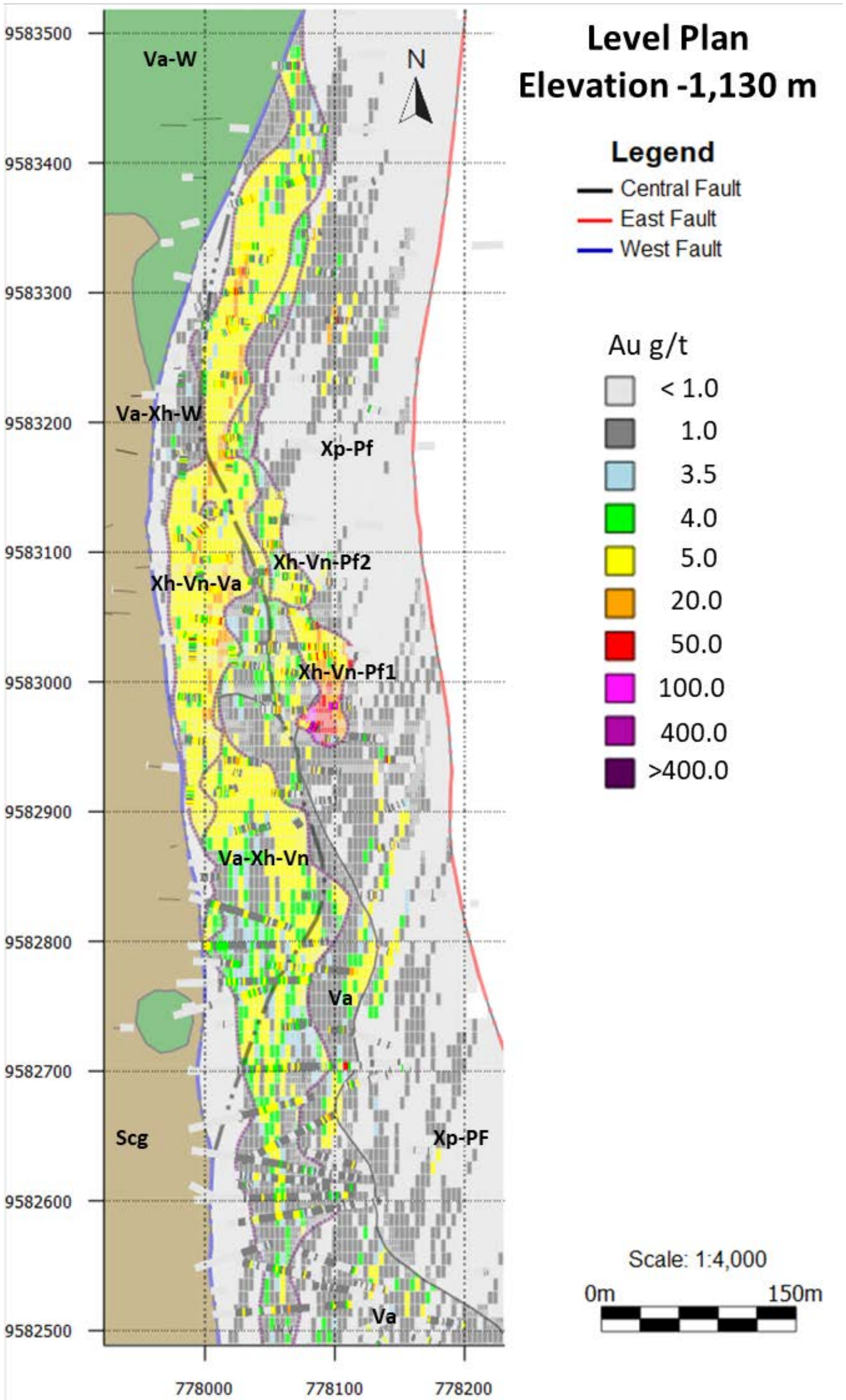
A thorough visual section-by-section comparison was completed between informing data and block estimates. Sample section and level plan are shown in Figure 14.5 and Figure 14.6 for gold, copper, and zinc. In addition, swath plots were used to compare the informing data with the estimated grades using both ID^2, OK, and NN methods (Figure 14.7).

Figure 14.5: Section 9,583,065N Showing Gold Grades



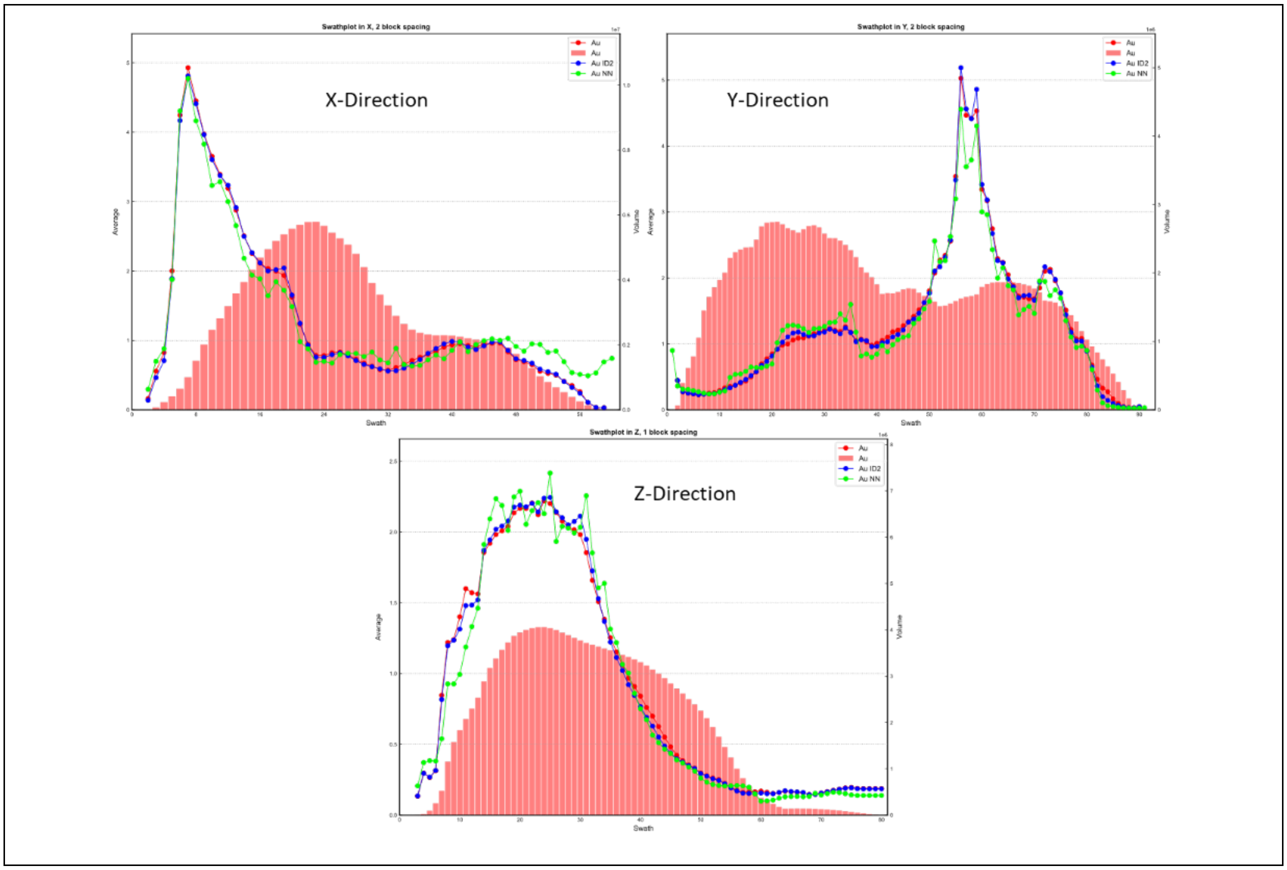
Source: Lundin Gold, 2023

Figure 14.6: Level Plan – Elevation -1,130 m Showing Gold Grades



Source: Lundin Gold, 2023

Figure 14.7: Swath Plots – Au (g/t) in All Domains



Source: Lundin Gold, 2023

14.12 Classification of Mineral Resources

Definitions for Mineral Resource categories used in this report are consistent with the 2014 CIM Definition Standards and adopted by NI 43-101. In the CIM classification, a Mineral Resource is defined as "a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction". Mineral Resources are classified into Measured, Indicated, and Inferred categories. A Mineral Reserve is defined as the "economically mineable part of a Measured and/or Indicated Mineral Resource" demonstrated by studies at Pre-Feasibility or Feasibility level, as appropriate. Mineral Reserves are classified into Proven and Probable categories.

Mineral Resources were classified into the Measured, Indicated, or Inferred categories based on the following criteria:

- Drill hole spacing
- Geological continuity and reasonableness of the interpreted mineralized model

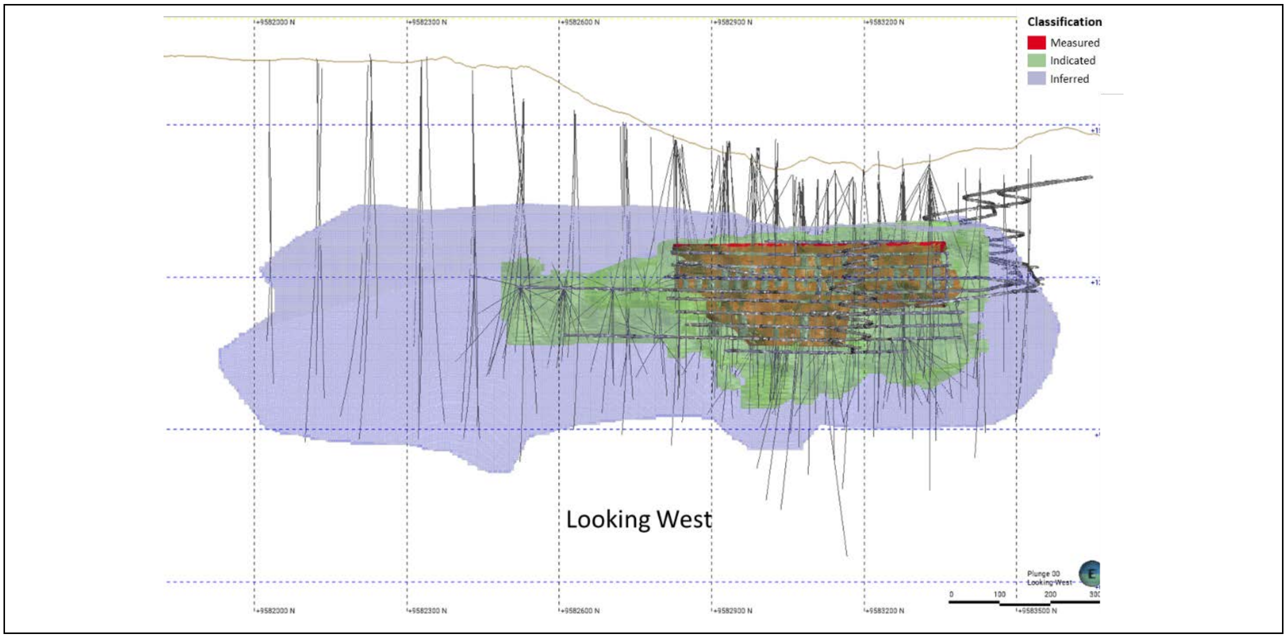
- Proximity to stopes and development
- Geostatistical spatial continuity

With a significant improvement in lithological understanding, infill drilling carried out in 2021/2022, and underground development, part of the Mineral Resources was classified as Measured. The Mineral Resources assigned to the Measured category are located in proximity of stopes and development, generally within 15 m or less spacing, exhibit good grade continuity, estimated within the first pass, informed by at least four drill holes, and are limited to the Xh-Vn-Va and Xh-Vn-Pf1 domains only.

Variography has suggested a range of 35 m at 80% of the total sill. In general, areas with 35 m or less spacing were classified into the Indicated category. Other factors that were taken into consideration include the search distance to the nearest composite, estimation by the first-pass search ellipse, visual examination, and general considerations of drill fan spacings. Classification was guided by a 17.5 m (for 35 m spacing) distance buffer generated in Leapfrog software. Overall, grades are notably higher in the blocks classified as Measured and Indicated.

Inferred classification was assigned to the blocks inside a boundary guided by a 75 m drill hole spacing. Isolated blocks above 3.36 g/t Au were removed from the Inferred Mineral Resources. All other blocks remain unclassified (Figure 14.8).

Figure 14.8: Oblique View – Classification



Source: Lundin Gold, 2022

14.13 Reasonable Prospects for Eventual Economic Extraction (RPEEE)

Based on the assumptions in Table 14.15, Mineral Resources were reported at a block cut-off grade of 3.4 g/t Au. Silver was not included in the cut-off grade calculation due to its relatively low grade and small contribution to the value of the mineralization. Parameters used to calculate the cut-off grade were based on extensive metallurgical test work and engineering studies, which assume an underground mining method and the processing method as described elsewhere in this Report.

The QP visually confirmed that the resource blocks show good continuity with only rare isolated blocks and is of the opinion that constraining the resource blocks by underground resource panels or shapes was not needed.

Table 14.15: Key Assumptions for Assessment for Reasonable Prospects of Eventual Economic Extraction

Item	Unit	Value
Metal Recovery	%	88.5
Gold Price	USD/oz	1,600
Mining Cost:		
Transverse Stopping	USD/t	50.7
Drift-and-Fill	USD/t	76.5
Processing Cost	USD/t	32.0
G&A	USD/t	30.0
Royalties	USD/oz	76.4
Selling Cost	USD/oz	80.4
Surface Infrastructure	USD/t	3.5
Concentrate Transport and Treatment	USD/oz	80.0
Breakeven Cut-Off-Grade	g/t Au	3.36

14.14 Mineral Resource Statement

The independent QP for the Mineral Resource estimate is Ms. Dorota El-Rassi, M.Sc., P.Eng., SLR Principal Geologist. The estimate has an effective date of December 31, 2022.

Mineral Resources are reported inclusive of Mineral Reserves at a block cut-off grade of 3.4 g/t Au, assuming underground mining methods, and depleted by the mining activities to December 31, 2022.

Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability (Table 14.16).

Factors which may affect the Mineral Resource estimates include:

- Metal price assumptions
- Changes to the assumptions used to generate the cut-off grade value
- Changes in local interpretations of mineralization geometry and continuity of mineralization zones
- Density and domain assignments
- Changes to design parameter assumptions that pertain to stope designs
- Changes to geotechnical, mining, and metallurgical recovery assumptions
- Assumptions as to the continued ability to access the site, retain mineral and surface rights titles, obtain environmental and other regulatory permits, and retain the social license to operate.

Table 14.16: Mineral Resource Statement – December 31, 2022

Category	Tonnage	Gold Grade	Gold Contained Metal	Silver Grade	Silver Contained Metal
	(Mt)	(g/t)	(Moz)	(g/t)	(Moz)
Measured	9.3	12.09	3.6	12.8	3.8
Indicated	13.7	7.25	3.2	11.6	5.1
Measured and Indicated	23.0	9.20	6.8	12.1	8.9
Inferred	9.2	5.64	1.7	11.8	3.5

Notes:

1. *2014 CIM Definitions Standards were followed for the classification of Mineral Resources.*
2. *Mineral Resources are estimated at a cut-off grade of 3.4 g/t Au.*
3. *The cut-off grade was calculated using a long-term gold price of USD 1,600/ounce.*
4. *The Mineral Resource estimate uses drill hole data available as of October 1, 2022.*
5. *The Mineral Resources depleted by mined out shapes to December 31, 2022.*
6. *Mean interpolated bulk density of 2.73 t/m^3.*
7. *Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.*
8. *Numbers may not add due to rounding.*

Table 14.17 shows the sensitivity of the Measured plus Indicated and Inferred Mineral Resources at various cut-off grades. The contained gold is relatively insensitive to gold cut-off grades in the 2 g/t to 4 g/t range g/t Au.

Table 14.17: Mineral Resource Sensitivity to Gold Cut-Off Grade

Gold Cut-Off Grade (g/t)	Tonnage	Gold Grade	Gold Contained Metal	Silver Grade	Silver Contained Metal
	(Mt)	(g/t)	(Moz)	(g/t)	(Moz Ag)
Measured and Indicated					
6.0	12.7	12.94	5.3	15.4	6.3
5.0	15.9	11.44	5.9	14.1	7.2
4.0	19.9	10.06	6.4	12.8	8.2
3.5	22.4	9.35	6.7	12.2	8.8
3.4	23.0	9.20	6.8	12.1	8.9
3.0	25.0	8.73	7.0	11.7	9.4
2.5	27.1	8.25	7.2	11.4	9.9
2.0	29.0	7.87	7.3	11.1	10.3
Inferred					
6.0	2.5	9.20	0.7	14.1	1.1
5.0	3.8	7.88	1.0	13.3	1.6
4.0	6.4	6.49	1.3	12.6	2.6
3.5	8.6	5.79	1.6	12	3.3
3.4	9.2	5.64	1.7	11.8	3.5
3.0	10.4	5.35	1.8	11.6	3.9
2.5	12.0	5.01	1.9	11.3	4.4
2.0	13.8	4.65	2.1	11	4.9

14.15 Comments on Section 14

Mineral Resources have been estimated using the guidance in CIM (2019) and classified using the 2014 CIM Definition Standards.

The SLR QP is not aware of any environmental, legal, title, taxation, socioeconomic, marketing, political or other relevant factors that would materially affect the estimation of Mineral Resources.

15 MINERAL RESERVE

15.1 Introduction

The Mineral Reserves for FDN total approximately 18 Mt at an average grade of 8.7 g/t Au and 11.4 g/t Ag, containing approximately 5.02 Moz of gold and 6.59 Moz of silver in the Proven and Probable categories. Mineral Reserves consist of an update of the previously-estimated North and Central Zones, based on current operations, and new additions in the South Zone.

Mineral Reserves are based on the mining design parameters of the current operation for longhole mining (Transverse and Longitudinal configurations) and D&F mining, including development and stope dimensions, dilution and extraction results, and cut-off grade inputs. The South Zone is lower-grade and less continuous, and alternative mining methods were evaluated before extending the current design parameters for longhole mining methods. The analysis confirmed that the proposed production rate of 4,400 tpd is achievable, ore continuity is sufficient for economic extraction, and that the orebody can be sequenced properly to ensure continued ore supply throughout the life of the mine. The new estimate includes appropriate factors for planned dilution, unplanned dilution and ore recovery, all aligned with the existing production reconciliations of FDN’s continuous operation of the mine since 2020.

In order to prepare the Mineral Reserves Estimate, Lundin Gold provided SLR with an updated Leapfrog model that included the drill hole database, wireframes of the domain boundaries, and a complete block model. The block parent size is 4 m x 10 m x 10 m, with sub-block minimum sizes of 1 m x 2.5 m x 2.5 m and consisted of density, grades (gold, silver), rock types (Geo-metallurgical resource domains), resource confidence categories and other impurities. The updated Resources Model considers the extension of Resources in the south area of the existing mine design.

SLR considered the mine as-built solids dated December 31, 2022, and the Geotechnical Block Model previously developed by SRK in 2016 that utilized assessments of lithology, alteration and structure to model three domains that encompassed Poor, Fair–Poor, and Good–Fair rock mass conditions. The South Zone was covered by an updated geomechanical assessment prepared in December 2022 by DCR Ingenieros S.R. Ltda. that confirm Good-Fair rock mass conditions in the south extension of the deposit. The DCR Ingenieros S.R. Ltda.’s assessment, however, did not study in detail the decrease in rock quality due to oxidation of the rock mass at the South Zone area that was observed in 2014 and was reported in the 2016 Geotechnical Feasibility Study evaluation. An updated geotechnical study is underway, estimated to be completed during 2Q 2023, to confirm the assumption that Good-Fair rock mass conditions continue through the South Zone.

15.2 Mineral Reserve Estimation Methodology

Underground mineral reserves for FDN have been estimated applying mining considerations to the Mineral Resource block model. The minable stopes shapes were created using a minimum mining width of 5 meters, applying external dilution as per production data and selecting grades corresponding to the Measured and Indicated Categories. Deswik's stope optimizer was utilized as a first pass to determine economic zones for extraction. The output of the optimizer was verified in order to remove areas that would be deemed uneconomic. Stope economics in the new sections of the orebody were then estimated with consideration for potential capital development requirements by zone to ensure profitability. The stope shapes that have reasonable expectation for economic extraction and development necessary to access them were then tabulated to form the Mineral Reserve estimate.

15.3 Dilution and Mine Losses

Mining Recovery & Grade Dilution considered for the stopes is based on the analysis of the results of overbreak and underbreak registered on the reconciliations of the stopes mined during 2021 and the initial months of 2022. Stope reconciliations show an improving trend due to operational improvements implemented in 2022, such as mining of the stopes in sections to reduce the dilution effects of the central fault that crosses the orebody; improvements on the drilling and blasting; and cable bolting.

A summary of the dilution by longhole stope size (sizing for Transverse and Longitudinal mining, and for Primary / Secondary sequencing) is presented in Table 15.1.

Table 15.1: Summary of Dilution on Longhole Stopes

Stope Size	12 m W x 25 m H	14 m W x 25 m H	15 m W x 25 m H	15 m W x 25 m H	25 m L x Variable W
Stope Type	Transverse Primary	Transverse Secondary	Transverse Primary	Transverse Secondary	Longitudinal
% Total Operational Dilution	8.4%	7.8%	7.2%	7.4%	Variable
% Dilution (Overbreak Waste)	1.4%	6.8%	1.4%	6.4%	Based on 0.6 m ELOS
% Grade Dilution	98.6%	93.7%	98.6%	94.0%	
% Recovery	91.8%	92.5%	89.0%	88.5%	87.8%

The percentage grade dilution applied is a factor by which grades are adjusted because of dilution, in this case the waste reduces the grades because it adds no gold, or silver content. The percentage grade dilution was estimated using the previous table of percentage Overbreak and the following relations:

$$Total\ Operational\ Dilution\ = \%overbreak_{Ore} + \%overbreak_{Waste} = \%Overbreak$$

$$grade\ dilution\ (Factor) = \frac{1}{1 + \%overbreak_{Waste}}$$

The Percentage Recovery was estimated considering the recovered material with respect to the design volume including the Percentage Overbreak:

$$\%Recovery = \left(1 - \frac{\%Underbreak}{1 + \%Overbreak}\right) \cdot 100$$

Stopes located below the Sill Pillars have been adjusted with an additional recovery factor of 70% to account for uncertainty of extraction after the Primary/Secondary mining in the area has been completed (stopes on levels 1055 and 1155).

D&F mining consists of Primary, Secondary and Tertiary drifts with the dilution factors shown in Table 15.2.

Table 15.2: Drift and Fill Primary, Secondary and Tertiary Stopes

Primary Stope		Secondary Stope		Tertiary Stope	
Total Operational Dilution	9.0%	Total Operational Dilution	8.0%	Total Operational Dilution	9.0%
Ore	7.0%	Ore	4.0%	Ore	1.5%
Waste	2.0%	Waste	4.0%	Waste	7.5%

15.4 Cut-off Grades

Cut-off grades (COGs) are used to identify whether material is classified as ore (at or above the COG) or waste (below the COG). The COG is a function of operating costs, dilution, metal prices, royalties and process recoveries.

Cut-off grades were estimated using the technical and financial information in Table 15.3 and Table 15.4. The cut-off grades were calculated using metallurgical recoveries and other data that were fixed as of December 2022 for mine design and planning purposes. Silver is not used as an input when calculating cut-off grades as it does not present a significant magnitude of value to the COG due to the low head grade.

Two different COGs have been used, the breakeven COG (BECOG) and the mill COG (MCOG). The BECOG is one of the key parameters needed for mine and stope design. The estimate of BECOG considers mining, processing, royalties and overhead operating costs:

$$BECOG\ (g/t) = \frac{Upstream\ Cost \times Dilution}{(Metal\ Price\ \times Payable\ - Selling\ Cost - Royalty) \times Process\ Recovery}$$

The MCOG is applied after the stopes and the accesses are defined; at this stage there could be some low-grade material that has to be mined and hauled to surface as part of mine development. If this low-grade material has enough value to pay for processing and other surface costs, it is sent to the processing plant (the mining cost is considered a sunk cost):

$$MCOG\ (g/t) = \frac{(Upstream\ Cost - Mining\ Cost) \times Dilution}{(Metal\ Price\ \times Payable\ - Selling\ Cost - Royalty) \times Process\ Recovery}$$

The calculated COGs are listed in Table 15.5.

Table 15.3: Operating Cost Detail

	Longhole Stopes (USD/t)	Drift and Fill (USD/t)	Comments
Mining Cost	50.68	76.50	Mine cost, includes backfill
Process Cost	31.94	31.94	Process plant, tailing transport to TSF
G&A Cost	30.00	30.00	Site G&A
Surface Infrastructure	3.52	3.52	Includes Mountain Pass Quarry, WTP, reclaim water, assay laboratory, surface infrastructure
Surface Royalty	0.35	0.35	
Sustaining Capital	12.00	12.00	
Closure Cost	2.30	2.30	
Total Operating Cost (USD/t)	132.0	157.8	
Dilution Factor	8%	8%	Waste dilution
Diluted Cost (USD/t)	142.56	170.42	

Note: Data current at December 2022.

Table 15.4: Financial Parameters

	Unit	Value
Gold Price	USD/oz	1,400
Payable	%	99.95
Selling Cost	USD/oz	80.40
Royalty	USD/oz	76.4
Gold Process Recovery	%	88.49
Revenue	USD/oz	1,059.3

Table 15.5: Mining Methods Cut-off Grade

COG		Longhole Stopes	Drift and Fill
BE COG	g/t Au	4.19	5.00
MCOG (1)	g/t Au	2.08	2.08

Note: (1): MCOG: The marginal cut-off grade. Mining costs are excluded in this calculation.

A BECOG of 4.19 g/t Au was used for longhole stopes and an elevated BECOG of 5.0 g/t Au was used for Drift and Fill. A MCOG value of 2.08 g/t Au, excluding the mining costs, was used where production development was already built.

15.5 Reconciliation of Production

A comparison of planned vs. realized production for the 12-month period of August 2021 to July 2022 is shown in Table 15.6.

Table 15.6: Reconciliation of 2022 Production

COG	Budget	Received at Plant	Comparison
Tonnes	1,532,287	1,520,350	99%
Grade (g/t Au)	10.0	10.4	105%
Ounces	490,999	510,611	104%

A match of within +/-10% is generally considered acceptable for Mineral Resource and Mineral Reserve estimation. FDN results are close, and indicate that estimation parameters are generally working well, and providing a good model of production results.

15.6 Mineral Reserves Statement

Mineral Reserves were classified using the definitions in CIM (2014). Measured Mineral Resources are converted to Proven Mineral Reserves, and Indicated Mineral Resources are converted to Probable Mineral Reserves.

The QP is of the opinion that the Mineral Reserves are being estimated in an appropriate manner using current mining software and procedures consistent with industry best practice. Mineral Reserves have an effective date of December 31, 2022 and are summarized in Table 15.7.

Table 15.7: Mineral Reserves Statement

Category	Tonnage	Grade	Contained Metal	Grade	Contained Metal
	(M t)	(g/t Au)	(M oz Au)	(g/t Ag)	(M oz Ag)
Proven	10.75	9.95	3.44	11.6	4.00
Probable	7.23	6.81	1.58	11.2	2.60
Total	17.98	8.68	5.02	11.4	6.59

Notes:

1. *CIM Definitions Standards on Mineral Resource and Reserves have been followed.*
2. *The Qualified Person for the Mineral Reserve estimate is Mr. Jason Cox P.Eng., an SLR (Canada) Ltd. employee.*
3. *Mineral Reserves have an effective date of December 31, 2022.*
4. *Mineral Reserves were estimated using a USD 1400/oz gold price. Mining cost assumptions for longhole stoping USD 50.68/t; mining costs for drift-and-fill (D&F) stoping USD 76.50/t. Other costs and factors common to all mining methods include process, surface ops and G&A of USD 65.47/t, dilution factor 8%, selling costs of USD 80.4/oz. A royalty of USD 76.4/oz Au and a gold metallurgical recovery of 88.49% was assumed.*
5. *Gold cut-off grades were 4.19 g/t for longhole stopes and 5.0 g/t for the Drift and Fill.*
6. *Silver was not used in the estimation of cut-off grades but is recovered and contributes to the revenue stream. The average silver metallurgical recovery is 82.4%. The silver price assumption was USD 19/oz.*
7. *Tonnages are rounded to the nearest 1,000 t, gold grades are rounded to two decimal places, and silver grades are rounded to one decimal place. Tonnage and grade measurements are in metric units; contained gold and silver are reported as thousands of troy ounces.*
8. *Rounding as required by reporting guidelines may result in summation differences.*

15.7 Factors that May Affect the Mineral Reserves

Factors that may affect the Mineral Reserves include:

- Long-term commodity price assumptions
- Long-term consumables price assumptions.

Other factors that can affect the estimates include changes to the Mineral Resources input parameters, constraining stope designs, cut-off grade assumptions, geotechnical and hydrogeological factors, metallurgical and mining recovery assumptions, and the ability to control unplanned dilution.

15.8 Comments on Section 15

Mineral Reserves have been estimated using the guidance in CIM (2003) and classified using the 2014 CIM Definition Standards.

There are no other known environmental, legal, title, taxation, socioeconomic, marketing, political or other relevant factors that would materially affect the estimation of Mineral Reserves that are not discussed in this Report.

The QP is not aware of any other mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate.

Reconciliation to production indicates that Mineral Reserve parameters and estimates are working well, and providing a good model of production results.

16 MINING METHODS

16.1 Overview

Development of FDN began in 2017, with first ore produced in 2019, and commercial production achieved in February 2020. The current mining method is longhole transverse stoping in fair to good ground and D&F stoping in poor ground.

The life of mine includes continuing to use longhole and drift-and-fill mining methods as follows:

- North and Central area: transverse longhole open stoping with paste backfill on 25 m levels in fair to good ground conditions, and drift-and-fill in poor ground conditions
- South area: transverse and longitudinal open stoping with paste backfill on 25 m levels in fair to good ground conditions.

Originally designed for a 3,500 tpd underground production rate, the mining rate was increased to 4,200 tpd in 2021, and is currently operating at a production rate of 4,400 tpd. Additional debottlenecking and engineering studies are underway to evaluate going to a production rate of 5,000 tpd. Table 16.1 shows the annual production from 2020 to 2022.

Table 16.1: 2020 to 2022 Production

Year	Unit	*2020	2021	2022
Ore Milled	kt	724	1,416	1,559
Daily Average Throughput	tpd	3,448	3,878	4,272
Feed Grade	g/t Au	10.0	10.6	10.6
Gold Recovered	koz	203	429	476

** From March 1, 2020, start of commercial production, until December 31, 2020 (includes 3-month shutdown due to COVID)*
Source: FDN 2022

The host rock for the deposit is competent but the resource zone is less competent with a small portion in poor rock (less than 8%). Geomechanically, the rock mass quality varies from Poor to Fair (RMR range 40 to 55), with the intact rock strength averaging 60 MPa. The deposit is also relatively close to surface (approximately 200 m below surface in some locations).

Given the variable conditions encountered at FDN, a range of methods and/or support regimes were considered in the mine design. The primary methods of extraction are Transverse Longhole Stoping in better ground conditions and Drift-and-Fill in more geotechnically-challenging areas. The realized ground conditions at FDN to date have been better than originally modeled, based on surface exploration drilling. These improved conditions have supported the conversion of mining method, in areas previously anticipated to have poor conditions, from Drift-and-Fill to Transverse Stoping.

Due to the width on the FDN deposit, the transverse open blast hole stoping is the preferred method, and the only applied to date. In the South Zone, due to the narrower width of some mineralized areas, longitudinal open blast hole stoping is proposed as the preferred mining method.

FDN also incorporates backfill, both paste and cemented rock fill, to reduce the risk of geotechnical failure and maximize extraction.

16.2 Geotechnical Considerations

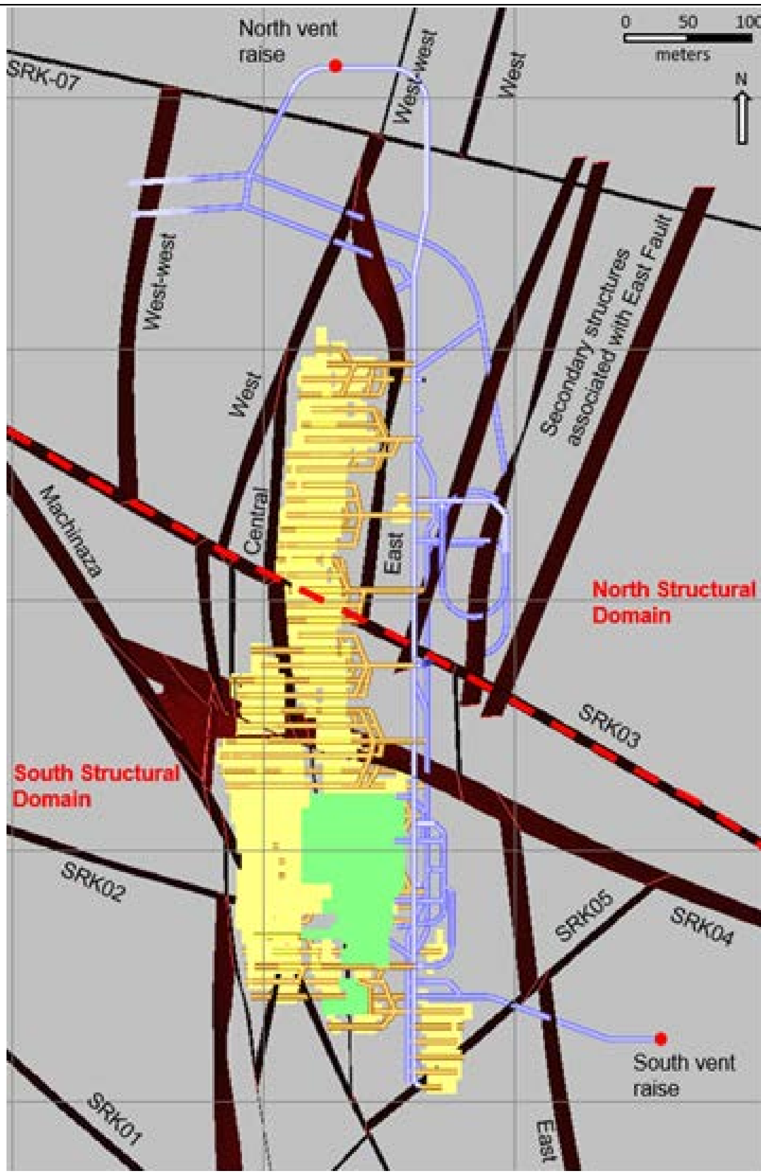
The geotechnical data and resulting recommendations in this subsection are based on the recommendations by the internal Geotechnical team at FDN and the work completed by DCR Ingenieros S.R. Ltda. (2022), Australian Centre for Geomechanics (Yves Potvin) (2017-2020), SRK (2013, 2015–2016, 2022), Itasca Consulting Canada Inc. (2010–2011), and Golder Associates (2008). SRK is currently engaged on an update of the geotechnical model, expected to be completed by Q2 2023.

16.2.1 Faults

The faults present in the 2015–2016 structural model form a complex network of west-, northwest- to northeast-trending, moderate dipping to sub-vertical faults that variably truncate and offset lithology and gold mineralization.

Figure 16.1 shows modelled faults and interpreted structural domains.

Figure 16.1: Plan View of Structural Model and Domains (1170 Level)



Source: SRK, 2016

16.2.2 <u>In situ Stress</u>

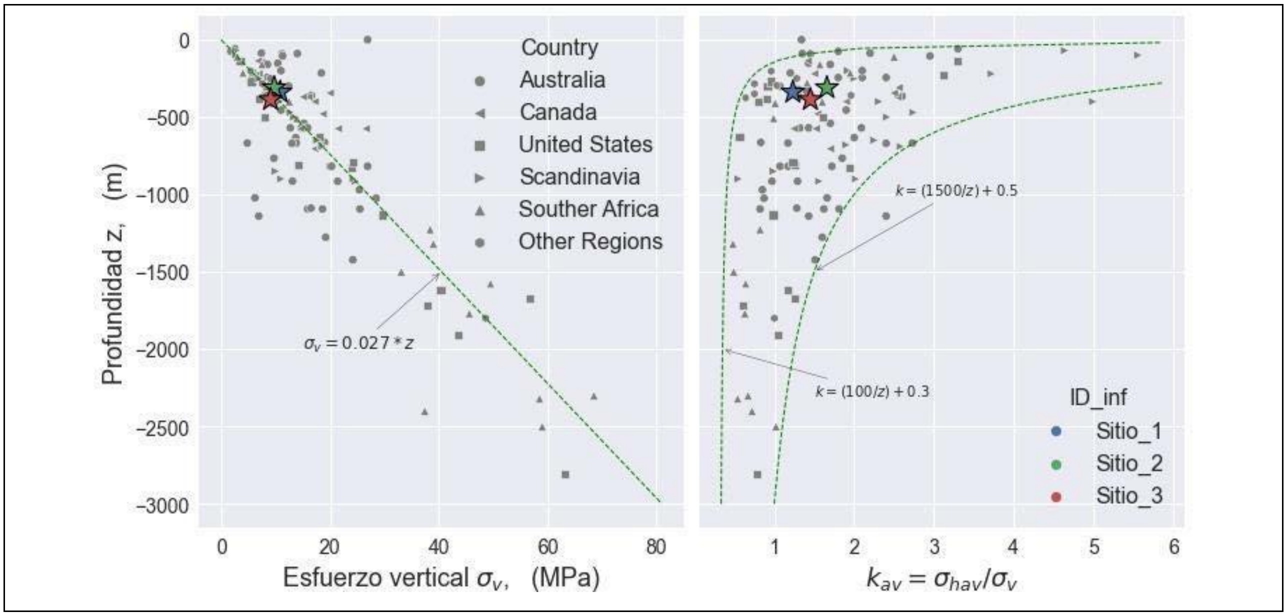
During February 2022, Ingeroc measured stress at three locations within the mine and results indicated that the vertical and horizontal stress measurements fall within global stress ranges (DCR, December 30, 2022); see Figure 16.2. DCR Ingenieros S.R.Ltda recommended continued use of 2016 SRK's estimated site stress fields unless future stress measurements indicate otherwise.

The following is an excerpt from the 2016 Feasibility Study Report relevant to the present work:

"Uncertainty in the stress magnitude has been assessed through a K-ratio sensitivity analysis.

The ground stress is relatively low based on the shallow depth, and rock damage due to higher mining-induced stress concentrations is only anticipated in high extraction or sequence closure areas, and weaker rock mass areas. However, reduction in the mining stresses around excavations is likely to adversely affect the stability of large, open-span areas. Tensile failure and gravity-induced unravelling are foreseen as the main failure mechanisms."

Figure 16.2: Stress Data Compared to Global Stress Measurements



Note: Figure prepared by Ingeroc 2022; "sitio" translates as site.

16.2.3 <u>Excavation Design</u>

Mining experience and geotechnical assessment during operations have found ground conditions to be better than modelled at the study stage. Current guidelines for various mining methods are as follows:

- Non-Man Entry Transverse Longhole mining at North, Central, and South areas: within Poor to Fair and Good ground conditions, open stope geometry is 12 m to 15 m wide x 25 m high x variable length, mining to proceed in a West to East orientation perpendicular to the NS structure.
- Man-Entry D&F mining: within Poor ground conditions, stope geometry is 5 m wide x 5 m high, mining to proceed in a primary-secondary sequence, including the placement of a competent backfill material prior to secondary extraction. General orientation to be normal to regional and localized structures to minimize extraction along a fault.

- Non-man entry Longitudinal Longhole mining at South area: within Poor to Fair and Good ground conditions, open stope geometry is 5 m to 12 m wide x 25 m high x 18 m long, mining to proceed in a South to North and North to South orientation along the NS structure. These dimensions considered both the 2016 SRK's FS Geotechnical Assessment 12 m stope width recommendation and operational data that indicates that a smaller width and shorter length, while keeping depth constant, would result in a stable back during mining that would lead to a more predictable mine plan. Permanent transportation drifts are at a minimum 50 m offset from the stopes footwall boundary to minimize stress.

Timely use of competent cemented backfill (either paste or cemented rockfill) in both longhole stoping and drift and fill production areas, support the geotechnically stable conditions in conjunction with a detailed and dictated stoping sequence. A primary-secondary stoping sequence, generally from the center out (from center to north and south) in a chevron pattern shields stresses towards the extremities of the orebody provides stability and no additional risk to stope run-away (Potvin, November 2017).

16.2.4 Global Extraction Sequence

Ore access crosscuts are developed from the east to the west with transverse stoping progressing on retreat, from west to east, to minimize east-west stress build-up.

Longhole stope sequencing as previously presented in the 2016 FS involved primary-primary end-slicing whereas stopes are mined alongside the previous extraction, without the creation of pillars. Pillarless stoping is generally considered only for very deep and high-stress mines" (Potvin, November 2017). Upon subsequent geotechnical evaluation and assessment of actual ground conditions, a primary-secondary stope sequence was implemented with an inside-out chevron orientation.

Transverse Stope mining starts from the top of the sill pillar upwards as primary stope columns. When two levels of primary stopes are extracted on two sides of a secondary column then the lowest level of that secondary column can be extracted. This lagging secondary sequence allows for 180+ days for backfill curing before mining a secondary stope. When a primary stope panel is split into two stopes due to visibility limitations or other constraints, a minimum 14-day backfill curing time is maintained.

For a 12 m wide by 25 m high by 39 m average stope length, a production of 467 tpd is obtained. Eight active Transversal stopes are maintained to support a range between 4,200 to 4,400 tpd mine production to feed the plant. Once the South area is accessible, Longitudinal Stopes production starts at 308 tpd ramping up to 350 tpd on average, excluding sublevel 1160 where a production as low as 130 tpd is achieved, and a production of 190 tpd is achieved during central pillar removal. In the areas next where crown pillar mining is used, a production of 82 tpd on average is planned.

16.2.5 Support

Free-standing paste backfill walls are used in the longhole stoping areas. Unconfined compressive strengths for backfill are 300 kPa for main stope filling and a minimum curing time of 14 days.

While mining the crown pillar, cemented rock fill (CRF) with unconfined compressive strengths between 3 MPa and 5 MPa need to be tightly placed to promote stability in the existing poor ground conditions.

Ground support currently includes placement of shotcrete, installation of mesh and anchors through the concrete. Poor ground areas will require additional support consisting of reduced anchor spacing, swellex, split-set anchors and thicker shotcrete, including ocassional pre-support (spiling). Stope crosscuts have a prescribed grouted cable bolt pattern installed prior to extraction and in stopes near the Central Fault, specific cable bolt designs are employed to improve anchorage across the structures. Areas that show deterioration are rehabilitated before undertaking mining activities.

16.3 Hydrogeological Considerations

Operational experience to date indicates that water inflow is considerably less than estimated before mine development. No hydrogeological studies were undertaken for the present report, however, a site visit from DCR Ingenieros S.R.Ltda made relevant observations that follow below.

16.3.1 Groundwater Conditions

In 2022, based on the operational experience on site, DCR Ingenieros concluded that the current underground workings were dry, and that the visible water seepage were related to existing drilling holes. With respect to the South area, DCR Ingenieros indicated that the South area would have the same dry conditions as the rest of the mine.

16.3.2 Dewatering and Mine Drainage

There are no changes expected from the current dewatering efforts during mining the North, and Central areas. When mining the South area, additional pumps are needed to bring seepage to surface by way of the main pumping system.

FDN has an underground groundwater management plan developed to provide a framework for monitoring and risk management. The plan is updated on regular basis. This allows for ongoing assessment of actual site conditions. If conditions are better or worse than expected, the plan provides the opportunity for water management activities to be adjusted. In general, the actual dewatering system is operating with excess of capacity.

16.4 South Zone Mining Method Selection

A review of mining methods for the South Zone was undertaken by SLR on January 6, 2023, concluded the following:

- Sublevel caving could encounter difficulties during operation as the stope walls are in fair to good ground and will not fail and fill the voids as expected.
- Large bulk caving methods are unlikely to be successful because the South Zone volume is not sufficient and there is a high likelihood that the crater could break through to surface and/or connect to surface water sources.
- Room-and-pillar, and stope-and-pillar mining methods are not applicable due to poor and variable ground conditions that would lead to potential ground failures.

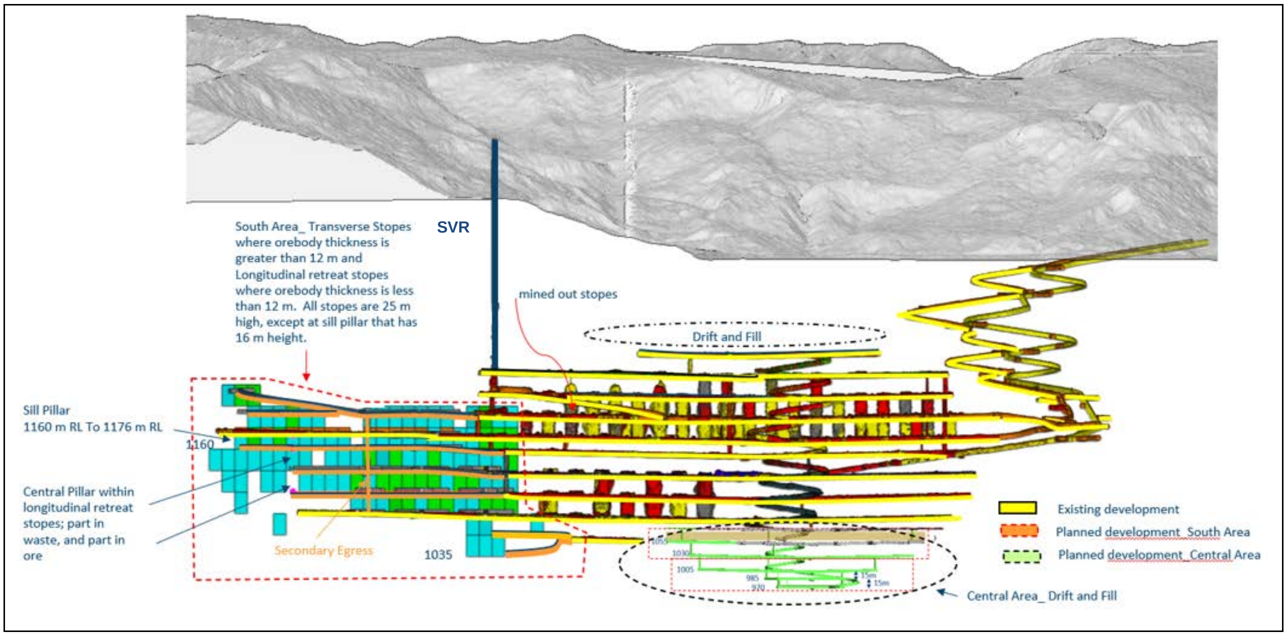
SLR concluded that the existing mining methods in use in FDN are the ones that best fits the South Zone:

- Transverse longhole open stoping with paste backfill on 25-meter levels in fair to good ground conditions – in limited areas where South Zone ore continuity permits.
- Longitudinal open stoping on 25-meter levels in fair to good ground conditions – more common in the South Zone.
- Drift-and-Fill in poor ground conditions.

16.5 Design Assumptions and Design Criteria

The current mine layout is provided in Figure 16.3, showing major infrastructure such as overall mine access, and ventilation raise location. The figure also shows key components of the design for the South Area.

Figure 16.3: Mine Schematic Looking West



16.5.1 Stope Design Criteria

Stope design criteria currently in place in FDN considers the following parameters presented in Table 16.2.

Table 16.2: Key Stope Optimization Input

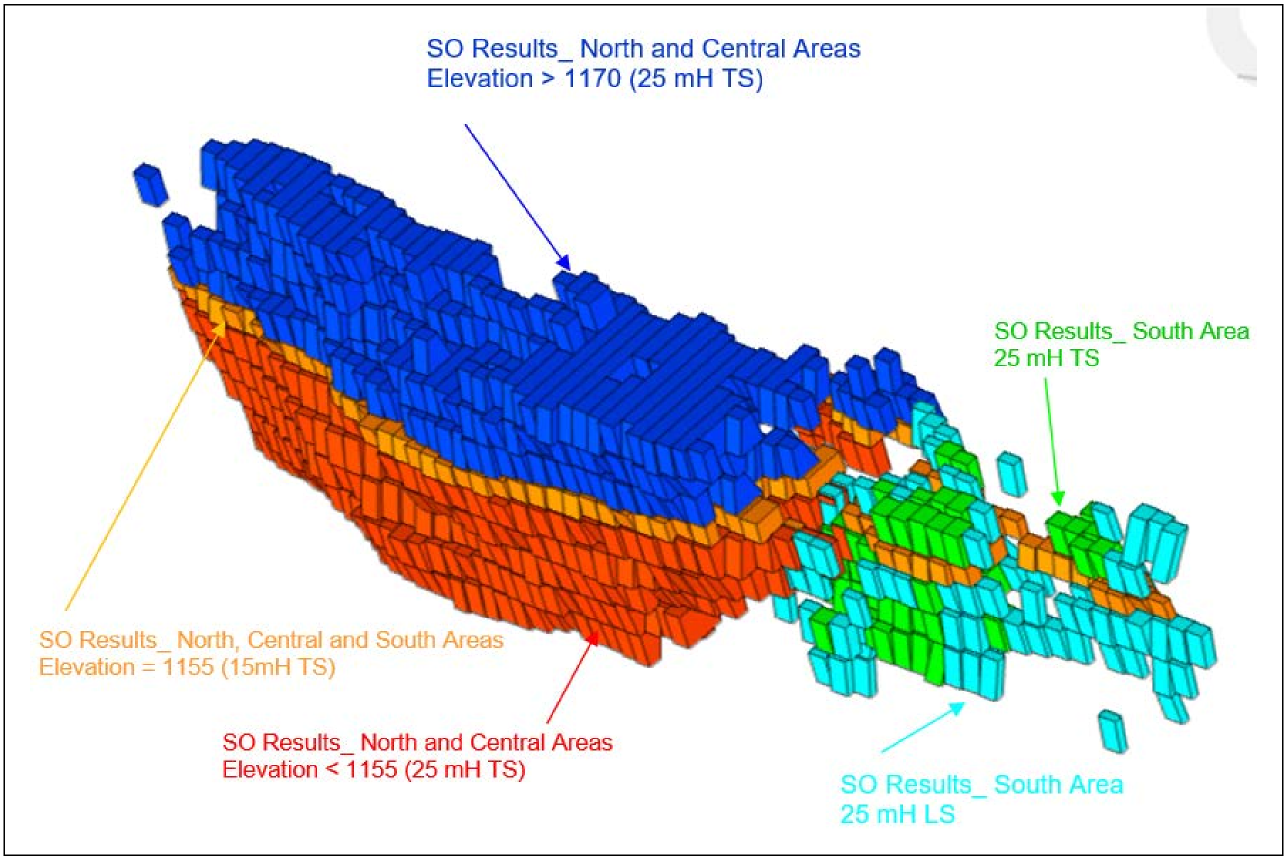
Block Model	January 9, 2023 / 01 FDN_BM2022_230109_Au_Ag_S		
Stope Orientation	YZ	Stope Pillar	Min 4
Length (Section U)	15	Dilution_Hanging Wall	0.6
Height (Level V)	25	Dilution_Foot Wall	0.6
Width	Min 5		
	Max 39		

For the South area, SLR follows similar criteria currently in use by the operational team for non-man-entry excavation noting that fewer wedges are intersected in the transverse mining orientation.

To mitigate the potential risk of uncontrolled caving near surface, the mineralized crown pillar will use the man-entry method which minimizes the risk of both back failure and excessive fracture dissipation from blasting.

Stope optimization output is shown in Figure 16.4, below.

Figure 16.4: Stope Optimizations, North, Central and South Zones



16.5.2 <u>Crown Pillar</u>

Ground conditions at the crown pillar are poor, and due to close proximity to surface requires a lower flooding risk mine operation than block caving. For a stable span, a 3 m to 5 m back as per empirical design calculations is followed.

16.5.3 <u>Sill Pillar</u>

A sill pillar between the 1155 and 1170 levels will be mined once the upper and lower sublevels are mined out. Frequent stress measurements at selected locations will be undertaken to evaluate the prevailing rock mass conditions prior to mining the sill pillar. If higher stress conditions coupled with weak rock mass are found, the stope length and height will need to be reviewed; this could reduce the original expected tonnage.

In addition, development will require rehabilitation of ore cross cuts within the pillar.

16.5.4 Transverse Longhole Stopes (TS)

Transverse Longhole stope design involved the following:

- Stope optimization along the east (x) axis using Deswik shape optimizer. The north (y) axis and elevation (z) axis were kept constant. Dilution was considered for the hanging wall and foot wall based on an ELOS (Estimated Length of Slough) of 0.6 m, a separate factor was applied to consider dilution for secondary stopes.
- Development drifts design providing transportation drift, level access, ore access through waste, ore access through ore.
- Stopes were evaluated for the cut-off grade base case 4.19 g/t.

16.5.5 Drift-and-Fill (D&F)

A sublevel comprises of four vertical cuts to accommodate 5 m D&F stopes. The design involved the following:

- Stope Optimization run optimizing the X axis with fixed Y of 5 m and fixed Z of 5 m. This gives an indication of possible Mineral Reserves to be mined by D&F within the defined D&F horizons.
- Detailed design of the drifts as development. This includes passing through waste areas.
- A cut-off grade of 4.19 g/t was applied to the generated stopes.
- Finally, access development running through mineralized zones grading above 2.08 g/t and below 4.19 g/t was included based on MCOG.

16.5.6 Longitudinal Longhole Stopes (LS)

Longitudinal Longhole stoping was applied where mineralization dips steeply and the width is insufficient for Transverse mining – from 5 m to 12 m. The stope widths fit the ore geometry, and stopes are limited to 25 m along strike. Development starts with a lower-level access drift (mucking) and an upper-level access drift (longhole drilling) both 5 m wide by 5 m high. The mucking and drilling drifts are located near the footwall side to follow the vein for grade control; location will vary depending on ground conditions.

16.5.7 Mine Production Plan

The production plan considers:

- An annual basis from Year 2023 to Year 2034

- 360 operating days per annum with five days allowed for delays due to weather conditions
- Plant operates 365 dpa
- Production is a combination of TS, LS and D&F methods
- The process plant is scheduled to maintain a processing capacity of 4,400 tpa.

16.5.7.1 TS Production

Current productivity is 842 tpd per 39 m long stope (excluding backfilling), 27 days for backfilling when 14 days curing time is allowed for the main pour.

16.5.7.2 D&F Production

The 2016 FS assumes that D&F backfill will use CRF. The cycle for CRF is driven by the backfill jamming activity, which was estimated to have a productivity of 21 m/day. The curing time for the CRF is seven days. An average production rate of 82 tpd (including backfill) is estimated.

16.5.7.3 Sequence and Schedule

Currently, mine sequencing and scheduling is as follows:

- Development is advanced just before a production unit is activated.
- Installation of auxiliary fans and vent pipes to provide forced fresh air as development proceeds towards the mining face.
- TS sequence:
    - Advancing a bottom crosscut in ore (muck crosscut) within a primary stope to reach the west -end (hanging wall contact); advancing a top crosscut in ore (drilling crosscut) within the next upper primary stope; constructing a 3 m “T” in the top crosscut; drill and blast the 3m slot in ore the full stope width; from the 3m open slot, begin retreat mining by blasting four rings at the time.
    - Primary stoping panels (stoping line from west to east) are backfilled, cured and then stope extraction can commence on the next lift above (former drilling crosscut becomes mucking horizon for stope above).
    - Vertical stoping in primary panels must complete two lifts before scheduling first level secondary stope extraction.

  - Secondary stope extraction sequence is the same cycle as the primary stopes, however, panels lag primary stope panels on both sides by one completed lift.
  - Primary stoping panels are sequenced north and south of the center starting point to build a chevron (higher in the middle) excavation configuration.
- D&F sequence:
  - From the transportation drift, an access drift is established from where a pivot access drift, typically at + 15% gradient, are developed to contact the ore at the planned elevation of the initial cut.
  - Next, a crosscut is developed within the ore (D&F-Header) to establish access to all stopes at a given level. Drift and fill headings will be mined from this header using a primary-secondary sequence.
  - Alternating primary and secondary cuts will be designed from the header in drift and fill mining zones. Development will begin with the primary cuts. Not all will be extracted simultaneously in order to balance ore production with the eventual backfilling cycle that follows development.
  - After the primary stopes are backfilled, a curing time is allowed.
  - Following the mining and backfill cure time of the primary stopes, a secondary stope can be mined in between two primaries. Backfill of the primary stopes will often become the walls of the secondary cut. At times secondary stopes will have only one side with backfill. Drift and fill zones can be mined with an overhand or underhand approach. Overhand drift and fill mining has a second lift above the first so the back of the headings of the second level is rock. Underhand drift and fill mining is developed below the first lift where the floor of the first lift becomes the back of the second and the cuts are mined under backfill. Most drift and fill zones at FDN will be mined with underhand methods.
  - In underhand mining the second level will have a slightly different drift orientation so cuts are not exactly aligned with the cuts above. This criss-cross orientation provides added stability with the backfill. Each level is mined with the same 5 m wide by 5 m high dimension and proceeds with a header drift development followed by primary and secondary cuts with backfill.
  - Typically, each pivot access drift can access five lifts of drift and fill headings. The first is ramped up at +15% and the last is often declined at a –15% gradient.

The production plan is summarized in Table 16.3.

Table 16.3: Mine Production Plan

Year	Tonnes ('000s)	Grade (g/t Au)	Au Ounces ('000s)
2023	1,608	9.35	484
2024	1,611	10.10	523
2025	1,610	10.33	534
2026	1,617	9.08	472
2027	1,612	8.08	419
2028	1,627	8.46	443
2029	1,610	9.23	478
2030	1,473	8.11	384
2031	1,437	7.80	360
2032	1,274	7.95	326
2033	1,250	7.64	307
2034	1,253	7.22	291
Total	17,982	8.68	5,021

A breakdown by mining method is shown in Table 16.4.

Table 16.4: Mine Production by Mining Method

	Longhole			D&F			Development		
Year	Tonnes ('000s)	Grade (g/t Au)	Au oz ('000s)	Tonnes ('000s)	Grade (g/t Au)	Au oz ('000s)	Tonnes ('000s)	Grade (g/t Au)	Au oz ('000s)
2023	1,321	9.6	410	-	-	-	287	8.0	74
2024	1,306	10.5	442	81	8.1	21	223	8.4	61
2025	1,331	10.8	464	91	9.3	27	187	7.1	43
2026	1,323	9.2	390	156	8.5	42	138	8.9	40
2027	1,292	8.1	338	159	8.5	44	162	7.3	38
2028	1,318	8.5	360	164	9.2	48	146	7.3	34
2029	1,307	9.6	405	219	8.8	62	85	4.2	11
2030	1,146	8.4	308	197	8.1	51	130	5.9	25
2031	1,160	8.0	297	220	6.4	45	57	10.3	19
2032	978	8.5	269	216	6.4	45	79	4.9	12
2033	1,159	7.6	284	18	6.7	4	71	8.3	19
2034	1,221	7.3	285	-	-	-	33	5.8	6
Total	14,862	8.9	4,249	1,521	8.0	389	1,599	7.4	382

16.5.8 Plant Feed Plan

The ore from the mine is stockpiled on surface in a run-of-mine (ROM) pad, segregated by gold grade. The stockpiles are managed closely in order to optimize the feed material to the plant, and to ensure the material is not waiting to be processed for more than two months to avoid oxidation issues.

The daily mill feed blend is reviewed and adjusted as needed by a collaborative group from geology, the processing plant, the mine, and surface operations. The recipe blends up to four different grades of mineralized material at different levels of sulfur content. Balancing both gold grade and percent sulfur maximizes efficiencies within the plant and the resulting recoveries.

16.6 Paste Backfill

The paste backfill is operating as follows:

- 85 m^3/h at an average utilization rate of approximately 60%.

- Main pour strength of 300 kPa after 14 days with a plug pour strength of 240 kPa after three days.
- Utilizes Putzmeister pumps sending paste via boreholes to the open stopes.

16.6.1 Cemented Rock Fill

CRF is comprised of screened and/or crushed waste rock (-4 inch), 5% pan Type HE cement (binder) and trim water. A loader will dump crushed rock into a mixing pit at the surface waste dump followed by a mixed load of grout and water from the batch plant. The CRF is mixed in pit then loaded into mine trucks for transport underground to the intended heading.

Prior to commissioning of the paste plant at FDN, CRF backfill was used in early production stopes with excellent results. Test cylinders are taken every shift when mixing CRF, or when a new batch of aggregates are introduced to the process. Cylinder break tests typically exceeded the target strength of 3 MPa to 5 MPa after seven days. Since then, secondary stopes mined alongside primaries with CRF fill have experienced minimal dilution due to backfill quality.

16.7 Ventilation

Mine ventilation at FDN utilizes a north to south sweeping action with fresh air entering both ramps, passing onto levels on the north end, flowing toward the ventilation raises on the south of each level, to then exhaust the mine via the South Ventilation Raise (SVR). Once a level has access to both the intake and exhaust raises (north and south end of each level), level ventilation is controlled via mechanical regulators on the south end of each level. The regulators are adjusted to provide approximately 40 m^3/s of air, depending on the amount of mining activity.

Doors are not used because they hinder production in a truck haulage mine. The total air required for full production on a month-by-month basis is easily supported by the main fan ventilation system with a nominal capacity of 360 m^3/s.

The contaminated air from each level passes through an internal exhaust raise toward the main fan installation at the 1195 Level. The regulators on each level control the amount of fresh air allowed onto each level.

Exhaust air accumulated from all levels is extracted from the underground mine through a 5.1 m diameter exhaust raise to at the SVR. Exhaust air is pushed up the raise by the main fans installed near the bottom of the SVR. Three 700 Hp fans are installed, two in one heading and the third in a bypass drift, where two of the three fans operate together in parallel. The third fan provides redundant capacity to allow for concurrent fan maintenance on the standby fan.

16.7.1 Auxiliary Ventilation

Auxiliary ventilation fans push fresh air from each level foot wall laterally through ducting in the haulage drift to each active crosscut to support mining activities. Exhaust air exits these accesses, is pushed into the haulage-level air stream, and exhausted off the level through the exhaust raise at the south end of each level.

Each active production level has up to three auxiliary fans installed. These fans range from 60 Hp to 200 Hp and often provide fresh air to multiple headings using internal regulators. Auxiliary fans are controlled from the central dispatch office to turn off fans to headings that are not actively being worked each shift.

The maintenance service facility is being developed on the south side of the 1130 Level and is ventilated via fresh air from the internal ramp, exhausting through the level air stream.

16.8 Underground Infrastructure Facilities and Services

16.8.1 Shops and Warehouses

There are several small underground materials laydowns to support mining operations which are stocked and managed by the mine personnel. These materials stores are considered to have been consumed for inventory control and hold a week or two of high turn consumables such as ground support, ventilation and services supplies.

A surface maintenance facility services the surface and mine equipment but is not efficient in supporting slower moving mining equipment. A multi-bay underground service facility located on 1130 L is being developed to service the LHDs, drills, explosive carriers and scissor trucks. This facility will support improved fleet availabilities by reducing time to respond to equipment failures and minimizing time away from the mining cycle for slow movers taken down for preventative maintenance.

The underground service facility has several service bays including space for lubrication and oil changes. A welding bay will facilitate small repairs and fabrication work with filtering extraction fans pulling directly to the level exhaust air stream.

Material handling relies on mobile equipment for transport instead of permanent infrastructure and facilities.

16.8.2 Automation and Communications

A leaky feeder cable antenna installed through the main ramps and levels ensure radio coverage in the areas of greatest traffic of people and vehicles.

Control and data management systems inside the mine use a fibre-optic network to provide a communication highway supporting remote control of fans, ventilation regulators, air quality and DPM monitors and real-time personnel and key equipment tracking. Remote detonation of all development and production blasts through the network allows safer blasting with full evacuation of the mine.

16.8.3 Fuel Supply and Storage

During 2022, the total daily underground fuel consumption for diesel mobile equipment averages 13,500 L fuelled by the fuel/service vehicles or at the primary fuel depot immediately outside the mine portals.

Most of the mobile equipment, trucks and LHDs, and vehicles parked on surface are fuelled from the surface facility.

16.8.4 Compressed Air

The air compressor system consists of two compressors in operation and one on standby. An air accumulator stores compressed air to regulate the air pressure. Compressed air is used in shotcrete operations, jacklegs, pumps, the explosives charger, refuge stations, and the maintenance service facility garage, as well as for miscellaneous purposes.

The main pipe runs from the centralized air compressors (located on the surface close to the portals) to the mining ramps. Secondary pipes feeding the equipment in the drifts will be fed by 75 mm diameter pipe.

16.8.5 Dewatering

The dewatering system consists of a cascading pumping system using four Orca pump stations. Each station has a nominal capacity of 200 m^3/h pumping rate with a single pump operating. The stations are equipped with a second pump in parallel for full redundancy. As noted by DCR Ingenieros' December 2022 observations, the FDN mine is dry with only drill water to be managed.

Currently, the four Orca pump stations are located at the 1080 level, the 1155 level and in the K'isa ramp at elevations 1243 and 1321. The 1321 installation pumps the water that final distance to surface (portal at

1405). The stations are equipped with holding tanks with low and high level sensors which automatically cycle the pumps. Because they operate well below their capacity, variable frequency drives are used to pump at lower rates and cycle more often as opposed to pumping quickly but for only a few seconds.

All the water flow generated in the mine (infiltrated, industrial and paste fill water) is managed in this single dewatering system that discharges to a surface pond and into the surface water treatment system. Seepage flows run on ramps, declines and drifts by gravity and get collected at a sump on each production level. Where gravity flow is not possible, a sump pump is used to conduct water to the sump.

16.8.6 Process Water

The underground process water system delivers water for drilling and other equipment via an underground distribution network. This network is fed by a holding tank outside the portal which is charged from the surface water treatment system.

16.8.7 Power

The daily power demand for the mine is approximately 100,000 kwh for mining, dewatering, ventilation and low voltage miscellaneous loads. Permanent power from the grid is available and underground electrical distribution is via two 13.8 kV double ended feeders from a surface substation adjacent to the portals.

16.9 Blasting and Explosives

Explosives are stored in surface magazines with permitted maximum quantities per the scale of distances criteria in the Ecuadorian regulations. Product is separated as bulk emulsion in iso-tanks, cartridge emulsion and bagged ANFO, and accessories including detonators in a third location. Each structure is grounded and protected by berms. Underground storage for day-use is controlled, ventilated and segregated similarly.

16.10 Mining Equipment

16.10.1 Equipment & Performance

Lundin Gold owns and operates the mining equipment. TS and D&F operations will use the same equipment for drift development, however, explosives loading equipment and longhole drilling equipment are unique to each mining method. Table 16.5 lists the current equipment and respective availability.

Table 16.5: Underground Production Equipment and Percent Availability

Equipment	% Availability	% Utilization	Capacity	Quantity
Cat / AD45B	79%	77%	45 t	10
Epiroc / MT436B	69%	28%	32 t	2
Cat / R2900G	66%	56%	12 yd^3 LHD	2
Cat / R1700G	81%	47%	10 yd^3 LHD	5
Cat / R1600H	81%	16%	6.3 yd^3 LHD	3
Epiroc / Simba M4	84%	33%		3
Epiroc / Simba M4 ITH	97%	5%		1
Epiroc / Easer L	93%	13%		1
Epiroc / Boomer M2C / Boomer 282	80%	24%		5
Epiroc / Boltec M / Boltec S	73%	47%		5
Epiroc / Cabletec M	82%	58%		2

Source: FDN 2022

16.11 Comments on Section 16

Mining experience to date has been positive relative to the study stage, with better than anticipated ground conditions and less water inflow to the mine.

Further work on the South Zone will be carried prior to mining, and there is potential for further conversion of mineralized material to Mineral Reserves in scenarios involving lower cut-off grades (via increased gold prices or lower unit operating costs).

17 RECOVERY METHODS

17.1 Overview

The FDN process plant currently treats ore via a conventional gravity-flotation-cyanidation process. Run-of-mine (ROM) ore is processed via a conventional primary crusher and SAG-Ball mill comminution circuit followed by gravity circuit. Gravity tailings are treated in a conventional rougher-cleaner flotation circuit to produce gold concentrate for sale. Flotation tailings are treated via a CIL process and associated gold recovery and carbon handling circuits to produce gold doré. CIL tailings are treated via cyanide destruction process prior to use at the paste plant or stored in the TSF.

The process plant was constructed and commissioned in 2019 and achieved nameplate of 3,500 tpd in 2020. The process plant was subsequently upgraded in 2021 to treat 4,200 tpd. Debottlenecking of the plant has enabled a further increase in plant throughput to 4,400 tpd. Studies and engineering will commence in 2023 to debottleneck the process plant to reliably achieve 5,000 tpd. No flowsheet changes nor significant process plant upgrades are expected due to the treatment of ore from the south zone of the mine.

Process plant performance from 2020 to 2022 is summarized in Table 17.1. The process plant has generally been treating ore feed grades of approximately 11 g/t Au and achieving approximately 89-90% average recovery.

Table 17.1: Process Plant Performance Summary (2020-2022)

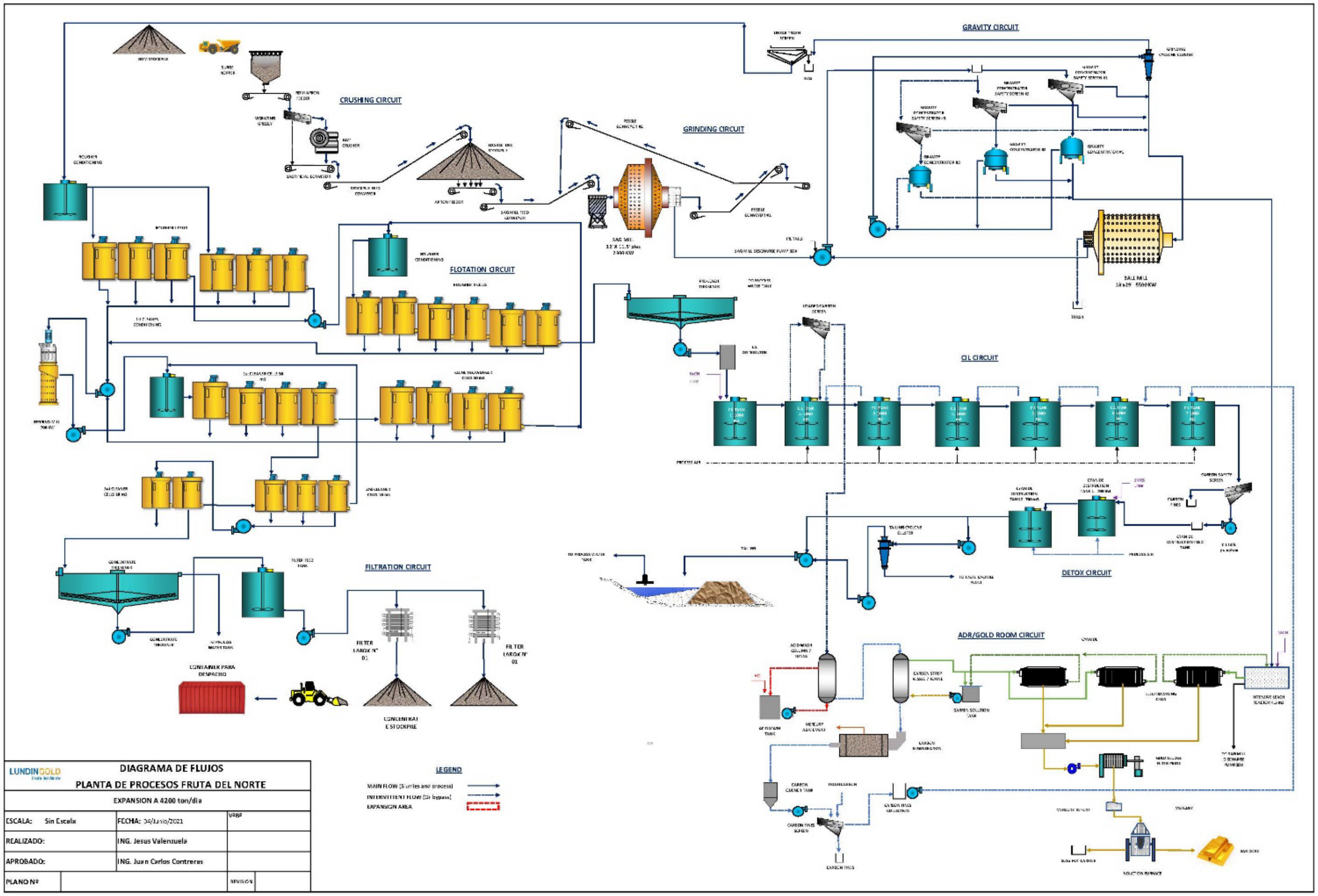
KPI	Unit	2020*	2021	2022
Ore Milled	kt	724	1,416	1,559
Daily Average Throughput	tpd	3,448	3,878	4,272
Feed Grade	g/t Au	10.0	10.6	10.6
Recovery	%	87.2	88.6	89.5
Gold Produced	koz	203	429	476

** From March 1, 2020, start of commercial production, until December 31, 2020*
Source: Lundin Gold, 2023

A simplified process flowsheet of the process plant is shown in Figure 17.1 and consists of the following unit operations:

- Primary crushing and associated material handling equipment
- Crushed ore stockpile and associated feed and reclaim systems
- Grinding circuit consisting of a SAG mill, ball mill, cyclone classification and associated pumping and material handling systems
- Gravity circuit with intensive leach reactor
- Rougher and cleaner flotation circuits to produce a gold concentrate for sale
- Gold concentrate dewatering (thickener and filters) and concentrate loadout
- Flotation tailings pre-leach thickener and CIL circuit to treat flotation tailings
- Acid wash and elution circuit to recover gold from the CIL circuit
- Electrowinning and smelting to produce gold doré
- Carbon reactivation
- Cyanide destruction
- Tailings handling

Figure 17.1: Simplified Process Flowsheet



Source: Lundin Gold, 2023

17.2 Process Description

17.2.1 Primary Crushing and Ore Stockpile

ROM is trucked from the underground mine and dumped directly into the crusher feed bin or stockpiled on the ROM storage pad and then reclaimed by a front-end loader to a ROM bin. The ROM is fed onto the vibrating grizzly feeder where the screen oversize feeds a jaw crusher. The jaw crusher crushes the ore to a P80 of approximately <100 mm. The crushed ore, along with the vibrating screen undersize material, is conveyed to the crushed ore stockpile. Crushed ore is reclaimed via apron feeders and is conveyed to the SAG mill.

17.2.2 Grinding Circuit

The grinding circuit consists of a SAG mill (6.7 m diameter x 3.5 m EGL with a 2,300 kW variable frequency drive) in open circuit with a pebble recycle stream and a ball mill (5.8 m diameter x 9.3 m EGL with a 5,500 kW fixed speed drive) in closed circuit with cyclones to produce a primary grind of P_{80} of 60 µm.

The SAG and ball mills each have a trommel screen. Steel balls are manually added to the SAG and ball mills on a batch basis as grinding media. Dilution water is added to the grinding circuit as required.

The SAG mill trommel undersize and the ball mill trommel undersize discharges by gravity into the gravity feed pump box where the slurry is pumped to the gravity circuit to recover gravity gold.

17.2.3 Gravity Circuit

The gravity circuit consists of three gravity trains which each include a vibrating screen and Knelson KC-QS40 centrifugal gravity concentrator. Gravity gold concentrate from the three trains is treated in a common Acacia CS3000 intensive leach reactor (ILR).

Gold rich pregnant solution from the ILR is treated in the electrowinning circuit in the gold room. Tails from the gravity concentrators are collected in a pump box and pumped to the cyclones at the ball mill. Cyclone underflow and oversize from the gravity screens flows to the ball mill feed and cyclone overflow reports to the trash screen prior to the flotation circuit.

17.2.4 Flotation Circuit

The flotation circuit consists of 12 x 50 m^3 rougher tank cells, 5 x 50 m^3 first cleaner tank cells, 4 x 50 m^3 cleaner-scavenger tank cells, 3 x 10 m^3 second cleaner tank cells, 2 x 10 m^3 third cleaner tank cells, and concentrate regrind HIGmill.

Product from the grinding circuit flows via the trash screen to the rougher conditioning tank. The slurry is treated in the rougher circuit to produce a rougher concentrate which is then pumped to the first cleaner and scavenger circuit.

Concentrate from the first cleaner circuit is pumped to the second and third cleaner circuits to produce a gold concentrate of approximately 100-130 g/t Au. Concentrates from selective circuits are reground in the regrind mill when required. Tails from the scavenger circuit are pumped to the rougher circuit and tails from the rougher circuit are pumped to the pre-leach thickener/CIL circuit to extract additional gold from the tails.

17.2.5 Concentrate Dewatering and Loadout

Concentrate from the final cleaning stages in the flotation circuit is pumped and dewatered in a 9 m diameter high-rate thickener. The thickened gold concentrate is further dewatered in two Larox filter presses to produce a filter cake of approximately 9% moisture. The concentrate is loaded into lined 20’ containers for export.

17.2.6 CIL Circuit

The CIL circuit consists of an 18 m diameter high-rate thickener, trash screen, pre-conditioning tank and six CIL tanks. Rougher tails from the flotation circuit are thickened in the pre-leach thickener and then pumped to the pre-conditioning tank via the trash screen. Slurry flows via gravity to the six stages of CIL. Sodium cyanide and lime are added to the CIL circuit. Air is sparged in the tanks. Regenerated carbon is added to the CIL circuit to adsorb gold in the slurry.

17.2.7 Acid Wash, Elution and Carbon Regeneration Circuit

The elution circuit is a 7 t Pressure Zadra plant and consists of an acid wash column, elution strip vessel, carbon regeneration circuit and associated tankage and pumping system.

Loaded carbon generated from the CIL tanks is pumped to the carbon elution and regeneration circuit. Once gold is eluted, the carbon is sent to regeneration. After quenching and screening to remove small particles, the reactivated carbon is reintroduced to the CIL circuit.

17.2.8 Electrowinning and Gold Room

Gold eluate is pumped to electrowinning cells consisting of stainless-steel cathodes to produce a gold-silver sludge. This is combined with sludge from the separate ILR electrowinning cell, filtered and dried. It is then smelted to produce gold-silver doré.

17.2.9 Cyanide Destruction Circuit

Slurry discharged from the CIL tanks reports to the cyanide destruction circuit. A two-stage conventional SO_2/air process is used to achieve <1 ppm total cyanide exiting the process plant. Copper sulphate and sodium metabisulphite reagents are used and air sparged in the tanks.

17.2.10 Tailings Handling

Tailings from the process plant is either used at the paste plant to produce paste for the underground mine or stored in the TSF. If tailings are required at the paste plant, then tailings from the cyanide destruction is deslimed via cyclones and pumped to the paste plant. If the paste plant is not in operation, then tailings is pumped directly to the TSF.

17.3 Energy, Water, and Process Materials Requirements

17.3.1 Reagents

The following reagents are used in the process plant:

- Primary collector (xanthate)
- Secondary collector (AP208)
- Frother
- Carboxy methyl cellulose (CMC)
- Lime
- Sodium cyanide (NaCN)

- Sodium hydroxide (NaOH)
- Hydrochloric acid (HCl)
- Copper sulphate (CuSO4)
- Sodium metabisulphite (SMBS)
- Anti-scalant
- Flocculant

17.3.2 Power

Power for the process plant is provided from the local grid as described in Section 18.

17.3.3 Air

Two low pressure air blowers supply the process air needed for all the flotation tank cells. Two air blowers supply the process air needed for all the CIL and cyanide destruction tanks.

Compressed air for plant distribution is provided by the plant air compressor via the plant air receiver. Compressed air for instrument use is provided by the instrument air compressor. Instrument air is dried by the instrument air dryer to remove moisture and distributed via the instrument air receiver.

Compressed air for the primary crushing area is supplied by the primary crushing air compressor and distributed via the primary crushing air receiver.

17.3.4 Water

The bulk of the water requirements for the process plant is provided by process water and consists of thickener overflows and reclaim water from the TSF.

Treated water from the water treatment plant is primarily utilized in the ADR, ILR and refinery circuits, used as gland seal water and for reagent dilution. Treated water is used for the grinding mill cooling systems and in the mine.

The domestic water tank supplies the camp, mine and process plant. Domestic water requirements in the plant include the plant safety showers and bathrooms. Domestic water is not drinkable (potable); drinking water is supplied as bottled water.

18 PROJECT INFRASTRUCTURE

18.1 Road and Logistics

18.1.1 Access

FDN site is accessed by the Troncal Amazonica road in Southern Ecuador via the town of Los Encuentros and a private road.

Roads within the site are gravel, consisting of crushed base course and select granular sub-base, and are designed for light and/or heavy vehicles as applicable.

18.1.2 Cargo and Concentrate Logistics

Two primary ports are used for exports and imports to support the operation, i.e. ports of Guayaquil and Psorja.

18.1.3 Air Services

The nearest airport for commercial national flights is Loja Airport, located 157 km from the FDN site. The site includes a helipad near the process plant area.

18.2 On-site Infrastructure

On-site non-process services include the following:

- Truckshop (four truck bays, two light vehicle bays, one welding bay, tire shop and truck wash). Mobile equipment (equipment and trucks) is serviced in the mine surface maintenance area, which includes offices and kitchenette.
- The Mine Office/Dry building has Mine Operations offices, change house, training and mine rescue facilities on the first floor and Technical Services offices and meeting rooms on the second floor. Process plant office which is a single-storey building with offices for process plant personnel and a kitchenette.
- Main office building
- Fixed plant maintenance, fabrication and electrical workshops
- Laboratory

- Warehouse and laydown area
- Short term concentrate container storage
- Permanent camp which includes kitchen and mess hall, toilet and shower units for workers, recreation and sports areas, sewage system, water treatment plant, bus shelter, parking, laundry and lockers, warehouse and maintenance, administration office, and guard house.
- Greenhouse
- Communications system consisting of fiber optic network infrastructure, telephone system, radio communications, mobile telephone, and satellite communications. Data management system is connected to the communications systems.
- Security access control at the main gate along the access road and at the process plant. Only authorized personnel are permitted on site.
- Fence: security chain link fence is provided for those areas that require a physical barrier for security or to prevent the ingress of animals.
- Waste storage facilities
- Quarry
- Stockpiles
- TSF; discussed in Section 20

18.3 Off-site Infrastructure

Lundin Gold has administrative offices in Quito and Los Encuentros which provide administrative and logistics support to the site.

18.4 Power and Electrical

The Ecuadorian electrical system is based on a high-quality electricity service matrix, the distribution system is called the Sistema Nacional de Distribución (SND, National Distribution System). The SND is controlled by CELEC EP Transelectric, an Ecuadorian government institution in charge of power transmission and distribution. The mine site is located within the supply concession area of the Empresa de Energia Regional del Sur (EERSA, Regional Electric Company of the South).

The overall site power requirements are provided via a 230 kV double circuit transmission line from the Bomboiza substation, located approximately 50 km away from the FDN site. The transmission line from the

Bomboiza substation provides power to the site. This system is a public transmission line and substation, owned and operated by CELEC EP Transelectric.

A substation at FDN site steps down the power to 13.8 kV and distributes power throughout the plant site at this voltage.

The annual average power demand is approximately 135,000 MWh.

18.5 Fuel

Diesel storage and distribution system is located just off the main access road, within the portal area near the maintenance shops and plant. The fuel storage provides approximately one week's storage capacity for the site operations. It includes supply stations and a transfer tank.

18.6 Water Supply

Domestic water for the camp and process plant is supplied from freshwater intakes in nearby creeks. This water is used for sanitary usage (e.g. showers, toilets, laundry, etc.). There are five such approved water intakes around the site.

The process plant platform is located about 5 km east of the main camp area, and a separate source of domestic non-potable is provided to this area from a creek located north of the process plant.

There are three human use treatment plants to provide water used in the camps and offices. Potable water is produced on site only for the kitchen food preparation and dispenser using a reverse osmosis system. All other drinking water is bottled and supplied by a local supplier.

Four water management ponds that were used for industrial water supply during construction serve as industrial water supply back-up for the operation; three of them receive affected waters during operations.

To maximize water reuse and recycling and minimize demand for external make-up water, TSF effluent and paste plant effluent are used as make-water for the process plant.

19 MARKET STUDIES AND CONTRACTS

19.1 Market Studies

The principal commodities produced at FDN are gold and silver in the form of doré bars and gold-silver concentrate. The gold produced from doré bars are sold under the terms of the Offtake agreement with Newcrest Mining. The concentrate is sold under the tems of contracts covered in Section 19.2. There were no market studies carried out for the Report.

19.2 Commodity Price Projections

This Report utilized gold prices of USD 1,400/oz.

Metal prices were kept constant throughout the life of FDN.

19.3 Contracts

19.3.1 Sales and Marketing Contracts

The gold / silver concentrate produced at FDN is sold under the terms of several long- and short-term smelting and refining contracts. FDN has contracts in place for 100% of its concentrate production with smelters located in Finland, Germany, Bulgaria, Canada, Taiwan and China.

The terms of the long-term contracts are summarized as follows:

- Original term was three to eight years and the contracts currently have one to four years remaining
- Payable of 95% to 97.7% gold content
- Payable 90% to 95% silver content
- Treatment charges of $200/dmt of concentrate
- Gold refining charge of $7.00 to $7.25/oz
- Silver refining charge of $0.50 to $0.65/oz
- Penalties for deleterious elements averaging approximately $11.25/tonne of concentrate.

The payable terms on the long-term contracts are 90% payable within 30 to 40 days of arrival at the smelter port of receipt, and the remaining 10% payable and price adjustment payable upon settlement of final smelter assays.

The terms of the short-term contracts are summarized as follows:

- One-year term
- Payable of 97% gold content
- Payable of 88% to 90% silver content
- Treatment charges of $78 to $178.50/dmt of concentrate
- Gold refining charge of $5.00 to $6.00/oz
- Silver refining charge of $0.50/oz
- No penalties for deleterious elements.

The payable terms under the short-term contracts are 95% payable within 10 days of loading at the port of departure and the remaining 5% payable and price adjustment payable upon settlement of final smelter assays.

The doré is refined at a cost of $0.20/oz and sold under the terms of an Offtake agreement. Under the terms of the offtake agreement, the refined gold is sold at market prices adjusted based on a defined quotational period.

19.3.2 Other Contracts

There are no labour contracts in place. Contracts are in place for all mill consumables such as grinding media and reagents. Contracts are also in place for major mining supplies such as explosives, drill bits and steel and ground support.

20 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

20.1 Permitting and Authorizations

In October 2016, the Ministry of Environment, Water and Ecological Transition (MoEWET) issued the environmental license for the construction and operation phases of FDN in the Zamora province. From that moment, Lundin Gold has obtained various permits for the normal operation of the mine. The major permits for the operation of FDN are:

- Environmental license for Exploitation and Beneficiation
- Administrative Act for operation
- Environmental license for Mountain Pass Quarry
- Administrative act for Mountain Pass Quarry operation
- Environmental license for the incoming power transmission line
- Environmental register for the North Access Road (private section)
- Environmental register for the Riverside Road
- Environmental register for Zamora bridge
- Permit to deviate the creek for the TSF construction
- Fresh water permit for industrial use for FDN
- Domestic Water Permit for the Mine and Plant
- Domestic water permit for the FDN camp

None of the above permits need to be updated due to the increase in the throughput to 4,400 tpd.

The following permits are renewed on a yearly basis or every other year for the normal operation of FDN from different authorities:

- Cyanide storage, transportation, use and importation permit
- Biotic evaluation center patent
- Greenhouse annual patent
- Use of controlled substances permit

- Quarry, FDN and explosives magazine operation permits
- Controlled substances permit
- Explosives storage, consumer, and user
- Annual archeological investigation permit.

20.2 Environment Monitoring

FDN operations complies with the national and local environmental requirements and decided to voluntarily comply with the International Financial Corporation (IFC) performance standards. Lundin Gold monitors the environmental aspects with the support of external labs certified by the national authority. Reports to the authority are submitted on a quarterly basis.

Air Quality monitoring is performed quarterly at eight monitoring points defined in the Environmental Impact Assessment. The parameters analyzed are particulate matter 10 and 2.5, sulfur dioxide, carbon monoxide, ozone, and nitrogen dioxide.

Environmental Noise monitoring is performed quarterly at seven points where sensitive receptors have been identified.

Vibration monitoring is carried out quarterly at eight operational areas of FDN and at nine locations with sensitive receptors.

Water Quality monitoring *is carried out quarterly at* a total of twenty-five points along the the Machinaza River (this River receives all the discharges from the operation) and along creeks close to the operational areas. A total of fifty-seven parameters are analyzed for each point including heavy metals, anions, cations, among others.

Industrial and sewage treated water discharges are monitored at the end of pipe for compliance with the maximum permissible limits. No contacted water is discharged to the environment without prior treatment. A total of three points of discharge, two for sewage water and one for industrial water, are monitored on a monthly basis.

FDN internal laboratory analyzes some of the water quality and discharges monitoring points on a daily basis to ensure good performance for the operation.

FDN maximizes the recirculation of the contacted water at the operation. At the time of writing this report, FDN had not taken any fresh water for its operations and has only used recirculated contacted water for operations. The fresh water taken is used only for domestic use in offices and camps.

Ground Water Quality is monitored at four points: two upstream of the TSF, one downstream of the mine site facilities and one at the fuel bay. Forty-seven parameters are analyzed every six months in each of these stations.

Sediments monitoring is not regulated in national legislation; however, for reference, Lundin Gold compares the results taken quarterly at the twenty-four points monitored around the site and compares the results with the "Canadian Sediment Quality Guidelines for the Protection of Aquatic Life".

Biodiversity monitoring is performed every six months at FDN. To comply with national requirements, Lundin Gold performs bioindicators monitoring and to comply with the IFC Performance Standard 6, critical habitat monitoring is also carried out. As part of the normal operation, biologists assist to rescue species that interact with the mine operation, and they are relocated in the surrounding forest.

Waste Management takes place in all the infrastructures of the mine operation. A waste management center was built to temporary store the generated classified waste. Hazardous waste is managed through a certified company that transports, treats, and provides final disposal. Non-hazardous waste that is non-recyclable is sent to the Yantzaza Municipality landfill for final disposal. Reports to the authority are submitted on a yearly basis. Initiatives to recycle or reuse the waste are being implemented.

Archeological investigation was carried out in most of the FDN disturbed area; however, procedure requires that during any soil movement the archeologist monitors the works in case unforeseen material is found. Rescue at the areas monitored is implemented, if necessary.

Illegal mining monitoring is carried out every six months on the FDN concessions. Illegal activities are reported to the environmental and mining authorities to act according to the regulations.

In addition to this environmental monitoring, geotechnical and geochemical monitoring has been defined for the TSF. Geotechnical controls include piezometers, settlement plates, inclinometers, and topographic landmarks. Geochemical controls include flow measurements, groundwater monitoring, as well as surface water monitoring and analysis to determine potential acid rock drainage.

20.3 Closure Plan

Closure planning has been undertaken to a conceptual level and will be continually updated throughout the mine life. The conceptual Closure Plan was developed in accordance with Article 125 of RAAM and Title X of the Mining Safety Regulations.

The definitive closure will be done in accordance with Art. 124 of RAAM, which requires that the definitive Closure Plan must be presented two years prior to cessation of operations.

According to the national regulation, the closure and abandonment plan shall include a detailed schedule of activities, final budget, operational procedures defining specific closure actions including the recovery of the sector or area, a plan for verification of compliance, environmental and social impacts, compensation plan and the updated guarantees indicated in the applicable environmental regulations; as well as a plan for incorporation into new forms of sustainable development.

However, the risk analysis and planned closure activities identified that there are options to perform progressive closure in areas that will no be longer used by the operation. Waste dumps, Inadequate Material Stockpile are part of those areas that are under rehabilitation.

20.4 Tailings Storage Facility

20.4.1 Introduction

The TSF is part of the FDN mine site (Zarza concession), located in a broad, natural valley about 4 km west of the plant site at an average elevation of 1,450 masl. The TSF is situated in the upper limits of a small tributary to the Rio Zarza which flows into the Machinaza River. The TSF is about 2 km from the Rio Zarza.

The TSF is a “zero discharge” system approved by the Ecuadorian entity, Secretaría Nacional del Agua (SENAGUA), now the MoEWET. The TSF stores: (a) gravity, flotation, leach (GFL) tailings as whole tailings and as de-slimed (overflow) tailings, and (b) sludge from the Water Treatment Plant (WTP).

The TSF Dam is classified as an “Extreme” failure consequence structure following the Canadian Dam Association (CDA) Dam Safety Guidelines and Technical Bulletin for Mining Dams (CDA 2013, CDA 2019); therefore, the dam is designed to withstand a 1:10,000-year design earthquake and to store the IDF without discharge (spillway) during operation due to water quality constraints.

Non-contact water discharge strategy was prepared by Aurelian following the environmental permit. In November 2017, SENAGUA approved the non-contact water diversion strategy considering the East Diversion only. This diverts non-contact water around the TSF perimeter (east side) via riprap lined channels excavated along the valley walls. The TSF surface water management design comprises: East Diversion Channel; Creek Inlets and Outlets along the East Diversion Channel and East Chute; and East Chute.

The original TSF Starter Dam was completed in December 2019 (Crest El. 1,458 m) and Stage 1 and 2 dam raises were completed in April 2021 and November 2021 (El. 1,461.5 m and El. 1,466 m), respectively. Stage 3 Dam Raise was completed in November 2022 (El. 1,471 m). Stage 4 design is being prepared for construction in 2023, and detailed design of Stages 5, 6 and 7 will follow.

Surface and groundwater management during 2019 construction was a major challenge due to frequent precipitation events, groundwater, seepage and local topography. Aurelian constructed several surface water management structures including a temporary diversion ditch, six cofferdams and an underdrain system below the liner to help manage surface water, groundwater and seepage during construction.

Based on construction observations, CQC/CQA records, survey records and observed performance during dam raises construction, it is KCB's opinion that the TSF in its current condition meets the design intent for the facility and the structure is stable.

Based on tailings production estimates, provided by Aurelian in September 2022, which was used for the Stage 3 and 4 Dam Raises design developed by Klohn Crippen Berger (KCB), the projection for the Ultimate Dam elevation is at Crest El. 1,491 m. The elevation was estimated considering 11.6 M tonnes of tailings.

Based on the new Mineral Reserve estimate, KCB estimated the Ultimate Dam elevation to be Crest El. 1,493 m considering a projected tailings of 13.1 M tonnes. The estimated impoundment capacity is the cumulative tailings as of December 31, 2022.

20.4.2 Site Conditions and Investigations

Site Geology

The TSF is founded on weathered igneous intrusive bedrock from the Zamora Batholith (coarse grained, felsic, granodiorite and monzonite) of the Eastern Cordillera (Cordillera del Condor) and is bounded by the

Hollin Sandstone Plateau to the north and east. The site is densely vegetated with relatively shallow root systems (< 0.3 m), up to one metre depth in some test pits.

The weathering profile comprises thin residual soil, saprolite up to 40 m depth, and a transition to fresh bedrock. The base of the transition zone and the uppermost fractured zone of the bedrock is an aquifer which generally follows the sloping ground surface.

Some colluvium exists beneath the centreline of the dam and extends downhill into the Polishing Pond area, which makes this unit a potential preferential path for seepage from the impoundment, if not controlled. Some of these colluvial deposits have been removed during construction as part of foundation preparation. Alluvium deposits were observed in the stream beds within the TSF site and the east abutment. Most of these alluvial deposits were removed during the Starter Dam construction.

Physiography

The TSF is located within a wide and irregular valley, whose upper reaches are formed by the Hollin Formation. The total catchment area of the TSF site is estimated to be 1.4 km^2, with maximum headwater El. 1,680 m. on the east side of the valley and El. 1,575 m on the west side. The site was covered by heavy tropical vegetation, except for small areas cleared for agriculture and from past mining activities. Surface runoff in the valley reports to a network of small creeks on the valley sides discharging into the main creek flowing north to south.

Seismicity

The FDN mine site is located east of the Andes Mountain chain where it is subject to high seismic activity either from the South America Subduction Zone including the Megathrust and Wadati-Bienoff zones, or from active crustal Failures.

URS, now AECOM, (2008) completed a site-specific seismic hazard assessment (SSHA) for the FDN site. The report was used for the detailed design (KCB, 2019) with inputs from the Ecuadorian Code for the seismic zone, after the earthquake in 2010.

A literature search on potential modifications to the seismic accelerations due to the 2016 earthquake found a work-in-progress seismic hazard model for Ecuador (Beauval et.al. 2018 - draft), which showed a relative increase in PGA for a 475-year return period considering different event sources ranging between 0.30 g and 0.40 g PGA boundaries. PGA values used for the deformation analysis are given in Table 20.1.

Table 20.1: Summary of Peak Ground Accelerations

Return Period (Years)	Horizontal Peak Ground Acceleration (g)		
	PSHA (AECOM 2008)	Ecuadorian Building Code 2015 (Zamora)	Ecuadorian Model Beuval et.al. 2018 - Draft
475 (500)	0.19	0.25	0.3 to 0.4
2 500	0.32	0.38	-
10 000	0.54	0.58	-

KCB prepared an updated FDN probabilistic seismic hazard assessment in 2022, which is currently under review and discussion. Design of subsequent stages should use the updated seismic hazard assessment including a dynamic stress-deformation analysis with finite element modelling to assess the potential deformations in the dam.

Climate

The climate and hydrologic conditions at FDN were updated by KCB in 2022. The stations at the project site recorded an annual average temperature of 18.2°C with slightly colder temperatures between June and September and an annual average relative humidity of 88.3%.

The average annual potential evapotranspiration is 773 mm; therefore, the lake evaporation is conventionally assumed to be 90% of the pan evaporation which is equal to an average of 1,103 mm for FDN. Average annual precipitation is 3,414 mm, for wetter year is 3,652 mm.

The 24-hour Probable Maximum Precipitation (PMP) was estimated using the statistical method as developed by the World Meteorological Organization (WMO - No. 1045, 2009). This value for FDN is estimated at 400 mm.

Site Investigation Programs

Five site investigation campaigns were conducted between 2009 and 2019 at the TSF. From 2009 to 2015 the investigations focused on evaluating deeper foundation conditions within the dam footprint and the surficial soil distribution within the basin. In 2016-2017, the investigations were focused along the upstream cut-off trench alignment and to obtain preliminary hydrogeological information from the impoundment basin. The 2018 site investigation focused on surficial geological mapping, sample collection for advance testing to characterize the foundation, infiltration testing, and drilling to confirm/address findings from previous investigations. The 2019 site investigation was focused to install additional instrumentation (vibrating wire piezometers) to replace standpipe piezometers damaged during early Starter Dam construction. Additional sample collection and geotechnical advanced lab testing was conducted to update foundation conditions in 2019.

Additionally, a site investigation program was conducted between November 2021 and February 2022 and was a key program for re-evaluating and updating geotechnical parameters for the design of Stage 3 and 4. Key findings included:

- Saprolite is the dominant foundation unit beneath the north and west side of the dam and underlies the colluvium on the southeast side of the dam. Saprolite is classified as sandy silt to silty sand with varying remnant (relic) structure from the parent rock. Kaolinite and illite are the predominant clay mineral; no swelling minerals were identified.
- Colluvium deposits are heterogeneous mixtures of gravel, cobbles, and boulders of Hollin Sandstone, supported in a low-plastic silt and sand matrix. The colluvium was present beneath the southeastern side of the TSF footprint becoming thicker towards the south up to 18 m thick.
- The transition zone to fresh bedrock is a coarse granular zone with a variable thickness and higher hydraulic conductivities than the saprolite.
- Bedrock is fractured and slightly weathered to fresh granodiorite. The granodiorite bedrock is assumed to be stiff (modelled as impenetrable).
- Groundwater follows the topography and flows from the west and east sides of the valley catchment to the valley low points then north to south to the downstream.
- The saprolite beneath the dam footprint has consolidated under dam fill loading and the undrained shear strength, as well as the effective strength parameters have increased implying that the dam stability has improved over the operating life.

20.4.3 Tailings Characteristics

Based on information from detailed design (KCB, 2019), Table 20.2, Item 3, summarizes tailings characteristics for the 2017/2018 pilot plant and deslimed (cycloned) samples and compares these results to the 2015 test work. Aurelian should continue to conduct tailings characterization to update and check parameters used since 2019.

Tailings Consolidated Dry Density

The estimated average dry density by Aurelian, calculated from deposition amounts and bathymetry through December 2022 is an average of 1.12 t/m^3 with 28% solids content. These consolidated dry densities in the impoundment depend upon the specific gravity, grind, pulp density in the tailings delivery line, energy at deposition, spacing of spigots, and type of deposition (subaerial or subaqueous). All these factors will vary during operation; thus, ongoing monitoring with periodic bathymetric surveys and water balances are required to assess performance.

Tailings Beach

Since the start of operation of the TSF, in mid-2019, the tailings and the water decant pond have been developed and modified according to the physical properties of the tailings, and the disposal, climate and operating conditions.

Sub-aerial slopes, shows an initially steep slope near the discharge points of 0.8% to 0.5%, after which the slope becomes shallower at about 0.3% to 0.2% (still above water). This behavior is consistent along the dry beach tailings. The beach slope is an average of 0.35% above water.

Sub-aqueous slopes, show values between 1.1% and 0.2% where three behaviors can be observed. Steeper slopes in the 1% range were found at times and sections where the tailings beach is developing. Medium slopes of 0.8% to 0.45% occur where the main beach transitions to the middle or deep pond areas. Finally, tailings slopes are flatter from 0.3% to 0.1% in the deep pond. The underwater slopes thus vary based on distance from discharge point, and the initial original ground surface. Bathymetry provides a typical section that reflects these three underwater conditions. Therefore, for beach development and deposition modeling, an average of 0.7% for sub-aqueous slopes has been used.

Tailings Geochemistry

The tailings is characterized as non-acid generating (NAG) with a NP/AP ratio of 2:93 based on geochemical testing. There may be elevated levels of total suspended solids (TSS) requiring settlement, and there will be elevated levels of cyanide deposited in the tailings. KCB have assumed that cyanide will report to the TSF at approximately 1 ppm, and natural degradation from sunlight is predicted to reduce this level to 0.4 ppm. With rainfall and other inflows, the cyanide level in the decant water is expected to be below the discharge limit of 0.1 ppm. Additional modelling and data will be required to confirm that the discharge criteria will be met. Testing to date at seepage compliance points have all been within discharge limits.

20.4.4 <u>Design</u>

The dam is a select rockfill embankment with an inclined saprolite + cement core and lined basin. Seepage is managed through an internal and underdrainage system comprised of inclined sand and gravel filter zones, gravel finger drains and a rockfill basal drain. Each dam raise must be stable and should be completed before of the end of each stage of operation to accommodate the maximum tailings-pond level required at each year.

Each raise requires sequencing to balance upstream and downstream fill placement to maintain overall stability. Each raise sequence is reviewed and will have detailed design specifications prepared, until the ultimate dam level is reached.

The geomembrane liner system comprises a Linear Low-Density Polyethylene (LLDPE) lined upstream embankment slope and blanket extending upstream into the basin.

The TSF surface water management design comprises: East Diversion Channel; Creek Inlet and Outlet along the East Diversion Channel and East Chute; and East Chute.

Flow from the diversion channels is routed into a polishing pond downstream of the tailings dam to facilitate settling of suspended solids prior to discharge to the river downstream. The polishing pond is used to capture any sediment runoff generated from TSF construction activities.

For the stability analysis, the foundation properties, including strength and thickness, have been updated based on the 2021 Site Investigation Program conducted in the TSF dam. On November 1-4, 2022, a Peer Review meeting was conducted on site. Aurelian and KCB presented updated foundation parameters for the Stage 3 and Stage 4 dam raises. The foundation material parameters were updated as presented and as agreed upon at the Peer Review meeting. The key update was that the minimum undrained shear strength under the dam fill was increased due to consolidation of the foundation from Stage 2 dam fill loading. For the current condition the stability of the dam meets design criteria for all analysed sections. Future raises (after Stage 5 Dam Raise) shall potentially require an additional downstream buttress and will continue to require construction sequencing to maintain FoS higher than 1.5.

The ultimate crest elevation is sensitive to the tailings dry density, production rate, and tailings beach slope. Based on current planned tailings production, the ultimate crest elevation is El. 1,491 m, planned to be reached at Stage 7. A potential increase to Crest El. 1,493 m is being considered.

20.4.5 Storage Capacity

A total of 11.6 Mt of gravity, flotation, leach (GFL) tailings will be pumped to the TSF at average solids contents of 28% over 16 years of TSF mine life. The estimated average dry density is 1.12 t/m^3. This has been and should continue to be checked with periodic bathymetry and deposition records to confirm density and storage capacity. Excess water is reclaimed to the mill by a floating barge.

The TSF storage requirements are based on tailings productions updated by Aurelian (October 2021 and September 2022). Based on updated storage curve, the TSF impoundment allows a total storage of about 11.75 mm^3 to El. 1,490 m. The impoundment capacity assessment considered mainly updated tailings production, operating pond, IDF storage and the minimum required freeboard above the IDF level. A small amount of sludge from the water treatment plant will also be stored in the TSF (0.2 mm^3) over the 16 years.

20.4.6 Other Waste Materials Reporting to the TSF

The only other waste material to be placed in the TSF is sludge from the water treatment plant, and this has been included in the storage volume estimates. Further testing on sludge samples should be completed by Aurelian to confirm the settling and geochemical characteristics of this material and its impact on the tailings behaviour and storage, although the total volume is small compared to the tailings volume.

Site sediment material, originally to be disposed of in the TSF, will be disposed of elsewhere and is no longer included in the TSF storage volume. Furthermore, Aurelian has indicated that all foundation stripping spoils will be disposed in other waste dumps and not in the TSF impoundment.

20.4.7 Stage Construction and TSF Current Condition

TSF dam has been raised until the crest elevation at El. 1471 m (Stage 3 Dam Raise). Based on construction observations, CQC/CQA records, survey records and observed performance during dam raise construction, it is KCB's opinion that the TSF in its current condition meets the design intent for the facility and that the structure is stable.

20.4.8 Instrumentation and Monitoring

Routine dam safety inspections to monitor dam performance during operations and construction are carried out.

Installed instrumentation includes vibrating wire piezometers (VWP); inclinometers; settlement plates; accelerograph; surface survey monuments and survey rods and seepage weirs.

The purpose of the instrumentation and monitoring program is to measure and record key performance indicators including displacements, pore pressures, and seepage flows during: (a) construction, (b) operation, and (c) closure, to confirm that actual behavior is within the expected range assumed for current design.

20.4.9 Operating Philosophy

A total of 11.6 Mt of tailings will be pumped to the TSF at 28% solids over the mine life. The tailings are discharged from spigots located along the dam crest.

The sludge produced from the treatment of contact water from the mine at the WTP will be delivered at a rate of 4 m^3/h and stored in the TSF. Sludge will be discharged sub-aqueously into the decant pond. Sludge will be delivery to the TSF using tailings lines.

Water management strategy for the TSF is to: (a) store an operating pond of 0.25 mm^3 for clarification and draught for the reclaim barge, and (b) store the Inflow Design Flood (IDF) event of 1:10 000-years, 30-day storm (about 0.97 mm^3, currently). KCB notes the following:

- The facility is designed as a “zero discharge” facility without an emergency spillway. The beach should push the pond away from the dam.

20.4.10 Design Basis

The key design considerations are summarized in Table 20.2.

Table 20.2: TSF Key Design Basis

Item	Design Basic	
1.0	**General Design Basis**	
1.1	**Province of Zamora Chinchipe, southeast of Ecuador**	
1.2	Site Arrangement	Refer to General Arrangement Plan by Aurelian in Attachment II
1.3	Ore Type	Gold-silver deposit
1.4	Mining Type	Underground mining with paste tailings backfilling and on-land conventional tailings disposal
1.5	TSF Operating Life	16 years (updated tailings production issued by Aurelian). TSF began operation on September 28, 2019
1.6	Metallurgical Process	Gravity, Flotation and Leach (GFL). Treated with cyanide destruction process prior to discharge to 1 ppm.
1.7	Tailings Technology	Conventional un-thickened tailings (e.g., slurry)

Item	Design Basic	
1.8	Lease Boundary	TSF is inside La Zarza Concession. Mine lease boundaries are shown in Item 1.2.
1.9	Standards and Guidelines	Reference standards and guidelines are listed below: • Canadian Dam Association (CDA) 2007-2013 and 2014. • International Committee of Large Dams (ICOLD) 2017. • Mining Association of Canada (MAC) guidelines 2019. • American Society for Testing and Materials (ASTM) guidelines for the laboratory testing program. • Discharge water quality limits adopted by Aurelian. • Instructivo para la Aprobación de Proyectos de Diseño, Construcción, Operación y Mantenimiento de Depósitos de Relaves para la Mediana y Gran Minería 2020.
1.10	System of Units	Metric system
2.0	**Site Characteristics**	
2.1	Datum, Topography, Bathymetry and As-Built Survey	The following information is used for topographic control: • Horizontal Datum: WGS84, UTM Zone 17. Vertical: sea level – Model EGM96. • LiDAR provided by Aurelian; data collected in 2011. • Stage 1 and Stage 2 Dam as-built survey (including foundation preparation) dated October 2021. • Bathymetric surface by Aurelian monthly.
2.2	Site Investigation, geotechnical characterization and Laboratory Testing References	Site investigation, geotechnical characterization and testing references are: • Regional geological map provided by Aurelian. • KCB 2011 Fruta del Norte Feasibility Study – TSF Site Investigation Program prepared for Kinross Aurelian. August 2, 2011. • KCB 2016 Fruta del Norte TSF 2015 Field Investigation. Geotechnical Data Report. Doc No. KCB-5150-DT10-RPT-003-RevP. • KCB 2017 Fruta del Norte Basic Engineering TSF 2016-2017 Field Investigation. Geotechnical Data Report. June 21, 2017. • KCB 2018 Fruta del Norte Tailings Storage Facility 2018 Field Investigations Geotechnical Data Report. September 2018. • KCB 2019 Geotechnical and Hydrogeological Drilling Program. • 2019 Starter Dam Construction Summary Report. • Stage 1 and Stage 2 Dam Raise Construction Summary Report. • KCB 2022 Tailings Storage Facility, 2021-2022 Geotechnical Investigation Data Report. September 2022.

Item	Design Basic	
2.3	Climate Data	Hydrology Assessment Update (KCB 2022): • Weather stations shown in Table I-2. Campamento Las Peñas (CLP) station has longest data record (14 years). • Average annual temperature: 18.2°C. • Average annual relative humidity is 88.3% (Lower August to December – Higher January to July). • Average annual precipitation: 3,414 mm; wetter year: 3,652 mm. • 73% annual rainfall from December to July. 27% from August to November. • Maximum average monthly precipitation: 342 mm. • Average annual Pan Evaporation: 1,103 mm (KCB, 2015). • Average Annual Lake Evaporation: 773 mm (KCB, 2015). • Meteorological station installed in TSF area since February 2020 collecting climate data in situ as humidity, precipitation and wind.
2.4	Hydrology	Data from KCB technical memorandum “IDF Volume Estimate” (December 15, 2020): • TSF Ultimate Dam catchment 1.4 km^2. Headwater elevation of 1,680 m (east) and 1,575 m (west). Interim catchment (1.2 km^2) is used for Stage 3 and 4 design. • Refer to KCB 2015 for Intensity-Duration-Frequency precipitation analyses and curves, long-duration storm analyses, and Probable Maximum Precipitation (PMP) of 400 mm (24-hour) evaluation. This data was used for the TSF water management (KCB 2019a).
2.5	River Systems	The TSF is situated 2 km upstream of the Zarza River, which flows into the Machinaza River. Machinaza River watershed is about 550 km^2. Aurelian indicated the TSF creek monitoring station was destroyed during a flood event (2014). Data prior to event not received.
2.6	Hydrogeology	Groundwater flow generally follows topography from the catchment sides into the valley, with the majority of groundwater recharge occurring through contact with the Hollin Formation located in the east and north side. Groundwater flow is towards the catchment valley axis and discharges towards the south. An aquifer through the transition zone / upper fractured bedrock was identified (Hydrogeological study, KCB 2019-2020).

Item	Design Basic	
2.7	Seismicity and Site-Specific Seismic Hazard	Seismic parameters from URS, now AECOM 2008 Site-Specific Seismic Hazard Assessment (SSHA) report (URS 2008). Relevant information to the project includes: High seismic activity area. Source: South America Subduction Zone (max. M 8.8) or from active crustal faults (Nangaritza fault about 18 km, max. M 7.3). Peak Ground Accelerations: 0.19 g (1:500-year), 0.32 g (1:2500-year) and 0.54 g (1:10,000-year). Aurelian stipulated that the site is in Seismic Zone III (Z = 0.3 g for 1:475 years) as per Ecuadorian Code. The dam should meet the design criteria for an Extreme Consequence dam (see Item 6.3). The Ecuadorian Code for 1:10,000-years PGA is 0.58 g. For subsequent raises (after Stage 4), design should be based on the updated Seismic Hazard Assessment (KCB, 2021), currently, under review and discussion. This updated analysis indicates a PGA of 1.11 g, for the 1:10,000-year return event (probabilistic analysis).
3.0	**Tailings Characteristics**	
3.1	General	Tailings properties from testing conducted in composite tailings samples provided by Aurelian from pilot plant testing in 2017, as per the detailed design of the Starter Dam, to be confirmed by Aurelian.
3.2	Composition	2017 test work is adopted for the Stage 3 and Stage 4 Dam Raises Design: Quartz (51.9%) and muscovite/illite (clay mineral) (28.5%), 1.1% Calcite, 1.7% Pyrite, and 16.8% X-Ray amorphous material, to be confirmed by Aurelian.
3.3	Specific Gravity	2015 test work: 2.73 (composite) 2017 test work: 2.76 (scavenger), 2.71 (composite), 2.69 (overflow).
3.4	Slurry Solids Content	Slurry content has 27.2% average of solids as per Monthly TSF Operation Report (Aurelian, January 2022).
3.5	Initial Settled Properties (Prior to Consolidation)	Properties after initial settling and at the beginning of consolidation derived from jar settling tests (data from detailed design of the Starter Dam).
3.6	Average Deposited Dry Density	Comparing real production rate and volume deposited into TSF, dry density was estimated of 1.12 t/m^3

Item	Design Basic	
3.7	Shear Strength	Effective friction angle of 33° from Triaxial testing in 2015. The stability model assume that tailings will liquefy under the design seismic load, losing shear strength; however, the downstream dam should contain the tailings.
3.8	Tailings Deposition Beach Slopes	Tailings deposition beach slopes are as follow: • Slope above water: 0.35%. (Updated from bathymetry) • Slope below water: 0.70%. (Updated from bathymetry) • Slopes were updated based on assessment of the impoundment current condition using tailings surface bathymetric data.
3.9	Tailings Rheology	Refer to Technical Note ECFN-AUS-MC-6720-MEM-01001 – Ausenco, dated February 13, 2018.
3.10	Geochemical Properties	Aurelian stipulated KCB assume Non-potentially Acid Generating (NAG) from tailings pilot plant test work conducted by SGS (2017). NP/AP ratio of 2.93.
3.11	Supernatant Water Chemistry	Not included in KCB work scope. Tailings slurry element concentration in supernatant water criteria of 1 mg/L WAD CN. Total CN will be used for detoxification criteria (Ausenco 2017).
4.0	**Other Materials to be Deposited into the TSF**	
4.1	General	Sludge from the Water Treatment Plant (WTP) will be deposited into the TSF during the mine life through the same tailings pipeline. All foundation stripping spoils will be disposed in a new waste dump.
4.2	Sludge Production at WTP and into the TSF	Sludge production and properties: • Production rate: 1.4 m^3/h. • Sludge to be delivered to TSF at solids content of 5%. • Poor settling behavior: 100% of the sludge (solids and water) to be stored. • Deposited dry density: 1.1 t/m^3 provided by Aurelian • Total sludge production to TSF: 0.2 mm^3 over 16 years.
5.0	**Tailing Storage Facility Design and Engineering**	
5.1	General	The TSF impoundment is contained by a cross-valley compacted rockfill dam with an inclined compacted upstream saprolite-cement core and a liner system for seepage control.

Item	Design Basic	
5.2	Storage Requirements	The TSF is a "Zero Discharge" system during operation and is designed for next storage requirements: • Tailings (see Attachment I, Table I-1) • Sludge (see Item 4.2) • Operating decant pond of 250,000 m^3. Minimum 2 m depth based on draught requirements of the reclaim barge. Volume to be confirmed in deposition model for Stage 3 and Stage 4 Dam Raises. • Inflow Design Flood (IDF) (see Item 5.5) • Aurelian stipulated that Water Treatment Plant contingency allowances should not be included in the TSF dam raise schedule. Aurelian stipulated they will manage WTP contingency during operation by pumping.
5.3	Dam Raise Schedule	Each dam raise should be stable and be completed to accommodate at least 1 year in advance of the maximum tailings-pond level required for that year.
5.4	Type of Dam Raise	Downstream raise with adequate downstream buttress to support each raise.
5.5	Consequence Classification	'Extreme' based on Dam Safety Guidelines (CDA 2007, with 2013 revision) and Technical Bulletin of Application of Dam Safety Guidelines to Mining Dams (CDA 2014) of the Canadian Dam Association (CDA) for operations and closure. Based on population at risk near or at confluence of Machinaza and Zamora Rivers, the Amazonian Highway, and species in project area considering preliminary dam breach runout (KCB 2016). Therefore, TSF design criteria is as follows: • Inflow Design Flood (IDF): 1:10,000-years. A 30-day storm (833 mm) is used for storage design. Freeboard of 1 m above IDF level is considered. • Design Earthquake: 1:10,000 years or Maximum Credible Earthquake (MCE).
5.6	Dam Section	A rockfill zone was included to suit locally available selected material from the Hollin Formation Quarry (Colibri 5) excluding mudstone/siltstone fragments. Filter transitions and a basal drain with stringent specifications are included for filter compatibility and internal drainage. Sandstone quarry evaluation and management by Aurelian. Sandstone quarry geochemical assessment by Aurelian (see Item 13.0). Upstream dam core of saprolite cement is considered in accordance with Starter dam, Stage 1 and Stage 2 dam construction practices (Attachment IV).
5.7	Dam Crest Width	***Minimum crest width of 20 m*** for interim dam raises. Minimum width shall provide room for tailings distribution pipeline requirements (tailings distribution, sludge and sediment

Item	Design Basic	
		distribution, and water reclaim conveyance requirements designed by others), as well as traffic and safety berm requirements. Pipeline discharge is preferred along a section of the dam with granular fill or areas protected by liner. Other minimum width requirements by Aurelian, including safety fences or berm requirements, heavy and light vehicle access, etc., shall be included by Aurelian during construction.
5.8	TSF Access Roads	Access roads are designed and constructed by Aurelian.
5.9	Depositional Strategy	Dispose tailings from the dam crest and cover the lined areas as soon as practical while maintaining the water pond away from the dam and developing a wide tailings beach.
5.10	Freeboard	Minimum freeboard for wave runup above IDF level: 1.0 m. This minimum freeboard of 1.0 m only sets minimum dam crest levels for a given year; however, during operation, a freeboard greater than this minimum is required due to uncertainties in climate records, tailings rates, sludge, production, and mill upsets. The Ecuadorian government stipulate a minimum operating freeboard of 1 m must be maintained during operations/normal conditions ("*Instructivo para la Aprobación de Proyectos de Diseño, Construcción, Operación y Mantenimiento de Depósitos de Relaves, 2020"*) meaning a dam raise schedule that allows storage of the IDF is required. The dam crest (min. targets) is to be raised one year ahead of operational requirements.
5.11	Water Reclaim Strategy	Aurelian stipulated that water reclaim is via pumping from a floating barge on the operating pond (design by Others). 100% of tailings transport water will be reclaimed to the Process Plant (outside KCB work scope). Excess water will be delivered to the WTP (outside KCB work scope). Water reclaim pipelines entry is from the north along the East Diversion Channel (see Item 9.0). Designed by Aurelian.
6.0	**Slope Stability Analysis**	
6.1	Observational Approach (Peck 1969)	Peck (1969) observational methods will be adopted for the construction. Each raise should also provide reasonable liner anchoring intervals and timeline to suit construction, operation, and safety requirements. Dam construction is staged to extend the downstream toe line with flatter and benched slopes to mitigate likelihood of weaker saprolite near surface and presence of alluvium/colluvium, and to

<table>
<tr><th>Item</th><th colspan="2">Design Basic</th></tr>
<tr><td></td><td></td><td>allow time for dissipation of pore pressures generated by construction fill loading and associated consolidation settlement.</td></tr>
<tr><td>6.2</td><td>Factor of Safety
(CDA 2014)</td><td><table><tr><th>Loading Condition</th><th>Factor of Safety</th></tr><tr><td>During Construction</td><td>≥ 1.4</td></tr><tr><td>Staged Construction</td><td>≥ 1.5</td></tr><tr><td>End-of-Construction / Long term (Steady-State Seepage)</td><td>≥ 1.5</td></tr><tr><td>Post-Earthquake</td><td>≥ 1.0</td></tr></table></td></tr>
<tr><td>6.3</td><td>Seismic Deformations</td><td>Allowable deformation less than 1 m to meet the following criteria:
Cannot compromise functionality of filters or underdrains.
Crest settlement must be less then specified freeboard.
Does not compromise integrity of the embankment – remedial works are acceptable.</td></tr>
<tr><td>6.4</td><td>Excess Pore Pressure and Phreatic Surfaces</td><td>Excess pore pressures have been observed in the foundation during dam construction; thus, a pore pressure coefficient (B-bar) will be used for the stability analysis during construction loading.</td></tr>
<tr><td>7.0</td><td colspan="2">Seepage Analysis and Control</td></tr>
<tr><td>7.1</td><td>Strategy</td><td>Reduce embankment seepage and reduce seepage gradients through dam/foundation (colluvial, transition zone).
The seepage control measures comprise:
A fully geomembrane-lined upstream embankment slope
Saprolite-cement upstream core
Native saprolite upstream of the blanket liner
Tailings deposition (beach) against the upstream embankment slope; and
a “blanket” geomembrane liner extending 200 m into the basin and in borrow areas where transition zones may be exposed.
Tailings deposition strategy will be coupled with liner design to assist with seepage control.</td></tr>
<tr><td>7.2</td><td>Geomembrane Liner System</td><td>Linear Low-Density Polyethylene (LLDPE). Selection based on compatibility with potential irregular surfaces and higher strain allowance compared to other liners.
Nominal allowable design strains based on Peggs (2005).
Fill piles or spot loads ballast fill during installation for uplift prevention.</td></tr>
<tr><td>7.3</td><td>Seepage Management</td><td>Seepage reporting to the Seepage Collection Pond downstream of the TSF will be captured and reclaimed to the decant pond or</td></tr>
</table>

Item	Design Basic	
		released if meeting all water quality discharge criteria. Reclaim system to be designed by Others.
8.0	**Surface Water Management and Erosion Protection**	
8.1	Strategy	In November 2017, SENAGUA approved the water diversion strategy in Doc No. 011-2016-DHS-E considering the East Diversion Channel only. Divert non-contact water around the TSF perimeter (east side) via lined (riprap) channels excavated along the valley walls. Non-contact water discharge strategy is by Aurelian following the requirements of the environmental permit.
8.2	East Diversion Channel and East Chute	The East Diversion channel was designed for the 1:100-year storm, 24-hour event. During events greater than the design event, excess water will be routed through outlet structures at crossings with natural creeks along the channel with discharge into the TSF impoundment. The East Chute is designed to convey flow from East Diversion Channel plus additional flow from creeks inlets along the chute alignment, for the 1:100-year storm. Additional design issues for the east channel are not considered.
8.3	TSF Closure Spillway	No spillway during operations. IDF is stored. Spillway to be added for closure. The invert level depends on the minimum tailings beach width (assumed as minimum 100 m width over the peak elevation of the routed flood event or to be determined based on the anticipated flatter beach slope at closure, due to lower solids content). Closure Spillway will be designed to route 24-hour PMP for upstream catchment, riprap lined channel, with a riprap lined chute and a stilling basin prior to discharge. The closure spillway could discharge into the East chute; however, the performance of the East chute during operation should be confirmed to assess viability of this option as the East Chute was designed for operation only.
8.4	Water Balance Modelling	The water balance will include the following scenarios of diversion: • Base Case: East Diversion Channel. • Inputs (or Inflows) to the TSF are: • Precipitation over the tailings impoundment surface and pond area. • Direct catchment runoff from the undiverted catchment area. • Tailings slurry transport water. • Water reclaim pumped back to the TSF from the Seepage Collection Pond. • Losses (or outflows) to the TSF are:

Item	Design Basic	
		• Evaporation from the tailings impoundment. • Evaporation from the undiverted catchment areas. • Entrainment water in the deposited tailings in the tailings voids. • Seepage water losses (reporting to the Seepage Collection Pond). As stipulated by Aurelian, 100% of tailings transport water will be reclaimed to the process plant. Excess will be delivered to the WTP for treatment and then delivered to the environment.
9.0	**Instrumentation and Monitoring**	
9.1	Strategy	Instrumentation and monitoring results during construction and operations must be used to confirm agreement between actual and expected behavior (Observational Approach, Peck 1969). Design section should be refined and/or optimized based on actual behavior. Instrumentation installed during 2019 through 2022 construction must be maintained and continue with monitoring. Additional instruments may be recommended for next construction to help monitor dam performance as required
9.2	Monitoring	Monitoring will include, without being limited to: • Control tailings surface and pond water level • Tailings beach surveying and pond monthly bathymetry. • Daily pond levels recording, tailings volume tracking and comparison with the stage storage curve. • Flow rates monitoring • Seepage mapping and recording of flow rates (weirs), turbidity, and locations. • Instrumentation installed • Standpipe piezometer and piezometers within the dam and foundation. • Vibrating Wire Piezometers • Settlement Plates • Two in-place Inclinometers with settlement gauges to evaluate foundation and fill deformations • Three surveys monuments on dam crest • One accelerometer on west downstream abutment Instrumentation projected to Stage 3 and Stage 4 (preliminary): • Vibrating Wire Piezometers • Settlement Plates Readings • Survey Monuments • The instrumentation installed is shown in Attachment I (Table I-4 to Table I-8) • Instrumentation monitoring frequency to be updated based on construction/operating conditions and observed behavior of each instrument.

Item	Design Basic	
		• Environmental monitoring is by Aurelian and is not included herein.
9.3	Inspections	Inspection considered based on OMS Manual. Routine weekly inspections and immediately after seismic/storm events regardless of the magnitude of the events (Aurelian). • Monthly Inspections. • Dam Safety Inspection (DSI) one per year.
10.0	**Conceptual Closure Strategy**	
10.1	Strategy	• After closure, natural runoff within the catchment will ingress into the pond. Water treatment will continue for up to 2 years to meet discharge criteria (Table I-3). • Other closure strategies include: • Closure spillway (Item 8.3) at east abutment designed prior to closure. The East Chute is designed for operations as stipulated by Aurelian; therefore, the viability of using the chute for closure shall be evaluated prior to closure. • Minimum tailings beach established to maintain pond away from the dam. • Reclaimed tailings beach above water with reinforced erosion protection mat (or other) and revegetation by hydro-seeding designed prior to closure. • Decommissioning of East Diversion Channels and Seepage Collection Pond after meeting water quality criteria. Removed material may be used to buttress the dam provided drainage conditions are achieved. • Polishing Pond closure strategy by Aurelian.
10.2	Post-Closure Water Quality	Monitor the ratio of the constituent concentration in the pond compared with the potential tailings supernatant water quality (dilution factor). Water quality monitoring will be through Seepage Collection Pond and Casagrande piezometer installed downstream of the dam by Aurelian in accordance with local regulations.

20.5 Sustainability Strategy

Upon entering the operational phase at FDN, Lundin Gold commenced the development of a 5-year sustainability strategy. This strategy was built around the inputs from a range of internal stakeholders (e.g., environment, health & safety, human resources, the Lundin Gold Executive Committee), internal processes (e.g., risk management, crisis management) and drew upon the insight generated from external stakeholders (e.g., through the roundtable process highlighted below). The strategy includes the following eight pillars:

- Climate change

- Community infrastructure
- Community well-being
- Environmental stewardship
- Health and safety
- Human rights
- Lasting economic opportunities
- Responsible resource management

The strategy also explicitly notes the following enablers that are key to meeting the Company's sustainability targets:

- Accountability and management systems
- External communications, sustainability and financial reporting
- Strategic partnerships
- Participatory dialogue

Importantly, the strategy includes a monitoring and evaluation framework for each pillar which includes KPIs and specific targets.

20.5.1 Stakeholder Engagement

Upon arrival in 2015, Lundin Gold prioritized stakeholder engagement as a means to understand the perceptions, challenges, and opportunities that the construction and operation of a large-scale mine represents for local communities. This process started over a six-month period in early 2016 during which the Company actively listened to local communities to understand how each one perceived large-scale mining. A long list of topics was compiled and then prioritized by the local communities. The resulting short list of eight topics then became the topics covered in community roundtables. These met from mid-2016 through early 2020 every six weeks. The roundtables were paused during the pandemic, and in late 2020, the local government expressed its desire to restart the process. Since that time, five topics have been prioritized and the roundtables continue to meet every six weeks. The topics currently addressed through this process are:

- Training and certifications
- Local entrepreneurship

- Infrastructure and connectivity
- Agricultural diversification
- Environmental stewardship

Each of the five roundtables is independently facilitated and seeks to identify the root causes of the issues and challenges identified. These root causes inform the Company's community investment strategy.

Lundin Gold also has an IFC-complaint grievance mechanism that has been in place since 2016. This mechanism was designed with input from local stakeholders and the Company provides updated information staff and local communities on how the mechanism functions.

20.5.2 Community Investment

As noted above, Lundin Gold prioritizes its community investment according to the topics identified in the roundtable process and in alignment with its 5-year sustainability strategy. Examples of such investments include infrastructure (e.g., the first emergency room in the province, road maintenance, internet access), education (e.g., programs to help students to stay in school and access the Ecuadorian university system), and economic development (e.g., small business development, local procurement, and local employment).

From the beginning of the roundtable process, Lundin Gold has committed to prioritizing local citizens and companies in its employment and procurement processes. These processes have proven successful both during the construction phase and in operations. Currently, approximately half of the Company's staff is from the province of Zamora Chinchipe and over 90% is from Ecuador. Additionally, the Company's procurement from provincial companies has recently been more than $30 million annually.

20.5.3 Artisanal and Illegal Mining

The Company has observed increasing levels of informal and illegal mining in the province of Zamora Chinchipe. Lundin Gold maintains a two-pronged strategy. When the informal miners are local community members, the company seeks to formalize their mining activities. This requires the artisanal miners to comply with all relevant laws and regulations and the Company monitors their activities to ensure that such compliance is met. When the miners in question are not operating at an artisanal scale and / or when they are not local community members, the Company files legal complaints with the mining regulator, who then seeks to ensure that the illegal mining activities cease.

21 CAPITAL AND OPERATING COSTS

21.1 Summary

The life of mine sustaining capital and operating costs for FDN are summarized in Table 21.1 and Table 21.2. All amounts are expressed in United States dollars (USD). Mine closure costs are not included in Table 21.1 and are provided separately in this section.

Table 21.1: Summary of Life of Mine Capital Costs (USD M) Excluding Taxes

Mine	2022 Actual Costs	2023	2024	2025	LOM Total (2023-2034)
Mine	$5.3	$8.5	$6.3	$6.4	$45.6
Process Plant	$1.5	$12.0	$9.1	$6.1	$35.9
TSF	$20.0	$17.5	-	$27.5	$131.7
Site & Warehouse Infrastructure	$4.3	$8.1	$11.1	$2.8	$21.9
Mobile Equipment	$3.1	$1.6	$2.6	$7.2	$38.5
Other Capital	$1.2	$2.7	$2.3	$1.6	$10.9
Total	$35.4	$50.4	$31.3	$51.5	$284.5

Source: FDN 2023

Table 21.2: Summary of Life of Mine Operating Costs (USD M)

Mine	2022 Actual Costs	2023	2024	2025	LOM Total (2023-2034)
Mine	$100.4	$112.1	$104.4	$101.2	$1,030.8
Process Plant	$54.7	$58.6	$59.1	$59.3	$665.9
G&A	$50.2	$53.2	$53.5	$53.1	$579.2
Surface	$5.6	$6.4	$6.5	$6.5	$66.8
Site Services	$21.3	$21.0	$20.1	$19.6	$213.8
Total	$232.2	$251.3	$243.6	$239.7	$2,556.5

Source: FDN 2023
Note: Cost exclude offsite costs such as concentrate and doré transportation and treatment charges.

21.2 Capital Costs

Underground mine infrastructure capital costs include lateral (ramps, crosscuts, and drift) and vertical (ore passes, waste passes, and ventilation raises) development. Excavation and construction of underground infrastructure include items related to loading stations, garage and electrical.

TSF capital costs relate to TSF raises and maintenance of the TSF.

Process plant capital costs are mainly related to regular process and equipment reliability improvements. Studies and engineering will commence in 2023 to debottleneck the process plant to reliably achieve 4,400 tpd. No flowsheet changes nor significant process plant upgrades are expected due to the treatment of ore from the south zone of the mine.

Site and warehouse capital costs include general costs for maintaining non TSF infrastructure items.

Mobile equipment capital costs are mainly related to the mine mobile fleet. Some costs are allocated to light vehicle and surface mobile equipment.

Other capital costs include camp, IT, supply chain and health and safety related items.

21.3 Operating Costs

Mine operating costs include costs related to labour, development, long hole stoping, underground cut and fill, mobile fleet operation, fixed facilities, support operations and mine G&A

Process operating costs include costs related to labour, reagents and consumables, power, support operations, paste plant operation, plant and infrastructure maintenance and process G&A

Surface costs include costs related to operating and maintaining surface operations and surface G&A costs

G&A costs include general administration, health and safety, finance, IT and communications, supply chain and warehouse, human resources, security, environmental compliance and permits and site services.

21.4 Closure Costs

Life of mine closure costs are estimated at $22.7M excluding taxes.

22 ECONOMIC ANALYSES

This section is not required for issuers with operating assets.

23 ADJACENT PROPERTIES

This section is not relevant to this Report.

24 OTHER RELEVANT DATA AND INFORMATION

There is nothing to report under this section.

25 INTERPRETATION AND CONCLUSIONS

25.1 Mineral Tenure, Surface Rights, Royalties and Agreements

Information from legal experts confirms that the mining tenure held is valid and is sufficient to support declaration of Mineral Resources and Mineral Reserves.

25.2 Geology and Mineralization

- The FDN deposit is an intermediate sulphidation epithermal gold-silver deposit measuring 1,300 m along strike, 400 m down dip, and generally ranging between 80 m and 300 m wide. The top of the deposit is located beneath approximately 200 m of post-mineralization cover rocks.
- The eastern and western limits of the deposit are defined by two faults which together form part of the Las Peñas fault system which is thought to control the gold-silver mineralization.
- The Central fault displaces the FDN system between the West fault and East Fault Zones and appears to be the source of the hydrothermal activity. Gold grades tend to be higher near the Central fault.
- The mineralization is characterized by intense, multi-phase quartz-sulphide ± carbonate stockwork veining and brecciation. Hydrothermal alteration consists primarily of a silica (quartz, chalcedony)–illite–pyrite (±marcasite)–carbonate mineral assemblage formed by relatively low acidity fluids.
- The southern limits of the mineralization along the fault system have not been fully defined by exploration activities.
- Knowledge of the FDN deposit settings, lithologies, mineralization style and setting, and structural and alteration controls on mineralization is sufficient to support Mineral Resource and Mineral Reserve estimation.

25.3 Introduction

The QPs note the following interpretations and conclusions in their respective areas of expertise, based on the review of data available for this Report.

25.4 Exploration, Drilling and Analytical Data Collection in Support of Mineral Resource Estimation

- The quantity and quality of the lithological, geotechnical, collar and downhole survey data collected in the exploration and infill drill programs conducted during the Aurelian, Kinross and Lundin Gold campaigns are sufficient to support Mineral Resource and Mineral Reserve estimation.
- Following the acquisition by Lundin Gold in 2014, drilling programs were completed with a focus on the mine development and construction, regional exploration, and more recently, Mineral Resource classification upgrade and near mine exploration. Since the last Mineral Resource update, Lundin completed some 212 drill holes, totalling 70,445 m.
- Since 2020, Lundin Gold has been advancing its - conversion program at the FDN, with the objective of upgrading Inferred Mineral Resources to Indicated. To date, a total of 18,340 m of underground drilling in 88 drill holes has been completed by Lundin Gold.
- Lundin Gold's exploration drilling focused on Southern Basin at Rio Blanco, Puma, Barabasco and Puente Princesa targets totalled 32,696 m in 41 drill holes. The near mine exploration program including FDN North depth extension and FDN South targets totalling 8,646.6 m in 19 drill holes was completed in 2022.
- Drill hole inclinations vary significantly (from -45° to -84°) and the mineralized zones have variable dips from moderate to steep westerly to steep easterly dips. Therefore, most drill holes intersect the mineralized zones at an angle, and the drill hole intercept widths reported for the Project are greater than true widths.
- Sample security procedures met industry standards at the time the samples were collected. Current sample storage procedures and storage areas are consistent with industry standards.
- Data verification has been extensively conducted by SLR, and no material issues have been identified by those programs. In addition, Aurelian, Kinross and Lundin Gold have regularly used various procedures to verify the quality of the data.
- Data collected have been sufficiently verified that they can support Mineral Resource and Mineral Reserve estimation and be used for mine planning purposes.

25.5 Mineral Resource Estimates

- Mineral Resources for the FDN were estimated using drill hole data available to October 1, 2022, consisting of 294 drill holes (120,326 m).
- The lithological and mineralization models have been diligently constructed and have been prepared using industry-standard practices.

- The Mineral Resource estimate was prepared by Lundin Gold. 3D solid models of the lithology, degradation, faults and alteration were constructed; compositing, exploratory data analysis including variography; interpolation; statistical validation; and resource classification were completed. Validation of the resulting model was performed. The estimated elements in the model, using an OK estimator, are gold, silver, and sulfur. Density data was estimated employing the ID^2 interpolation method. to convert volume to tonnes
- Mineral Resources have had reasonable prospects of eventual economic extraction considerations applied. Mineral Resources were reported at a block cut-off grade of 3.4 g/t Au. Silver was not included in the cut-off grade calculation due to its relatively low grade and small contribution to the value of the mineralization.
- Mineral Resources are reported inclusive of Mineral Reserves and depleted by the mining activities till December 31, 2022. Mineral Resources have been estimated using standard practices for the industry, and conform to the 2014 CIM Definition Standards
- Factors which may affect the estimates include: metal price and exchange rate assumptions, changes to the assumptions used to generate the cut-off grade value, changes in local interpretations of mineralization geometry and continuity of mineralization zones, density and domain assignments, changes to design parameter assumptions that pertain to stope designs, changes to geotechnical, mining and metallurgical recovery assumptions, assumptions as to the continued ability to access the site, retain mineral and surface rights titles, obtain environmental and other regulatory permits, and maintain the social licence to operate.

25.6 Mineral Reserve Estimates

- The mine plan is based on Measured and Indicated Mineral Resources. The Inferred Mineral Resources grades were set to zero for the purposes of Mineral Reserve estimation.
- The Mineral Reserve estimates are based on the most current knowledge, and actual operational experience. Mineral Reserves have been estimated using standard practices for the industry, and conform to the 2014 CIM Definition Standards.
- Reconciliation to production indicates that Mineral Reserve parameters and estimates are working well, and providing a good model of production results.
- The South Zone is lower grade and less continuous than the currently mined North & Central Zone. Considerable quantities of marginal mineralization are present, and further conversion to Mineral Reserves in this area is likely in scenarios with lower cut-off grades (higher gold prices or reduced unit operating costs).

- Factors that may affect the Mineral Reserves include long-term commodity price assumptions, and long-term consumables price assumptions. Other factors that can affect the estimates include changes to: Mineral Resources input parameters, constraining stope designs, cut-off grade assumptions, geotechnical and hydrogeological factors, metallurgical and mining recovery assumptions, and the ability to control unplanned dilution.

25.7 Mining Plan

- The mine plan required consideration of the following key factors:
  - The host rock for the deposit appears competent but the resource zone is less competent with a small portion in Poor rock (less than 8%). Geomechanically, the rock mass quality varies from Poor to Fair (RMR range 40 to 55) with the intact rock strength averaging 60 MPa. The deposit is also relatively close to surface (within 140 m of surface in some locations).
  - Given the variable conditions likely to be encountered, a range of methods and/or support regimes was considered appropriate for FDN. The primary methods of extraction selected are Longhole Stopes in the better ground conditions and D&F in the more challenging areas.
  - Use of backfill to reduce the risk of geotechnical failure and maximize extraction.
- The West, Central, and portions of the East Fault are significant fault structures that represent a risk to the stability of an open stoping method and subsequently these areas are considered suitable only for a limited man-entry mining method where conditions can be well controlled such as D&F. Not all structures could be modelled, and the influence of the secondary and tertiary level structures is not well understood in some areas.
- Degradation of Suárez Formation conglomerate results in difficult mining conditions that can be mitigated through extraordinary ground support (full shotcrete lining and invert) which will be a high mining cost with slow advance rates.
- The paste plant has been designed for a nominal throughput of 70 m^3/h and will operate at an average utilization rate of approximately 60%. The main pour target strength of 300 kPa will be reached after 14 days with a plug pour target strength of 434 kPa after three days. The nominal design production rate of the CRF plant is 180 m^3/h. The CRF target strength of 3 MPa to 5 MPa will be reached after seven days.
- The main ventilation system is designed to accommodate the initial ore production rate and the ramp-up to the required tpd. The ventilation system proposed is a mechanical exhaust ventilation system (pull) where fresh air will enter by suction.

- Material handling requirements have been minimized by relying on mobile equipment for transport instead of permanent infrastructure and facilities.
- Mine operations will continue using the same equipment for development for Longhole Stopes and for D&F. Drilling, support, loading and hauling equipment are the same for both methods. Metallurgy and Mineral Processing

Significant metallurgical test work has been completed on ore samples from various parts of the ore deposit. Detailed summaries of historical metallurgical test work programs can be found in previous technical reports such as Amec Foster Wheeler et al, 2016. Subsequent metallurgical test work programs were undertaken to support the current process plant design.

No significant metallurgical test work programs have been completed since the process plant was commissioned. However, FDN Operations have commenced with implementing a geometallurgical procedure for predicting plant metallurgical performance. Chemical analysis and assays, gravity tests, flotation bench scale tests, leach tests and environmental tests are completed at the onsite metallurgical laboratory. Any grindability, mineralogy, deportment studies or specialized tests are completed at external laboratories as required.

The process plant has been generally treating ore feed grades of approximately 11 g/t Au and achieving approximately 89-90% average gold recovery. The life of mine average gold and silver metallurgical recoveries are 89% and 82% respectively.

Select core samples from the south zone were recently tested at FDN's on-site metallurgical laboratory and confirmed similar metallurgical response of ore via the existing treatment route. Additional metallurgical test work as part of the site's ongoing geometallurgical procedure is recommended to further characterize the ore from this new future mining zone.

The FDN process plant currently treats ore via a conventional flotation-cyanidation process. Run-of-mine (ROM) ore is processed via a conventional primary crusher and SAG-Ball mill comminution circuit followed by gravity circuit. Gravity tailings are treated in a conventional rougher-cleaner flotation circuit to produce gold concentrate for sale. Flotation tailings are treated via a CIL process and associated gold recovery and carbon handling circuits to produce gold doré. CIL tailings are treated via cyanide destruction process prior to use at the paste plant or stored in the TSF.

The process plant was constructed and commissioned in 2019 and achieved nameplate of 3,500 tpd in 2020. The process plant was subsequently upgraded in 2021 to treat 4,200 tpd. Studies and engineering will commence in 2023 to debottleneck the process plant to reliably achieve 4,400 tpd. No flowsheet changes nor significant process plant upgrades are expected due to the treatment of ore from the south zone of the mine.

25.8 Infrastructure

FDN includes the following major infrastructure:

- Main access road
- Underground mine
- Process plant
- Main grid power line
- Truckshop
- The Mine Office/Dry building
- Main office building
- Electrical room and control room
- Workshop
- Canteen
- First aid station and fire station
- Laboratory
- Warehouse and laydown area
- Short term concentrate container storage
- Permanent camp
- Greenhouse
- Communications systems
- Security access control at the main gate along the access road and at the process plant. Only authorized personnel are permitted on site.
- Waste storage facilities
- Stockpiles
- TSF

25.9 Environmental, Permitting and Social Considerations

25.10 Existing Permits

Environmental license for exploitation phase for FDN was issued in 2016. Major and minor permits have been obtained for normal operation, some of them renewed on a yearly basis. None of these permits are expected to be updated due to the increase in the throughput to 4,400 tpd.

25.11 Existing Monitoring Results

FDN operations complies with the national and local environmental requirements and decided to voluntarily comply with the International Financial Corporation (IFC) performance standards. Lundin Gold monitors the environmental aspects with the support of external labs certified by the national authority. Reports to the authority are submitted on a quarterly basis. No changes to the actual monitoring plans are expected due to the increase in the throughput to 4,400 tpd.

25.12 Closure Requirements

Closure planning has been undertaken to a conceptual level and will be continually updated throughout the mine life. The definitive closure will be done in accordance with Art. 124 of RAAM, which requires that the definitive Closure Plan must be presented two years prior to cessation of operations.

25.13 Markets and Contracts

The principal commodities produced at FDN are gold and silver in the form of doré bars and gold-silver concentrate. The doré bars are sold under the terms of the Offtake agreement with Newcrest Mining. The concentrate is sold under the terms of contracts covered in Section 19. Several contracts are in place for the FDN operations.

25.14 Capital and Operating Cost Estimates

Total planned capital cost spending for FDN from 2023-2034 is estimated at $285M.

Total planned operating cost spending for FDN from 2023-2034 is estimated at $2,557.

26 RECOMMENDATIONS

26.1 Exploration

The exploration program should continue to focus on sectors within and around the existing operation, where distinct targets of interest with similar geological conditions to FDN remain essentially untested. These areas represent significant exploration opportunities and are located along the continuities of the deposit or along the south extension of the Suarez Basin south from FDN. The exploration program proposed for the next three years has the following objectives:

- Explore the extension of the FDN deposit, where the mineralized envelope remains open.
- Explore the continuities of the main FDN controlling structures for new vein systems.
- Explore for new epithermal systems in areas that have similar favourable lithology to FDN and are coincident with geochemical anomalies of gold and epithermal pathfinder elements but that remain untested.

The proposed exploration program to be conducted in the next three years includes a minimum of 40,000 m of drilling from both underground and surface, new geophysical surveys, geological mapping, and geochemical sampling. The overall exploration budget to complete the proposed three-year program is estimated to be from $18 million to $20 million.

26.2 Mineral Reserves and Life of Mine Planning

- Complete the Geotechnical Study update (SRK), including the south zone.
- Complete the debottlenecking studies and project in order to reach the expected mining rates of 4400 tpd.
- Optimize DSO variables to suit the mining method selected to enhance the project economics. Incorporate the use of the DSO head grade cut-off function.
- Monitor metal price fluctuations and trends and adapt the LOM plan as required to maximize value.
- Ensure that ventilation models are updated regularly to reflect the current state of the vent system.
- Maintain adequate air velocities for effective gas clearing.

27 REFERENCES

Amec Foster Wheeler, 2016: Aurelian Ecuador S.A., Fruta del Norte Feasibility Study: report compiled for Aurelian Ecuador S.A., two volumes plus appendices, May 2016.

Amec Foster Wheeler, 2016: Fruta del Norte Project, Ecuador, NI 43-101 Technical Report: technical report prepared for Lundin Gold, effective date April 30, 2016.

Bustamante, 2012: Mining Sector – Current Situation in Ecuador: report prepared March 2012 by the law firm Bustamante and Bustamante, http://www.infomine.com/library/publications/docs/Bustamante2012.pdf.

Australian Government Department of Industry, Tourism and Resources, 2006: Mine Closure and Completion: handbook prepared by the Australian Government, Department of Industry, Tourism and Resources, Canberra, October 2006, 73 p.

Australian Government Department of Industry, Tourism and Resources, 2011: Guidelines for Developing Innovative Sustainable Practices in Mining: guidelines prepared by Australian Government, Department of Industry, Tourism and Resources, Canberra, July 2011, 210 p.

Balkwill, H.R., Rodrigue, G., Paredes, F.I., and Almeida, J.P., 1995, Northern part of Oriente Basin, Ecuador: Reflection seismic expression of structures: American Association of Petroleum Geologists Memoir 62, p. 559–571.

Barragan, R., and Baby, P., 2017, Evolución tectónica de la sección Pre-Cretácica, cuenca Oriente-Marañón, in Cabero, A., Zúñiga, M.A., Le Pennec, J.-L., Narváez, D., Hernández, M.J., Nocquet, J.M., and Gómez, F.V., eds., Memorias VIII Jornadas en Ciencias de la Tierra: Quito, EPN (Escuela Politécnica Nacional) Editorial, p. 43–47

Canadian Institute of Mining, Metallurgy and Petroleum (CIM), 2003: Estimation of Mineral Resources and Mineral Reserves, Best Practice Guidelines: Canadian Institute of Mining, Metallurgy and Petroleum, November 23, 2003.

Canadian Institute of Mining, Metallurgy and Petroleum (CIM), 2014: CIM Definition Standards for Mineral Resources and Mineral Reserves: Canadian Institute of Mining, Metallurgy and Petroleum, May, 2014.

Canadian Securities Administrators (CSA), 2011: National Instrument 43-101, Standards of Disclosure for Mineral Projects, Canadian Securities Administrators.

Caputo, M.V., 2014, Juruá orogeny: Brazil and Andean countries: Brazilian Journal of Geology, v. 44, p. 181–190.

Cardno Entrix, 2016: Actualización del Estudio de Impacto Ambiental del Proyecto Minero Fruta del Norte, para la fase de Explotación e Inclusión de las Fases de Beneficio, Fundición y Refinación de Minerales Metálicos en el Área Operativa de la Concesión

La Zarza (Cód. 501436) e Infraestructura Complementaria en las Concesiones Colibrí 2 (Cód. 501389) y Colibrí 4 (Cód. 501433), Además de la Explotación de Materiales de Construcción en la Concesión Colibrí 4 (Cód. 501433): report prepared by Cardno Enxtri for Aurelian, March 2016.

Day, S. 2009: Estimation of Calcium and Magnesium Carbonate Neutralization Potential for Refined Acid-Base Accounting Using Electron Microprobe and X-Ray Diffraction: Proceedings of 8th International Conference on Acid Rock Drainage. Skellefteå, Sweden, June 23 to 26, 2009.

Deere, D.U., and Patton, F.D. 1971: Slope Stability in Residual Soils: Proceedings, 4th Pan-American Conference on Soil Mechanics and Foundation Engineering, San Juan., Vol. I, pp. 87–170.

De la Torre, R., and Carcelén, J., 2015: Ecuador: report posted to Latin Lawyer, June 2015: http://latinlawyer.com/reference/topics/46/jurisdictions/32/ecuador/.

Ellis, R. B., 2012: Review of Aeromagnetic Data, Fruta del Norte Deposit, Zamora-Chinchipe Province, Ecuador: internal report prepared for Kinross Gold Corporation internal use, 12 p.

European Union, 2009: Commission Decision of April 30, 2009 Completing The Definition Of Inert Waste In Implementation of Article 22(1)(f) of Directive 2006/21/EC of the European Parliament and the Council Concerning The Management Of Waste From Extractive Industries (2009/359/EC).

Evans, L., Bergen, D., and Krutzelmann, H., 2010: Fruta del Norte Gold-Silver Deposit Mineral Resource Audit, Ecuador: report prepared for Kinross Gold Corporation internal use, 162 p.

Evans, L., Ross, D., and Scholey, B., 2014: Technical Report On The Mineral Resource Estimate, Fruta del Norte Project, Ecuador: technical report prepared by RPA Inc. for Fortress Minerals Corp., effective date October 21, 2014.

Fontboté, L., Valance, J. Markowski, A. and Chiaradia, M., 2004: Oxidized Gold Skarns in the Nambija District, Ecuador: 2004 Society of Economic Geologists Special Publication 11, pp. 341–357.

Fraser Institute, 2016: 2015 Fraser Institute Annual Survey of Mining Companies: March 2016, https://www.fraserinstitute.org/studies/annual-survey-of-mining-companies-2015.

Garcia J. and López J., 1970: Fórmula para el Cálculo de la Evapotranspiración Potencial Adaptada al Trópico (15°N – 15°S): Agronomía Tropical, Vol 20(5), pp. 335–345.

Gemuts, I., Lopez, G. and Jimenez, F., 1992: Gold deposits of Southern Ecuador: Society of Economic Geologists, Newsletter No. 11, October 1992, pp. 1, 13-16.

Gendall, I. R., Quevedo, L. A., Sillitoe, R. H., Spencer, R. M., Puente, C. O., León, J. P. and Povedo, R., 2000: Discovery of a Jurassic Porphyry Copper Belt, Pangui area, Southern Ecuador: Society of Economic Geologists, Newsletter No. 43, October 2000. pp. 1, 8–15.

G Mining Services, 2022: Closure Plan – Fruta del Norte: report prepared by G Mining Services Inc. for Lundin Gold, January 2022.

Golder Associates, 2009: Preliminary Geotechnical Characterization, Fruta del Norte Gold Project, Ecuador: report prepared for Aurelian Resources.

Government of Ecuador, 2012: Ecuadorian Mining Law: http://www.eisourcebook.org/cms/February%202016/Ecuadorian%20Mining%20Law.pdf.

Government of Ecuador, 2018: Environmental Organic Code: Official Gazette Supplement 983 of 12-Apr.-2017

Hall, L., 2008: Preliminary Structural Study of the Fruta del Norte Epithermal Gold Deposit: report prepared for Aurelian Resources.

Hatch Ltd., 2011: Pre-feasibility Study Report to Kinross Gold Corporation for Fruta del Norte Project: internal study prepared by Hatch for Kinross Gold Corporation, February 11, 2011, 20 vols.

Hatch Ltd., 2012a: Alternative Flowsheet Test Work Review, H332959-0000-05-124-0004, Rev. A: internal study prepared for Kinross Gold Corporation.

Hatch Ltd., 2012b: Feasibility Study Report to Kinross Gold Corporation for Fruta del Norte Project: internal study prepared by Hatch for Kinross Gold, February 8, 2012, 23 vols.

Hatch Ltd., 2013: Fruta del Norte 5000 t/d GFL Update Study Summary Report; internal document prepared for Kinross Gold, June 18, 2013, 130 p.

Hedenquist, J.W., Arribas A., Jr, and Urien-Gonzales, E., 2000: Exploration for Epithermal Gold Deposits: Society of Economic Geologists Reviews in Economic Geology Vol 13, p. 245–277.

Henderson, R., 2009: Fruta del Norte Project, Ecuador, NI 43-101 Technical Report: technical report prepared for Kinross Gold Corporation, effective date December 31, 2009.

Hennessey, T., Puritch, E., Gowans, R., and Leary, S., 2008: A Mineral Resource Estimate for the Fruta del Norte Deposit, Cordillera del Cóndor Project, Zamora-Chinchipe Province, Ecuador: technical report prepared by Micon International Ltd. for Aurelian Resources Inc., readdressed to Kinross Gold Corporation, effective date November 15, 2007, amended October 21, 2008.

Hennessey, T., Puritch, E., Gowans, R., and Leary, S., 2008: A Mineral Resource Estimate for the Fruta del Norte Deposit, Cordillera del Cóndor Project, Zamora-Chinchipe Province, Ecuador: technical report prepared by Micon International Ltd. for Aurelian Resources Inc., effective date November 15, 2007.

Hennessey, B.T. and Stewart, P.W., 2007: A Review of the Geology of, and Exploration and Quality Control Protocols Used at the Fruta del Norte Deposit, Cordillera del Cóndor Project, Zamora-Chinchipe Province, Ecuador: technical report prepared by Micon International Ltd. for Aurelian Resources Inc., dated December 2006, effective date January 9, 2007.

Hennessey, B.T. and Puritch, E., 2005: A Mineral Resource Estimate for the Bonza-Las Peñas Deposit, Cordillera del Cóndor Project, Zamora-Chinchipe Province, Southeastern Ecuador: technical report prepared by Micon International Ltd. for Aurelian Resources Inc., effective date January 13, 2005.

International Council on Mining and Metals (ICMM), 2008: Planning for Integrated Mine Closure: Toolkit. London, UK: www.icmm.com.

International Finance Corporation (IFC)'s 2012 Performance Standards on Environmental and Social Sustainability

International Finance Corporation (IFC)'s 2012 general and specific guidelines for the mining industry on environmental, health, and safety (EHS)

Jaillard, E., 1997, Discusión de algunos problemas estratigráficos de la Cuenca Oriental ecuatoriana, in Jaillard, E., ed., Síntesis estratigráfica y sedimentológica del Cretáceo y Paleogeno de la Cuenca Oriental del Ecuador: Convenio ORSTOM-Petroproducción, Quito, ORSTOM, p. 37–47.

Jaillard, E., Hérail, G., Monfret, T., Díaz-Martínez, E., Baby, P., Lavenu, A., and Dumont, I.F., 2000, Tectonic evolution of. the Andes of Ecuador, Peru, Bolivia and northernmost Chile, in Cordani, U.G., Milani, E.J., Thomaz Filho, A., and Campos, D.A., eds., Tectonic evolution of South America: International Geological Congress, 31st, Rio de Janeiro, Sociedade Brasileira de Geologia, p. 481–559.

Klohn Crippen Berger, 2011: Fruta del Norte Feasibility Study, Plant Site Geotechnical Report: report prepared for Aurelian Resources, Number M09599A08, June, 2011.

Klohn Crippen Berger, 2015a: Fruta del Norte Feasibility Study, Feasibility Hydrology Assessment, Rev. P.: report submitted to Aurelian (Ecuador) S.A., Number M09978.A01, June, 2015.

Klohn Crippen Berger, 2015b: Fruta del Norte Feasibility Study, Plant Site and North Portal Geotechnical Foundation Recommendations, RevB2: report submitted to Aurelian (Ecuador) S.A., Number M09978.A01, December, 2015.

Klohn Crippen Berger, 2019: Tailings Storage Facility Design: report submitted to Aurelian (Ecuador) S.A., Number M09978.A05, July 2019.

Klohn Crippen Berger, 2020a: Tailings Storage Facility, Starter Dam Construction Summary Report: report submitted to Aurelian (Ecuador) S.A., Number EC30001A01, March 2020.

Klohn Crippen Berger, 2020b: Tailings Storage Facility Stage 1 and Stage 2 Dam Raises Design: report submitted to Aurelian (Ecuador) S.A., Number EC30001A02, August 2020.

Klohn Crippen Berger, 2021: Tailings Storage Facility, Stage 1 and Stage 2 Dam Raise Construction Summary Report: report submitted to Aurelian (Ecuador) S.A., Number EC30001A03, January 2021.

Klohn Crippen Berger, 2022a: Tailings Storage Facility Stage 3 Dam Raises Design: report submitted to Aurelian (Ecuador) S.A., Number EC30001A02, March 2020.

Klohn Crippen Berger, 2022b: Tailings Storage Facility 2022 Annual Dam Safety Inspection: report submitted to Aurelian (Ecuador) S.A., Number EC30001A03, July 2022.

Klohn Crippen Berger, 2022c: Tailings Storage Facility Seismic Hazard Assessment update: report submitted to Aurelian (Ecuador) S.A., Number EC30001A03, December 2022.

Klohn Crippen Berger, 2023a: Tailings Storage Facility Stage 4 Dam Raises Design: report submitted to Aurelian (Ecuador) S.A., Number EC30001A02, January 2020.

Klohn Crippen Berger, 2023b: Tailings Storage Facility, Stage 3 Dam Raise Construction Summary Report: report submitted to Aurelian (Ecuador) S.A., Number EC30001A06, February 2023.Kinross Gold Corporation, 2012a: Annual Information Form for the Year Ended December 31, 2012: 98 p.

Kinross Gold Corporation, 2012b: Annual Report: 156 p.

Kinross Gold Corporation, 2012c: Ranking Study, POX vs GFL: internal Kinross report, 1,096 p.

Kinross Gold Corporation, 2013: Kinross Announces It Will Cease Development of Fruta del Norte: news release dated June 10, 2013, 2 p.

Kinross Gold Corporation, 2014: Fruta del Norte Project Management Presentation, May 26, 2014: Kinross internal document.

Kuusa Soluciones Ambientales, 2021: Update of the environmental management plan for the Fruta del Norte Mining Project. Phases of: Exploitation, Beneficiation, Smelting and Refining of metallic minerals in the operational area of La Zarza Concession (Code 501436), construction of complementary infrastructure Colibri 2 (Code

501389) and Colibri 4 (501433) concessions: report prepared by Kuusa Soluciones Ambientales for Aurelian, March 2021

Lapointe, R, 2018: Technical Report: MET5 Final Summary, dated January 26, 2018

Leary, S., 2005: Target Assessment Report, Cóndor Project, Ecuador: internal report, Aurelian Resources.

Leary S., 2009: The Discovery and Geology of the Fruta del Norte Epithermal Gold-Silver Deposit, S.E. Ecuador: Drury Lecture, 2009 SME Annual Meeting & Exhibit & CMA 111th National Western Mining Conference, Denver, Colourado, February 22–29, 2009.

Leary, Stephen & Sillitoe, Richard & Stewart, Peter & Roa, Karl & Nicolson, Benjamin. (2016). Discovery, Geology, and Origin of the Fruta del Norte Epithermal Gold-Silver Deposit, Southeastern Ecuador. Economic Geology. 111. 1043-1072. 10.2113/econgeo.111.5.1043.

Leary, Stephen & Sillitoe, Richard & Lema, Jorge & Téliz, Fernando & Mena, Diego. (2020). Chapter 21: Geology of the Fruta del Norte Epithermal Gold-Silver Deposit, Ecuador. 10.5382/SP.23.21.

Litherland M., Aspden J.A., and Jemielita R.A., 1994: The Metamorphic Belts of Ecuador: Overseas Memoir 11. BGS, Keyworth, U.K. 147 p.

Ministry of Energy and Mines of Peru, 2006: Guidelines for Preparing Mine Closure Plans: http://www.sernageomin.cl/pdf/mineria/cierrefaena/DocumentosRelacionados/Guia-cierre-de-minas-peru.pdf.

Mockus, V., 1961: Watershed Lag: U.S. Dept. of Agriculture, Soil Conservation Service. Washington, DC.

Mullens, P., 2003: Geological Report on Exploration at the Cordillera del Cóndor Project, Zamora-Chinchipe Province, Southeastern Ecuador: technical report prepared for Aurelian Resources Inc., effective date December 16, 2003.

NCL Ingeniería y Construcción Ltda., 2013: Fruta del Norte Project Conceptual Mining Study Rev–1 (Draft), prepared for Kinross Gold Corporation, July 2013.

Pino, D., and Ocampo Vélez, P., 2015: Ecuador Mining Law 2016: report prepared by the legal firm Coronel and Perez, August 2015, http://www.iclg.co.uk/practice-areas/mining-law/mining-law-2016/ecuador.

Pombo, F., 2016: Estudio De Línea Base Y Capacidad De Autodepuración En Río Machinaza, Análisis de Datos Históricos de Automonitoreos: memorandum prepared for Lundin Gold, ________, 74 p.

Ponce, V.M., 1989: Engineering Hydrology–Principles and Practices: Prentice Hall.

Prodeminca, 2000: Depositos Porfidicos y Epi-mesotermales Relacionados con Intrusiones de la Cordillera del Cóndor : Evaluacion de Distritos Mineros del Ecuador: UCP Prodeminca Proyecto MEM BIRF 36-55 EC. Vol 5. 223 p.

Quispesivana, L., 1996: Geologja dei cuadràngulo de Huanuco: Boletin de INGEMMET. series A, v. 75. 138 p.

Roa, K.J., 2008: Geological Map and Pamphlet of the Cordillera del Cóndor , Ecuador / Peru and Westernmost Santiago Basin, Peru: map prepared for Aurelian Resources, 2008.

Romeuf, N., Aguirre, L., Soler, P., Féraud, G., Jaillard, E., and Ruffet, G., 1995. Middle Jurassic volcanism in the Northern and Central Andes: Revista Geológica de Chile, v. 22, p. 245–259

Rykaart, M., 2016: Fruta del Norte Feasibility Study: Preliminary Mine Waste Rock Closure Cover Design: memorandum prepared by SRK Consulting for Lundin Gold, March 14, 2016, 11 p.

SGS, 2015a: Characterizacion Mineralogica de Los Minerales de Oro, dated September 4, 2015, SGS Project 5080-Q854.

SGS, 2015b: SGS Proposal 14912-PR3-R3 “Metallurgical Program to Produce Representative Flotation Concentrate from Samples from Fruta del Norte Deposit” dated December 11, 2015.

SGS, 2017: The Production of Concentrate and Recovery of Gold and Silver from Fruta del Norte Project Samples, dated December 20, 2016, SGS Project 14912-005

Sillitoe, R.H., 2006: Comments on Geology and Potential of the Fruta del Norte Epithermal Gold Prospect, Ecuador: report prepared for Aurelian Resources.

Sillitoe, R.H., 2007a: Further Comments on Geology and Potential of the Fruta del Norte Epithermal Gold Deposit, Ecuador: report prepared for Aurelian Resources.

Sillitoe, R.H., 2007b: Comments of fault truncation of the Fruta del Norte Gold Deposit and Mineralization Style at the nearby Papaya and El Tigre Prospects, Ecuador: report prepared for Aurelian Resources.

Sims, J., 2012: Fruta del Norte Mineral Resource Report-Draft: Kinross Gold Corporation internal document, 204 p.

SRK Consulting (Canada), 2012: Geochemical Compilation Report, Fruta del Norte Project.

Stewart, P. W., 2003: Geological Report on Exploration at the Cordillera del Cóndor Project, Zamora-Chinchipe Province, Southeastern Ecuador: technical report prepared for Aurelian Resources Inc., effective date April 16, 2003.

Stewart, P.W., 2009: Summary report on geological, geochronological, and geochemical studies of the Fruta del Norte Au–Ag epithermal deposit, Cordillera del Cóndor Project Ecuador: report prepared for Kinross Gold Corporation.

Stewart, P.W. and Leary, S., 2008: The Fruta del Norte Epithermal Gold/Silver Deposit, South East Ecuador: Extended Abstracts, PacRim Congress, 2008, Gold Coast, Australia, November 24–26, 2008.

Tschopp, H.J., 1953, Oil explorations in the Oriente of Ecuador, 1938–1950: Bulletin of the American Association of Petroleum Geologists, v. 37, p. 2303–2347.

United States Agency for International Development (USAID), 2012: USAID Country Profile Property Rights and Resource Governance Ecuador.

URS Corporation (URS), 2008: Site-specific Seismic Hazard Evaluation of the Fruta del Norte Project, Southern Ecuador: report prepared for Aurelian, August 2008, 42 p.

Wesley, L.D., 2010: Geotechnical Engineering in Residual Soils: Canadian Dam Association (CDA), 2014 Technical Bulletin: Application of Dam Safety Guidelines to Mining Dams.

White, H.J., Skopec, R.A., Ramirez, F.A., Rodas, J.A., and Bonilla, G., 1995, Reservoir characterization of the Hollin and Napo Formations, Western Oriente Basin, Ecuador: American Association of Petroleum Geologists Memoir 62, p. 573–596.

World Meteorological Organization, 2009: Manual on Estimation of Probable Maximum Precipitation (PMP). WMO - No. 1045.

Zamora, G., and Gil, W., 2018, The Marañon Basin: Tectonic evolution and paleogeography: American Association of Petroleum Geologists Memoir 117, p. 121–144.